

VOLUME 1
**INTEGRATED REPORT
2021**

**DELIVERING INFRASTRUCTURE
FOR ECONOMIC GROWTH**

SANRAL



BUILDING SOUTH AFRICA
THROUGH BETTER ROADS

The South African National Roads Agency SOC Limited

Integrated Report 2021

The 2020/2021 Integrated Report of the South African National Roads Agency SOC Limited (SANRAL) covers the period 1 April 2020 to 31 March 2021 and describes how the Agency gave effect to its statutory mandate during this period.

The report is available in print 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 of value generated in various ways.
- **Volume 2:** Annual Financial Statements contain the corporate governance report in addition to the financial statements. In selecting qualitative and quantitative information for the report, the Agency has strived 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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THEMBA MHAMBI

This report is, like many public institutions' accounting authorities' reports this financial year, essentially a report of extraordinary times. The 2020/21 financial year started with the nation going into lockdown as the government moved swiftly to constrain the COVID-19 pandemic, which had reached our shores. No one knew what the future held.

The South African National Roads Agency (SANRAL) responded with equal urgency and convened a COVID-19 Task Force. Our immediate concerns were two-fold. One was to ensure the safety and well-being of our staff, and the other was the strategic, operational and logistical steps we would need to put in place to manage the disruption to our project rollout plans.

The IT department introduced virtual conferencing and meeting procedures, as well electronic signatures, which was vital to maintaining the integrity of operations, particularly the supply chain function. Budgets were revisited as the suspension of business impacted procurement and COVID-19-related expenses.

Over the months that followed, our daily lives were disrupted. We witnessed the enormous personal suffering of our staff as family members, friends and loved ones were afflicted by the coronavirus. I do not need to say it, but it was a truly testing year.

What does need to be said is how tenacious this Task Force was in ensuring minimum disruption to our staff and operations. They were relentless with updates and guidance to the whole business.

Executive Management met with the Task Force regularly – at critical times, almost daily – and through the joint efforts of the managers, regional managers and unit heads, SANRAL was kept firmly on the road. As the Board, we applaud the spirit and dedication shown by the Task Force and by the SANRAL family, especially as they were initially constrained by restrictions on the advertisement for calls of tenders, with professional staff even barred from making site visits or engaging with service providers.

With sufficient preventative measures and effective guidelines in place, we could focus on our core business once the restrictions were lifted. Guided by our long-term corporate strategy, Horizon 2030, we sought to

Chairperson's Report

begin rolling out massive infrastructure projects worth billions of rands, which ultimately contribute to providing much-needed employment for thousands of people.

The context for this is that the Board considers SANRAL as a catalyst for the nation's economic revival and growth, particularly now with the challenge of economic recovery after what we hope is the worst impact of the pandemic. SANRAL is accordingly going into overdrive with respect to the implementation of its projects.

The number of Board meetings almost tripled as our teams pushed to get projects off the ground. During 2020/21, SANRAL awarded contracts worth more than R25bn. To put this in perspective, this is more than the combined number of projects over the previous three years.

It is because of such accelerated interventions, when circumstances dictate, that SANRAL is often cited as an example of a state-owned enterprise committed to service delivery, good governance and operational and financial efficiency.

We, as the Board, congratulate our management team and staff for their tireless efforts, their professionalism, and their agility and efficiency in keeping SANRAL in the driver's seat of the country's infrastructure projects. Our professional reputation precedes us. When the Minister of the Department of Public Works and Infrastructure announced the Strategic Integrated Project (SIP) No 21 for 15 transport sector-related projects, with a total estimated value of R47bn, 13 of those were earmarked for SANRAL. We are ready for the challenge.

SANRAL is determined to play an essential role in the post-COVID-19 economic recovery through various road infrastructure projects. These include projects that are crucial for national recovery, which is vital for the development and social transformation of the country and the creation of new jobs, especially for women and the youth. It will open opportunities for the development and participation of small, medium and micro-sized enterprises and stimulate the formation of large Black-owned enterprises proficient in carrying out the Agency's work.

SANRAL has always placed training and development at the forefront of our transformation drive, ensuring opportunities for Black skills and talent to meet the organisation's demands. This effort includes sponsoring

the education and training of civil engineers and relevant professionals. In procuring suppliers, service providers and contractors, the focus on involving local communities and Black businesses is a key principle of SANRAL's Transformation Policy, which maintains the integrity of our procurement processes and is in line with the country's laws.

SANRAL's model for identifying, developing and mentoring Black-owned SMMEs enables them to participate in and add value to the Agency's construction and maintenance projects. Our Transformation Policy therefore continues to reap benefits for South Africa's businesses and communities. Growing SMMEs is particularly pertinent right now because we are aware that the South African road construction sector has been on a rocky road in recent years. The market size has declined, with several large companies facing financial difficulties, and some having to go into business rescue.

This has created a gap into which several entrepreneurial Black-owned business people have rightfully stepped, and our duty as a public institution is to nurture and support their participation in this critical sector of our economy. The infusion of funding through the infrastructure development programme presents an opportunity for Black industrialists to grow in this space and become new major actors in construction. SANRAL, with its massive infrastructure spend, has been able to encourage this development. Our policy has increased competition, and the absence of the previous monopolies has made for a more efficient and effective industry.

The SIPs are specifically intended to create much-needed jobs and assist in skills development among those vulnerable communities hardest hit by the economic impact of the COVID-19 pandemic. SANRAL is committed to supporting the development and growth of these new players and providing them with the necessary assistance to enter the sector.

The Agency remains committed to allocating 30% of our spend on main upgrades and local road infrastructure projects to SMMEs. This has been a resounding success and has especially benefitted rural communities. In the next financial year, we will roll out a comprehensive pre-tender training course for those SMMEs that want to operate in the sector. The course will cover topics ranging from starting and running a business, accounting, reporting and how



to get a tender for a project, including the selection of a suitable project in line with their businesses' capacity. This will significantly enhance the quality of our contractors and go a long way towards levelling the road to prosperity and success for all.

Speaking of training, as the Board, we are extremely proud of the success of the Technical Excellence Academy (TEA). This SANRAL-funded facility enables engineering graduates to fulfil the practical experience required for professional registration with the Engineering Council of South Africa (ECSA). The Agency provides candidates with a fast track to a range of work exposure opportunities, and with access to essential tools required to register as professional civil engineers. We are pleased that the Academy now caters for other disciplines as well, including human resources, labour relations, information and communication technology, finance, supply chain management and marketing.

Our own performance is partly a result of the ongoing training of our staff, including on the job. This has resulted, over time, in favourable audit opinions. We believe these good audit outcomes are a result of a clear separation of roles between the Board and management, with the Board as the custodian of the organisation's strategy and oversight, and management as the implementation arm thereof. The Board sees management as advisors accountable to the Board for the implementation of the organisation's strategy. The Board, in turn, is responsible to our Executive Authority and, therefore, to the government and the people of the country.

Good governance is absolutely crucial for SANRAL in the light of the massive investment in infrastructure championed by the President. The national road network undoubtedly plays an important catalytic role in the growth and socio-economic transformation of the country. SANRAL is well on the road to making a substantial contribution towards this national priority.

The current Board's term is ending in August 2021. It has been a fruitful and fulfilling three years of work with incredible individuals both in our Executive Authority, the National Department of Transport and internally. During this period we were able to revise the organisation's Delegation of Authority Framework to ensure clearer accountability in line with good governance principles, remove potential conflicts of interest and strengthen the concept of separation of powers and duties. We also introduced a new operating model in response to a changed sectoral firmament. We strengthened our assurance structures to ensure the integrity of our supply chain

management actions and general service to our people. This includes rigorous investigations of complaints and allegations against us as a public institution.

These are initiatives that we hope will continue, particularly as some of the members of the current Board have graciously made themselves available for consideration to ensure continuity in the next governance structure of the organisation. Continuity should be further enhanced by the CEO's continued availability to build on the operational review and transformation he initiated in his first term. Some of us have decided to pursue personal initiatives. We therefore wish the incoming Board much success.

As we sign off, we do so with immense gratitude to fellow Board members, to our CEO, Mr Skhumbuzo Macozoma, our executives, the general management and the staff of SANRAL. Collectively they personify and symbolise the excellence SANRAL is rightfully recognised and lauded for.

We are grateful, as well, to our Minister, the Honourable Mr Fikile Mbalula, MP, and the Deputy Minister, Ms Dikeledi Magadzi, MP, for the support and clear leadership they always provided to us. At an operational level we could always rely on the Director General of the Department, Mr Alec Moemi, and to the staff in the Department.

Our own accountability was enhanced by Parliament, our Portfolio Committee, National Treasury and the Auditor-General of South Africa, all of whom we thank for their constructive and progressive engagement.



THEMBA MHAMBI
CHAIRPERSON



SKHUMBUZO MACOZOMA

The South African National Roads Agency (SANRAL) provides effective service delivery through its massive infrastructure development projects. These projects have a positive impact across the board, from revitalising distressed construction companies to empowering women and youth through SMME development to creating substantial Black-owned construction firms.

We entered 2020/21 walking a fine line. Like the government, SANRAL needed to respond to the COVID-19 pandemic gripping the country and to operate within the necessary confines to ensure we contributed to saving lives while preserving livelihoods.

As the year unfolded and the country faced the challenge of rebuilding the economy in the wake of the pandemic's unprecedented disruption, SANRAL was at the vanguard of that build with our infrastructure development agenda. Tasked by the Presidency with the commissioning and implementation of significant infrastructure projects, we were quick out of the starting block, working alongside the Department of Public Works and Infrastructure, Transnet and the national water boards.

I must commend the executive management team, our regional managers, heads of divisions and every SANRAL employee for their hard work, tenacity and dedication to making this happen. As I said last year, we had an enormous task ahead of us. This year, I am proud to say that we have risen to the occasion and upheld our mandate to preserve, improve and develop the network of national roads critical to our country's growth. I may add with absolute confidence that in 2020/21, SANRAL has begun to successfully plan and implement our infrastructure development agenda, comprising 278 maintenance, operations and construction projects worth more than R30bn. In 2020/21, 136 projects were launched, worth more than R7.3bn.

SANRAL has stated its intention to unlock and amplify public-private partnerships (PPP) to ensure continuous efforts are made to bolster critical road infrastructure. The primary example of this is the

Chief Executive Officer's Report

partnerships we have with our concessionaires: Trans African Concessions (TRAC), N3TC and Bakwena [see page 75 for details]. All three companies are non-listed entities purpose-built for toll road management. Their shareholders include the Public Investment Corporation (PIC), which is responsible for investing the Unemployment Insurance Fund and the Government Employees Pension Fund.

Particular mention must go to these concessionaires, who understand and wholeheartedly endorse SANRAL's transformation imperatives and use their infrastructure projects to sub-contract CIDB Grades 1 to 4 small-, medium- and micro-enterprises (SMME). The participation of SMMEs is an essential component of all our projects, and various work packages are reserved for targeted enterprises. Training also forms part of SMME development, and this has been vigorously implemented.

Despite the sluggish start to FY2020/21 due to COVID-19, we began to see the positive impact of the Transformation Policy we adopted in 2017. We aimed to develop programmes and partnerships to speed up the participation and growth of Black-owned entities in the road construction sector. The Agency applies strict procurement policies regulated by the relevant Black economic empowerment codes to ensure that genuine transformation takes place.

SANRAL is proud to state that more than 40% of our spending went to legitimate Black-owned enterprises in the year under review. This is over and above our commitment to ensuring that all main upgrade and local road infrastructure projects have at least 30% of their budget allocated to SMMEs in the industry, especially those owned by women and the youth. This is economic recovery in action.

In the previous financial year, we signed empowerment agreements with entities at the apex of supply chains for construction materials, equipment and other supplies to level the playing field and ensure emerging entities could secure and supply materials and equipment for SANRAL's commissioned projects. This financial year, we have signed memorandums of agreement (MOAs) with several financial institutions to apply similar principles in providing financial assistance and backing for Black-owned enterprises.

Built into this policy is our partnership with the

Construction Industry Development Board (CIDB), which operates a voluntary grading system. The top level (grade 9) indicates that a contractor can undertake a contract valued at R130m or more. CIDB registration is a prerequisite for companies to compete for SANRAL construction work. A component of our Transformation Policy is to assist and upskill Black-owned enterprises to understand, implement and qualify for registration or improve their grading. In FY2020/21, the Agency awarded contracts to 69 [in FY19/20 it was 24] CIDB-graded companies with a Black shareholder majority.

We are also proud to announce that the staffing quota of the Transformation Unit under the capable leadership of Mr Ismail Essa is steadily increasing to meet the growing demands of policy implementation and maintenance. An SMME Helpdesk has also been established to guide SMMEs towards compliant tenders.

Integral to the Transformation Policy was the creation of a systems-based model for innovation management in the roads industry. This included developing an effective pipeline of graduates in the engineering and related sectors to ensure SANRAL could continue to operate as a professionally run and innovative company. We are working towards this goal through a system of study grants at school and university level and through the Agency's Technical Excellence Academy (TEA) for young engineering graduates. There is more detail in this report on the TEA's success, but it will suffice here to say that it is growing and has become increasingly important to the future recovery and growth of SANRAL and the nation as a whole.

The revenue from toll routes during 2020/21 was R3.706bn, a decrease of 15.2% on the previous year, mainly due to decreased traffic volumes as a result of the various lockdown restrictions and the declining economy. The tariff adjustment for the year was restricted to a CPI-related rate of 3.31%.

Total capital expenditure on construction projects on all roads amounted to R2.248bn in 2020/21, and operational expenditure to maintain these roads was R891m.

Infrastructure projects span several years, which demands that we take a medium- to long-term view of our business. As laid out in Horizon 2030, our long-term strategy clearly defines our four business pillars: Roads, Road Safety,

Stakeholders and Mobility. These are explained in detail on page 16 of this report.

South Africa's road infrastructure is world class, reliable, convenient and safe. Our Road Safety Pillar came in for special recognition. We are honoured that the International Road Federation (IRF) officially recognised our road safety engineering efforts and awarded SANRAL the 2020 'Find a Way' Global Road Safety Award during the closing ceremony of its Vision Zero for Africa Conference. This is welcome affirmation that we are on the right path with our road safety journey from an engineering and a behaviour-change perspective.

Our road incident management systems (RIMS) policy and national operating procedures ensure standardisation across various RIMS and encourage best practice. It is an operation that coordinates law enforcement as well as emergency and health services in responding to incidents on national and other roads that support economic development zones and areas of strategic importance. The objective is to detect incidents early, respond rapidly and utilise resources efficiently to save lives and minimise traffic disruption.

The IRF award is a testament to our relentless efforts to reduce fatal and serious injury crashes not only on our national road network but in the whole of South Africa and the Southern African Development Community region.

SANRAL again joined the virtual Smarter Mobility Africa summit in October 2020, where we continued to showcase and inspire incremental investment in and transition to smarter mobility, in support of the Green Transport Strategy 2018–2050 and in line with our own Horizon 2030, which emphasises smart roads, resource efficiency, mobility and technology, among others.

As I said, when accepting the IRF award on behalf of SANRAL, the road safety journey is by no means over, but let us as road users be the foot soldiers that execute on the government's road safety commitments and continue to pave the way for improved road user behaviour to save lives.

Another example of how SANRAL has pushed the envelope in devising innovative ways to improve road safety was the approval to pilot camera technology to assess the illegal use of mobile devices by drivers.

The Acusensus Heads-Up Distracted Driving Solution was installed on the gantry of the N1 at the Jip de Jager Interchange in the Western Cape. This is a pilot programme between Acusensus, the Western Cape government and SANRAL. The system monitors distracted driving, vehicle

speed, automatic number plate recognition and traffic counts.

Driving while distracted places one's life in danger and puts the lives of other motorists at risk too. Cameras have been installed on the Freeway Management System network on the N1. This data is currently being collected to assess the effectiveness of these devices and opportunities to link them to automated enforcement.

Pedestrian incidents are a great concern nationally, and every effort to reduce fatalities must be explored. SANRAL has piloted the catz-i-unit device on the R300 to verify its effectiveness in improving safety and reducing incidents, specifically amongst vulnerable road users. This pilot study allows SANRAL to process all the alerts and alarms from these cameras and better understand the performance of the device in varying conditions for possible deployment on other sections of the road network.

One particular project that should be mentioned is the construction of National Route 4 through Pampoennek, which commenced in April 2017 and was completed in May 2020. As with all SANRAL greenfield projects, an environmental impact assessment (EIA) was undertaken, which culminated in a positive environmental authorisation (EA) in September 2010 and a protected tree permit in April 2017 (closer to construction). The area was declared a biosphere reserve by the United Nations Educational, Scientific and Cultural Organization (UNESCO) in 2015.

Through innovative engineering design and planning, the Agency reduced the environmental impact of the road construction. This included the creation of an underpass to facilitate the crossing of game from one side of the now-protected area to the other.

The area was also archaeologically sensitive, containing the remains of defensive structures dating back to the South African War within the alignment of the road. These structures were preserved.

The Agency undertook several other important conservation activities as part of its construction projects during 2020/21 [see page 150 for details].

The Gauteng Freeway Improvement Project (GFIP) showed a revenue downturn of 31.5%. This project is the only SANRAL toll route that receives a government grant to offset the discounts on tariffs instituted in response to public opposition to tolling on Gauteng freeways. In 2020/21, this grant amounted to R2 721.8m, which includes R2 300m that the Minister of Transport, as SANRAL's sole shareholder, approved as a transfer from non-toll to toll operations to reduce the expected shortfall in collection of revenue.

Road users' ongoing refusal to pay e-toll fees on the GFIP continues to have a negative financial impact on SANRAL. Cabinet has yet to decide on the matter and we await direction in this regard.

The National Treasury annual grant to SANRAL regarding capital and operational expenditure on non-toll national roads amounted to R17 270.2m in 2020/21. Since SANRAL's inception, however, this grant has been reduced by 4.6% due to the transfer to toll and the budget cuts for COVID-19.

SANRAL capitalises a portion of the Treasury allocation each year and defers it to utilise funds later on capital projects. In 2020/21, the capitalised amount was R12.002bn. The remainder of the annual grant is allocated to road maintenance and operation in the applicable financial year.

The rollout of the integrated electronic toll collection was completed during 2020/21, and the adoption of the automated electronic toll payment option by many road users has reduced congestion at toll plazas during busy periods. The value of electronic toll transactions at conventional toll plazas amounted to R753,273,744 in 2020/2021. The market share of electronic payment transactions at conventional toll plazas has reached almost 16%.

As stated earlier, SANRAL's infrastructure projects have a significant social impact. We launched several initiatives to give all South Africans an equal opportunity to participate, including a community engagement programme to ensure all stakeholders were informed about projects and their scheduled commencement dates. We also assisted in setting up project oversight committees to identify the qualifying empowerment enterprises in specific localities.

Our job creation and SMME empowerment numbers speak for themselves [see page 112-113 for details], but what is important to highlight is the socio-economic impact of these efforts on the lives and livelihoods of our people, especially in bringing women and the youth out of poverty.

SANRAL's ongoing university partnerships are a source of great pride for the Agency. Through these partnerships, we actively participate in relevant research and postgraduate studies in the engineering and related fields. This improves awareness of the SANRAL brand and helps us to meet our demand for engineering professionals and relevant research. It also contributes to a dynamic engineering sector with world-class expertise in road design, construction and management.

What's more, the partnerships enable us to promote the learning and teaching of science and mathematics at school level to ensure a flow of talented young people into the engineering professions.

An exciting three-way partnership was formed in 2016 between SANRAL, the Council for Scientific and Industrial Research (CSIR) and the University of Pretoria (UP) for the establishment and management of an integrated set of national reference and research laboratories for the development and testing of materials used in transport and transport infrastructure. The facilities are situated at the CSIR and two UP campuses.

In addition to these partnerships, SANRAL's Technical Excellence Academy (TEA) is also a highlight in our portfolio. The sheer range of work exposure opportunities provided by SANRAL to TEA candidate engineers is extraordinary, as is the access it provides to the tools candidates need to learn while on the job, from specialised software to laboratory facilities. The TEA enables young graduates to attain registration in the shortest possible time by assisting them in fulfilling the practical experience required for professional registration with the Engineering Council of South Africa (ECSA).

SANRAL encourages the development of knowledge and skills among its employees throughout their careers. The Agency invested more than R2.6m in the training of 127 employees during the year in fields such as accounting, human resources management and engineering. These initiatives and programmes range from on-the-job learning to e-learning, short courses and workshops, as well as study towards diplomas and degrees at undergraduate and postgraduate levels. Bursaries for tertiary studies were awarded to 127 employees, including 28 new applicants, during 2020/21. More than half of the bursary recipients were engaged in postgraduate studies.

SANRAL has a very effective and popular employee wellness programme, Ekhaya Wellness, and 30.7% of the staff complement took advantage of the individualised services available during 2020/21.

As part of the Agency's transformation agenda, we have been mindful of promoting diversity and gender equity. Due to the nature of the Agency's work – planning, specialised contracting and project management – our staff features an unusually large number of senior managers, middle managers and seasoned professionals. They account for 48.76% of the total number of employees.

Fortunately, our organisation's growth is fuelling employee diversity. Overall, appointments made during the past couple of years have brought SANRAL closer to the goal of a staff complement that approximates the composition of the general population.



By the end of the year, 83% of employees were Black, with African staff members comprising 63% of the total establishment. (The BEE Act defines Black people in SA as African, Indian and coloured).

However, when the representations of women and Black employees are analysed by occupational category, the under-representation of both these groups is evident at the senior management level. Women have not achieved parity in the experienced professional/middle management and skilled worker/junior management categories.

Due to the nature of our work, appropriate professional qualifications are non-negotiable for many positions within SANRAL. To address diversity gaps among students in fields of study relevant to SANRAL, as well as among professionals in the engineering and road transport sectors, the Agency seeks to promote the entry of women and Black students into these fields through its scholarship and bursary programmes [see pages 165-167].

The Stakeholder Pillar underscores the importance of regular engagement with all our stakeholders and affected communities to ensure the smooth delivery of SANRAL's road infrastructure projects and their benefits. This demands familiarity with stakeholder needs relating to the Agency's projects and puts the onus on SANRAL to ensure projects have a positive social impact. During the reporting period, 55 stakeholder engagement sessions, activations and events were held in the respective municipalities where projects are underway.

It is worth noting that the challenges presented by the COVID-19 pandemic and the commencement of the national hard lockdown created opportunities for a new approach to stakeholder relations and social facilitation. Our migration to virtual platforms to continue our engagement with stakeholders was well received and enhanced our interactions, without the need for risky physical contact.

There has been some development in the statutory environment and liaison with regulatory authorities, including proposed amendments to the Environmental Impact Assessment (EIA) Regulations by the Department of Environment, Forestry and Fisheries (DFFE) in November 2020. These amendments ensure alignment between the EIA Regulations and the Financial Provisioning Regulations for the rehabilitation and remediation of environmental damage caused by mining activities.

The amendments to the EIA Regulations are partly the result of SANRAL's efforts over the last few years.

SANRAL continued to liaise with the DFFE and the Department of Minerals and Energy to address the

misalignment between the National Environmental Management Act and the Mineral and Petroleum Resources Development Act. The aim is to find practical solutions to the implementation of these two Acts, specifically where mining activities are concerned.

The Department of Water and Sanitation conducted a national governance review on several SANRAL projects, requesting self-regulating reports in line with the general authorisation or the specific conditions of the various water use permits. This process had not been finalised at the end of the financial year.

The Agency's work is complex and demanding, and our contribution to the country's broader economic and developmental growth is significant. I therefore extend my sincere appreciation to everyone concerned. Our thanks must go to the Minister of Transport, Mr Fikile Mbalula, MP, and his deputy, Ms Dikeledi Magadzi, MP, for their insight and support during the reporting period.

I am also grateful to the Chairperson and members of the Board and its committees for the time and attention they devoted to the Agency. 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, dedication, perseverance and integrity.

Thanks to our agile and persistent approach to getting the job done, we have established a benchmark for how best to fulfil the requirements of the Presidency's Economic Reconstruction and Recovery Plan. We will continue to ensure that South Africa's road infrastructure performs a critical role in the economy and growth of our nation.



SKHUMBUZO MACOZOMA
CHIEF EXECUTIVE OFFICER



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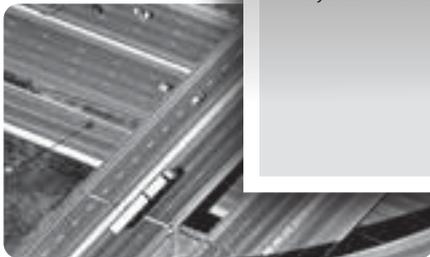


Ensuring our national road transport system delivers a better South Africa for all.

VISION

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.

MISSION



PRINCIPAL TASKS AND OBJECTIVES

PLAN

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

GENERATE

Generate revenue from the development and management of assets.

UNDERTAKE

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

ADVISE

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





BUSINESS PILLARS

SANRAL's long-term strategy, Horizon 2030, defines four business pillars that serve to integrate its operations and activities across the Agency and deliver different forms of value, as set out in the graphic representation below.

ROADS PILLAR



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.

ROADS SAFETY PILLAR



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.

STAKEHOLDERS PILLAR



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.

MOBILITY PILLAR



The focal point is on road infrastructure to enable public transport and intermodal transport solutions, increase access to strategic locations, integrate regions, facilitate seamless cross-border movement and enhance urban planning.

BUSINESS AND STRATEGY

SANRAL's long-term strategy, also known as Horizon 2030, has formally seen its third-year anniversary in the public domain since its launch on 29 September 2017. The growth and development path for SANRAL articulated in Horizon 2030 seeks to build on the Agency's core strengths and successes, and to dynamically respond to an ever-changing environment. It is therefore not an easy exercise to pinpoint formally when implementation began, though significant processes unfolded from 1 April 2018.

This year also marked the first year of implementation of the new Strategic Plan 2020–2025, which was informed by government's Seven Apex priorities, the National Development Plan, and the Medium-Term Strategic Framework. It also incorporates relevant elements of the Department of Transport's strategic thrusts. This presented an opportunity for the alignment of both the Strategic Plan and Horizon 2030.



Horizon 2030:

Key strategic achievements and highlights

- **The Community Development Strategy was approved**, in line with the aims of Horizon 2030 to ramp up the number of community development projects implemented, to demonstrate relevance in the lives of South Africans, and adopt an enhanced approach.
- **The Business Development Strategy was approved**, in line with Horizon 2030, to generate its own revenue as part of the integrated funding model, sweating SANRAL's assets and maximising commercial revenue-generating opportunities among the key strategic themes of the strategy.
- As informed by the Business Development Strategy, **SANRAL developed a revised rate card – the Rest and Services Facilities Rate Card**. The previous levy structure had not been modified since SANRAL's inception. This decision marked the commencement of a wholesale revision process regarding overdue historical levies, fees, etc., which were not in line with current market conditions.
- **The National Roads Plan 2030 was approved** by the Board and will undergo consultation with our stakeholders. The purpose of the plan is to inform the market how SANRAL intends to develop the network, roll out its infrastructure development plans and enable service providers to prepare themselves in pursuing market opportunities.
- **The completion of the Engineering 4.0 Materials Reference, Training and Certification Laboratory** is a gamechanger that will result in additional quality control through duplicate testing of materials, international accreditation with AASHTO and FEHRL, and the creation of a database of qualified and accredited materials testers. Once the accreditation process requirements have been fulfilled, the long-term view is to market the services on a commercial basis to the rest of Africa. This also demonstrates the value of robust partnerships; in this case, the venture included the Council for Scientific and Industrial Research (CSIR), SANRAL and the University of Pretoria.
- **Progress towards implementing the ICT 2023 Strategy has been significant**. Even more noteworthy was SANRAL's ability to respond rapidly to the COVID-19 pandemic and adapt to the 'new normal'.
- **Resource efficiency** is among the recognised enablers outlined in Horizon 2030. In terms of practical implementation, there are several initiatives underway on the N3, including the use of **recycled materials** and the application of the **sustainability resource tool**.

Horizon 2030: Headwinds encountered

- The accelerated rollout of infrastructure projects was hampered by several factors, including COVID-19 and a challenging supply chain management (SCM) and procurement environment.
- The inability to resolve the Gauteng Freeway Improvement Project (GFIP) continues to place significant pressure on SANRAL's balance sheet, compromising the ability to source funding and exacerbating uncertainty regarding the future of road funding.
- As an offshoot of the GFIP challenge, the need for a new Road Infrastructure Funding Policy becomes more pronounced.



Horizon 2030: Opportunities and next steps

- Advancement of the **account-based ticketing pilot** will support the government's plans to reconfigure public transport.
- In line with the **Business Development Strategy**, further opportunities to generate revenue through commercial engineering services will be explored. The pilot will serve as a learning curve and inform the range of commercial product offerings.
- The **'Africa and Beyond' strategic focus** will build on SANRAL's engineering expertise and its relationships with other road authorities regionally and internationally. The advent of the African Continental Free Trade Area (AfCFTA) has turned the spotlight on ensuring transport infrastructure is in place to facilitate conditions for trade, connectivity and access. SANRAL's role from a developmental and commercial perspective will be more pronounced.
- **'Smart mobility'** is a term applied to a broad spectrum of initiatives within the transport space to integrate technology-based solutions for sustainable, predictable and efficient transport operations. As an international trend, it is maturing and gaining traction. SANRAL has recognised this and started implementing various solutions. In the future, the focus will be on the accelerated implementation of practical solutions that fit the African context and provide a possible template for other road authorities.
- The **Operating Model Rollout (OMR)** is now in the implementation phase, and SANRAL seeks to reconfigure its operating model to ensure that it can meet its Horizon 2030 goals and objectives. The road ahead will be arduous, and the transition not without pain points. However, interventions and structures are in place to smooth the path ahead as best as possible.
- The performance of **companies against environmental, social and governance (ESG)** criteria is increasingly being tracked locally and internationally for 'impact' and 'responsible investments', especially in infrastructure projects. This trend is driven partly by global pressure from civil society groups, shareholders and investors in order to hold industry accountable for negative impacts on the environment and society at large. SANRAL's ESG structures have been put to the test with international lending organisations, namely the Multilateral Investment Guarantee Agency (MIGA) and the New Development Bank (NDB) and were found to be adequate.



2020/21 outcome key performance indicators (KPIs)

Outcome	Outcome indicator	Actual 2020/21	5-year target	Annual target	Deficit/Surplus
Optimally maintained national road network	Overall Condition Index (OCI)	70.98	Maintain at desired level as per the baseline (OCI \geq 70)	(OCI \geq 70)	+0.98
Transformed industry and jobs created on projects (full-time equivalent)	Number of jobs created	6,063 jobs	50,000 jobs in total over the 5-year period (target/average of 1,500 SMMES per year)	6,000 (COVID-19 revised)	-4,000 jobs (deficit measured against original target and not revised target)
Transformed industry and jobs created on projects	Number of SMMES working on SANRAL projects	1,265 SMMES	7,500 SMMES in total over the 5-year period (target/average of 1,500 SMMES per year)	1,200 (COVID-19 revised)	-235 SMMES (deficit measured against original target and not revised target)
Creating delivery capacity for the country	Number of candidate professionals that complete the Technical Excellence Academy programme	17 candidate engineers completed all phases of the training programme	100 candidate professionals having completed all phases of the training programme	20	-3 Candidate engineers
Safer roads	Equivalent accident number (EAN) per vehicle	3.2 EAN per 1,000 vehicle km travelled	1 Equivalent Accident Number per 1,000 vehicle km travelled (EAN/1,000 VKT)	Apply 5-year target	-2.2 EAN per 1,000 vehicle km travelled
Improved reputation of SANRAL	Results from research and/or surveys analysing brand equity	Not conducted	Maintain at desired level as per the baseline (brand equity \geq 10.4%)	Apply 5-year target	Not applicable



BOARD OF DIRECTORS | NON-EXECUTIVE DIRECTORS



THEMBA MHAMBI
Chairperson

- Teachers' Certificate (English, History, Guidance)
- BA (English, Education, History)
- BA Honours (English)
- MA (English, Creative Writing concentration)



ROB HASWELL

- BA
- BA Honours (Geography)
- MSc (Geography)



LUNGILE MADLALA

- NDip (Civil Engineering)
- BTech (Civil Engineering)
- BSc Honours (Applied Science)
- Honours (Civil Engineering and Transportation Engineering)



THAMSANQA PIET MATOSA

- Executive Leadership Development Programme – Certificate in Municipal Management



ALEC MOEMI

Served August 2020 - March 2021

- B Juris
- MA (Governance and Political Transformation)
- Certificate in Managing Corporate Communication
- Certificate in Principles of Public Relations



AVRIL HALSTEAD

Served until November 2020

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



PRASANTH MOHAN

Served until July 2020

- B Tech (Civil Eng)
- Management Development Programme: Project Management Advanced Professional Management Programme
- Postgraduate Certificate in Executive Leadership



EXECUTIVE DIRECTOR | COMPANY SECRETARY



SKHUMBUZO MACOZOMA
Chief Executive Officer

- BSc (Civil Engineering)
- MSc (Civil Engineering)



ALICE MATHEW
Company Secretary

- BSc
- MBA
- FCIS

EXECUTIVE MANAGEMENT



LOUW KANNEMEYER
Engineering Executive

- BEng (Civ)
- MEng (Transportation) Cum Laude
- Pr Eng
- Pr CPM



INGE MULDER
Chief Financial Officer

- B Compt (Honours)
- CA (SA) SAICA
- CFO (SA) SAIBA



ADOLPH TOMES
Acting Business Operations Executive

- Diploma (IT)
- MBA

REGIONAL MANAGEMENT



DUMISANI NKABINDE
Eastern Region

- BSc (Civil Engineering)
- PrEng
- Diploma in Project Management
- MBA
- MSAICE



MBULELO SIMON PETERSON
Southern Region

- BSc (Maths and Applied Maths)
- BSc (Civil Engineering)
- MSc (Strategic Planning)
- MBA
- PrEng
- MSAICE



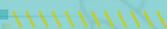
RANDALL CABLE
Western Region

- BSc (Civil Engineering)
- MEng (Civil)
- PrEng



PROGRESS HLAHLA
Northern Region

- BSc Honours (Civil Engineering)
- MSc (Civil)
- Advanced Diploma in Management
- PrEng
- MBA candidate



<https://qz.com/africa/1551786/the-african-union-has-a-brilliant-plan-for-africa-if-it-could-get-it-right/>

Implementing African responses to Africa's challenges



In 2013, on the 50th anniversary of the African Union (AU), member states declared a new vision for an “integrated, prosperous and peaceful Africa, driven by its citizens”. The vision looked toward an integrated continent and the free movement of people, goods and services to increase trade and investment. Africa's challenges would be overcome by Africans, for Africans, drawing on globalised expertise and localised experience. This notion was articulated in Agenda 2063: *The Africa We Want*.

One of the most significant outcomes of this was the African Continental Free Trade Area (AfCFTA) agreement and its commitment to developing and creating extensive trade-related infrastructures, including those related to goods, services and legal instruments (such as intellectual property rights). The AfCFTA aims to establish a single market for goods and services facilitated by the movement of persons to deepen the economic integration of the African continent. Crucial to these ambitions is an investment

in infrastructure to ensure that trade routes are operational and optimal.

SANRAL's long-term strategy, Horizon 2030, in alignment with broad regional objectives contained in the National Development Plan, directs the Agency to explore international cooperation and business opportunities. This new direction, expressed through the Africa and Beyond initiative, has as its primary objective the collaboration and sharing of expertise. SANRAL seeks to partner with countries in the Southern African Development Community (SADC) region and across the continent to advance sustainable road infrastructure development. As a result, the Agency is driving the discussion and playing a leading role in accelerating the construction of road transport corridors on the continent. This will unlock opportunities for economic growth and help to grow intra-African trade from its current level of just 18%.

The transformation of Africa's regional transport

corridors into 'economic corridors' is fundamental to the above goals. These corridors would stimulate inter-regional trade and market integration, as well as expanding our participation in the global trading arena. The region's trunk road network carries African trade worth an estimated \$200bn, so roads and corridors are high on the agenda for 2021. Road freight constitutes roughly three-quarters of South Africa's total load, and our national roads carry more than 70% of all cargo. The economic significance of this is substantial.

Building the infrastructure required for efficient and effective transport links falls within the ambit of road agencies across the continent, such as SANRAL in South Africa, ANE in Mozambique and Kenya's KeNHA. Economic corridors require not just the construction of roads and bridges to carry goods, but also the establishment of logistics, including regulations and institutions, that facilitate the movement of goods, people and services. Crucially, this requires collaboration – which the AfCFTA places at the heart of the programme.

SANRAL established a strategic partnership with the Development Bank of Southern Africa (DBSA) to enable this road infrastructure development and promote the Agency's expertise to other African markets. As a leading provider of road infrastructure and a source of considerable expertise in the fields of engineering, tolling, asset management and operations, SANRAL has pursued opportunities to assist and build the capacity of other road authorities on the continent by providing commercial engineering advisory services and commercial services. In this collaboration, projects have been realised with African roads authorities in Kenya, Nigeria, Uganda, Mozambique and Zimbabwe.

The Agency frequently hosts visits by other African road authorities and aims to accelerate critical skills and professional capacity for road construction in South Africa and the broader African region through its Technical Excellence Academy.

SANRAL also actively participates in forums such as 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 SADC.

Through the SADC, the Common Market for Eastern and

Southern Africa (COMESA) and AU structures involved in road management and transportation issues, SANRAL supports calls for South Africa to expand its focus to support infrastructure development beyond its borders.

Infrastructure programmes have a far-reaching impact on Africa's economic recovery, revitalisation and transformation. In South Africa, transformation and broad-based Black economic empowerment within the construction and engineering sectors are paramount, and infrastructure development is a key enabler in this area.

Accordingly, 'Stakeholders' is one of SANRAL's business strategy pillars, concentrating the Agency's focus on the economic participation of small businesses and rural actors in the construction process. The Agency has developed strategic partnerships with leading private-sector companies at the apex of the supply chains in which it operates. These partnerships serve to increase opportunities for funding, equipment and technical support for Black-owned contractors.

The development of economic corridors has been ongoing for some time. The Maputo Development Corridor and Kazungula Bridge development are examples of transnational projects that have proved to be game changers for economic development, trade and mobility for the countries involved and beyond.

The Maputo Development Corridor, the first regional application of the economic corridor concept—links South Africa's Limpopo, Mpumalanga and the highly industrialised Gauteng province with Mozambique's Port Maputo. It had its beginnings in the Spatial Development Initiative programme launched back in 1996.

The 590km N4 highway plays a significant role in facilitating market access, building integrative infrastructure and bringing countries together. Furthermore, the Maputo Development Corridor reflects the success of the public-private partnership (PPP) approach to unlocking economic potential.

High transport costs have for too long acted as an impediment to the continent's growth and development. Economic corridors will reduce these costs. This holistic approach to regional planning expands the focus beyond transport to encompass Africa's development needs. This requires mutually reinforcing processes and the collaboration of PPPs.



2

SECTION 2 CAPITALS AND PERFORMANCE

1. Manufactured Capital

1.1 Road development, improvement and rehabilitation	28
1.2 Road network management and maintenance	45
1.3 Transformation of the construction sector	61

SANRAL commenced 47 projects across the four regions, covering approximately 67 km of road (pavement). Thirteen major projects were completed.



1. MANUFACTURED CAPITAL

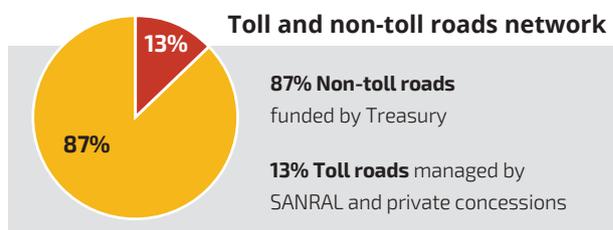
The Agency integrates the value of manufactured capital across all four business pillars. For example, within the Roads Pillar (01), this comprises planning, developing, managing and maintaining the national road system, which is currently 22,207 km and is valued at R400bn. It is one of South Africa's largest infrastructural assets.

Under the Road Safety Pillar (02), the Agency takes responsibility for designing and building safe roads to upgrade those roads for improved safety and maintain them safely. The Stakeholder Pillar (03) involves the ongoing consultation with communities on proposed road projects affecting them. Finally, regarding the Mobility Pillar (04), the Agency's remit is to develop the nation's road infrastructure to enable public and intermodal transport, optimise mobility and reduce urban congestion.

Road freight constitutes approximately three-quarters of South Africa's total load, and our national roads carry more than 70% of all cargo. The obvious economic significance of the national road network is undeniable; it is continuously growing as provincial roads are incorporated and new sections are developed.

Roughly 87% of roads in the system are non-toll roads, and a Treasury grant funds these. The remaining 13% comprises toll roads, almost half of which are managed directly by SANRAL and half by private companies granted concessions for the construction and management of these roads.

To maximise the return on capital investment requires constant maintenance to preserve the lifespan of roads. Road maintenance involves regular inspection of roads, bridges and slopes, and road users' management and servicing. The latter ranges from monitoring overload control to the sophisticated management systems in operation on the country's busiest urban freeways, where information technology assists in incident response.



1.1 ROAD DEVELOPMENT, IMPROVEMENT AND REHABILITATION

WESTERN REGION

During 2020/21, SANRAL undertook 15 projects to build new roads, improve existing roads and rehabilitate roads in sub-optimal condition. These projects on non-toll and toll roads directly under the Agency's management involved 361km of roadway.

NORTHERN REGION

During 2020/21, SANRAL undertook 11 projects to build new roads, improve existing roads and rehabilitate roads in sub-optimal condition. These projects on non-toll and toll roads directly under the Agency's management involved a total of 164.67km of roadway.

EASTERN REGION

During 2020/21, SANRAL undertook nine projects to build new roads, improve existing roads and rehabilitate roads in sub-optimal condition. These projects on non-toll and toll roads directly under the Agency's management involved a total of 74.45km of roadway.

SOUTHERN REGION

During 2020/21, the 12 conventional contracts were awarded in the Southern Region. The projects are on the non-toll network of the region. These projects can be categorised as follows:

1. Improvement projects where four major projects are currently under construction. The total length of these projects is 65km and the total award value of these contracts is R2.6bn.
2. Rehabilitation (special maintenance) where six projects totalling 251km are under construction, to a total value of R1.42bn.
3. Reseal projects where two projects totalling 31km are under construction, to a value of R120m.



1.1.1 Capital projects and length of road benefited 2020/21

During 2020/2021, SANRAL undertook 47 capital projects, on both non-toll and toll roads, to build new roads, improve existing roads and rehabilitate roads in a sub-optimal condition. These projects on non-toll and toll roads, directly under the Agency's management, involved a total of 77.516km of road network.

Capital projects and length of road benefited 2020/21				
Type of capital project	Non-toll roads		Toll roads	
	Projects	Km benefited	Projects	Km benefited
Strengthening and improvement	28	55.144km	3	4.524km
New facilities	19	15.372km	6	2.476km
Total	47	70.516km	9	7.0

Capital projects and length of road benefited 2020/21 per region				
WESTERN REGION				
Type of capital project	Non-toll roads		Toll roads	
	Projects	Km benefited	Projects	Km benefited
Design				
Strengthening and improvement	3	91.71km	0	0.0km
New facilities	3	150.6km	0	0.0km
Construction				
Strengthening and improvement	3	55.67km	0	0.0km
New facilities	6	63.3km	0	0.0km
Total	15	361.28km	0	0.0km

Three new Capex contracts were awarded during the year.	
N.001-010-2021/1F: Consulting engineering services for the capacity improvement of National Route 1, Section 1, from Old Oak Interchange (km 18.90) to Brighton Road Interchange (km 26.00).	This project is located within the City of Cape Town Local Municipality. It will consist of constructing additional lanes over the full length to create a 3-lane configuration in each direction, creating a 6-lane divided carriageway. It will also involve the widening of structures followed by an appropriate surfacing. Furthermore, additional capacity is required for the existing grade-separated interchange at Brighton Road that may take the form of a 3-lane configuration in each direction, as well as the addition of ramp capacity on and off the N1.
N.001-010-2021/2F: Consulting engineering services for the capacity improvement of National Route 1, Section 1, from Brighton Road Interchange (km 26.00) to Koelenhof Interchange (km 33.00).	This project is located within the City of Cape Town Local Municipality. It will consist of constructing of additional lanes over the full length to create a 3-lane configuration in each direction, creating a 6-lane divided carriageway. It will also involve the widening of structures followed by an appropriate surfacing. Furthermore, additional capacity is required for the existing grade-separated interchange at the Joostenbergvlakte and Koelenhof Road Interchanges that may take the form of a 3-lane configuration in each direction, as well as the addition of ramp capacity on and off the N1.
N.001-030-2021/1F: Consulting engineering services for the capacity improvement of National Route 1, Section 3, from Worcester East (km 3.50) to Glen Heatlie (km 14.00).	This project is located within the Cape Town Winelands District Municipality. It will consist of adding capacity that may take the form of paved shoulders and/or climbing or passing lanes and the widening of structures followed by an appropriate surfacing.


NORTHERN REGION

Type of capital project	Non-toll roads		Toll roads	
	Projects	Km benefited	Projects	Km benefited
Strengthening and improvement	R.511-030-2016/1	25.6	N.001-270-2013/1	15.0
	R.037-020-2014/1	10.0		
	R.081-010-2013/1	10.0		
	R.037-020-2005/1	25.87		
	(and C.002-013-2014/1)			
R.510-020-2016/1	27.4			
New facilities	R.033-140-2016/1	Bridges and culverts upgrade	N.001-290-2005/1	8.0
	R.573-020-2019/4	11.5		
	R.573-030-2016/1	24.5		
	R.573-030-2019/1	6.8		
Total	9	141.67	2	23

A total of four new contracts were awarded during the year.

New major contract awards	Non-toll roads		
	Scope	Start date	Contract duration
(R.510-020-2016/1) R510 Section 2 from Bierspruit (km 6.4) to Thabazimbi (km 33.8)	Widening of the existing carriageway to include surfaced shoulders and passing lanes	June 2020 Mobilisation – End Feb 2021	27 months 3 months mobilisation
(R.033-140-2016/1) R33 Section 14 between Vaalwater and Lephalale	Construction of drainage works, i.e. three reinforced concrete bridges and one minor culvert	November 2020 Mobilisation – End September 2020 • Did not commence due to delays in finalising PLC requirements • Indicative construction start date is May 2021	22 months 2 months mobilisation
(R.573-020-2019/4) R573 Section 2 Work package A from km 24.70 to km 36.20	Upgrading to new dual carriageway and intersections	May 2020 Mobilisation – Feb 2021	33 months 3 months mobilisation
(R.573-030-2019/1) R573 Section 3 from km 6.5 to km 13.3	Upgrading to new dual carriageway and intersections	May 2020 Mobilisation – Feb 2021	33 months 3 months mobilisation

EASTERN REGION

A total of four new contracts were awarded during the year.

Type of capital project	Non-toll roads		Toll roads	
	Projects	Km benefited	Projects	Km benefited
Strengthening and improvement	7	59.1	1	1.35
New facilities	1	14	0	0
Total	8	73.1	1	1.35



SOUTHERN REGION

Type of capital project	Non-toll roads		Toll roads	
	Projects	Km benefited	Projects	Km benefited
Strengthening and improvement	6	84.28	0	0
New facilities	0	0	0	0
Total	6	84.28	0	0

Southern region capital projects (continued).

A total of 13 new contracts were awarded during the year.

Fort Beaufort to Alice: The project for the upgrading of 23km of the R63, Section 13, between Fort Beaufort (km 35.77) and Alice (km 58.86), including three bridges and community access roads, was awarded to Rumdel Construction (Pty) Ltd, and commenced on 2 July 2020. The project is worth R714,782,500 and its projected completion date is 1 October 2023.

Swart Kei to Queenstown: The project for the upgrading of 18km of the R67, Section 5, from the Swart Kei River (km 14.90) to Queenstown (km 32.91), including the new Swart Kei River bridge and community access roads, was awarded to the RBX/RMSC JV and commenced on 9 July 2020. The project is worth R466,305,750 and its projected completion date is March 2023.

Nqadu to Mbokotwana River: The project comprised the rehabilitation of 18.6km of the N2, Section 19, between Nqadu and Mbokotwana River (km 38.00) and safety improvements at Dan's Place, two bridges and a pedestrian bridge across the N2 and 10 underpasses. The project, awarded to Triamic Construction, is worth R816,000,000 and commenced on 22 July 2020, with an anticipated completion date of 22 February 2023.

Green River to Buffalo River: The improvement of 9.1km of the N2, Sections 14 and 15, from Green River (km 60) to Buffalo River Bridge (km 3.2), including the Buffalo River Bridge and community access roads, was awarded to WBHO and is worth R438,614,288. Work commenced on 21 January 2021, with an anticipated project completion date of August 2023.

Karredouw to Humansdorp: The project involves the special maintenance of the N2, Section 9 and 10, between Karredouw and Humansdorp. The project was awarded to Roadmac Surfacing Cape in May 2021 and is worth R107,000,000. The anticipated completion date is September 2021.

Middleburg to Molteno: The special maintenance of 74.4km of the R56, Section 1 (km 0.0 to 16.5) to Section 2 Molteno (km 0 to 57.9) was awarded to Tau Pele Construction in November 2020 and is worth R379,250,000. The anticipated completion date is June 2023.

Wolwefontein to Jansenville: The special maintenance of 20.5km of the R75, Section 3, from Wolwefontein (km 0.0) to Jansenville (km 49.5) and Phase 2 (km 29.8 to km 49.5), was awarded to Roadmac Surfacing Cape on 9 June 2020. The project is worth R93,940,000 and the anticipated completion date is 16 August 2021.

Jansenville to R63 I/S: The special maintenance of 16km of the R75 Section 4, from Jansenville to the R63 Intersection (km 35 to km 51), was awarded to Tau Pele Construction on 9 June 2020, and is worth R112,000,000. The anticipated completion date is September 2021.

N6 to Dordrecht: The special maintenance of 35.3km of the R56, Section 4, from the N6 (km 0.0) to Dordrecht (km 35.3), was awarded to Roadmac Surfacing Cape in July 2020. The project is worth R253,000,000 and the anticipated completion date is January 2023.

Dordrecht to Indwe: The special maintenance of 36.7km of the R56, Section 5 from Dordrecht (km 0.00) to Indwe (km 36.7) was awarded to Tau Pele Construction in July 2020. The project is worth R304,300,000 and the anticipated completion date is January 2023.

Aliwal North to Lady Grey: The special maintenance of 49.79km of R58 Section 4 from Aliwal North (km 0.0) to Lady Grey (km 49.79) was awarded to Tau Pele Construction in November 2020. The project is worth R272,500,000 and the anticipated completion date is July 2023.

Lady Grey to Barkley East: The special maintenance of 66.12km of the R58, Section 5, from Lady Grey (km 0.0) to Barkley East (km 66.12) was awarded to Roadmac Surfacing Cape in November 2020. The project is worth R452,000,000 and the anticipated completion date is July 2023.

Molteno to Vlakfontein: The special maintenance of 18km of the R56, Section 3, from Molteno (km 0.0) to Vlakfontein (km 18.0) was awarded to Roadmac Surfacing Cape in July 2020. The project is worth R125,000,000 and the anticipated completion date is August 2021.

1.1.2 Major contracts awarded in 2020/2021

SANRAL was awarded major contracts in the Eastern region for the reconstruction and upgrading of carriageways.



Major contracts awarded per region

EASTERN REGION

Location	Projected completion	Contract value	Scope of work	Main contractor
N3 section 2 between Cato Ridge Interchange and Dardanelles Interchange	April 2025	R1,439,457,269	The upgrade of the N3 from 4 lanes to 8 lanes (including a median barrier wall, lighting and lengthening of a rail underpass)	Raubex Construction (Pty) Ltd
N3 section 2 between Dardanelles Interchange and Lynnfield Park Interchange	July 2024	R1,478,997,670	The upgrade of the N3 from 4 lanes to 8 lanes (including a median barrier wall, lighting and lengthening of a rail underpass)	Raubex Construction (Pty) Ltd
N3 section 2 and 3 from Lynnfield to Ashburton Interchange	May 2025	R1,228,038,031	Upgrade of the N3, widening of the main carriageway from the current 2 lanes northbound and 3 lanes southbound to 4 lanes and 5 lanes respectively	Rumdel Construction Cape (Pty) Ltd
Widening of the National Route R22 Section 5 through Kwangwanase Town	December 2022	R325,074,590	Upgrade of the R22, widening of the main carriageway by addition of a parking lane both sides, new pedestrian facilities and lighting	Leomat Construction Pty Ltd
N3 Section 3 from Sanctuary Road to Link road	November 2022	R233,642,435	Slow lane reconstruction	Raubex KZN (Pty) Ltd

1.1.3 Major projects on non-toll roads

SANRAL managed a number of projects and focused on strengthening, restoration, construction of new carriageways and upgrading of new carriageways among others, that were at various levels of completion during the year.

Major projects on non-toll roads per region				
WESTERN REGION				
Section of road	Percent complete	Value of work done 2020/21	Scope of work	Main contractor
N2 Section 3 between Caledon (km .00) and Riviersonderend (km 48.67) N.002-030-2015/1	+ -92%	Consultant: R11,929,843 Contractor: R200,941,684	Improvement project – widening the cross-section, constructing passing lanes and new seal	Group 5 ceded to Haw & Inglis in 2019
N2 Section 7 km17.3 – George N.002-070-2016/2	+ -60%	Consultant: R9,470,504 Contractor: R32,294,964	Doubling of Gwaing River Bridge Construction of bridge, with associated road works on either approach	KPMM Roads & Earthworks

NORTHERN REGION				
Section of road	Percent complete	Value of work done 2020/21	Scope of work	Main contractor
R511 Section 3 from Road D2720 to Beestekraal	80%	R42,045,931	Strengthening and partial reconstruction	NZK FootPrint Engineering CC
R37 Section 2 in Lydenburg	82%	R15,936,654	Restoration of selected pavement layers and resurfacing	WTW Civils
R81 Section 1 in Ga-Sekgopo	61%	R79,225,949	Improvement	Lonerock Construction
R573 Section 3 km 19.2 to km 43.7 Mathys Zyn Loop to Marble Hall	68.0%	R244,438,176 (R8,143,136)	Upgrading to new dual carriageway	KPMM and CBE Joint Venture
R573 Section 2 Work Package A from km 24.70 to km 36.20	0.46%	R559,270,315 (R2,594,361)	Upgrading to new dual carriageway	King Civils Engineering Contractors
R573 Section 3 (R.573-030-2019/1) from km 6.5 to km 13.3	0.66%	R362,869,722 (R2,392,810)	Upgrading to new dual carriageway	Raubex Construction (Pty) Ltd
R33 Section 14 between Vaalwater and Lephalale	2.00%	R79,318,984 (R1,485,310)	Upgrading bridges and culvert	G4 Civils (Pty) Ltd
R510 Section 2 from Bierspruit (km 6.4) to Thabazimbi (km 33.8)	0.60%	R604,925,598 (R3,639,399)	Improvement – addition of paved shoulders	Raubex Construction (Pty) Ltd
R37 Section 1 from Modikwa Mine (km 117.00) to Burgersfort (km 142.87)	1.50%	R616,890,317 (R10,026,401)	Upgrade and construction of six roundabouts at the major intersections.	Edwin Construction (Pty) Ltd
R37 Section 2 from Burgersfort (km 0.0) to km 14.0.	0.00%	R48,994,110	Pre-treatment of the existing road i.e., repairing edge breaks, surface patches and resurfacing	Actophambili Roads (Pty) Ltd

Major projects on non-toll roads per region				
NORTHERN REGION				
Section of road	Percent complete	Value of work done 2020/21	Scope of work	Main contractor
N12 Section 12 (N.012-120-2018/1) from Beefmaster (km 12.6) to Matlabanestad (km 35.0)	0.53%	R88,359,546 (R454,134)	Pre-treatment of the existing road i.e., repairing edge breaks, surface patches and resurfacing	Actophambili Roads/ Mafoko JJ Joint Venture
N12 Section 12 (N.012-120-2018/2) from Matlabanestad (km 35.0) to Bloemhof (km 55.2)	1.00%	R86,181,111.59 (R848,068)	Pre-treatment of the existing road i.e., repairing edge breaks, surface patches and resurfacing	Actophambili Roads/ Mafoko JJ Joint Venture
R572 Section 2 (R572-020-2019/1) from Monte Christo (km 0.0) to Rooigrond (km 24.0)	0.47%	R82,946,565 (R387,864)	Pre-treatment of the existing road i.e., repairing edge breaks, surface patches and resurfacing.	Wilson Bayly Homes-Ovcon Ltd/Roadspan Surfacing (Pty) Ltd Joint Venture
R572 Section 2 (R572-020-2019/2) from Rooigrond (km 24.0) to Tom Burke (km 47.95).	0.47%	R83,196,300 (R387,864)	Pre-treatment of the existing road i.e., repairing edge breaks, surface patches and resurfacing.	Wilson Bayly Homes-Ovcon Ltd /Roadspan Surfacing (Pty) Ltd Joint Venture
R578 Section 1 (R578-010-2019/4) from N1 (km 0.0) to Maholisi (km 16.0)	0.00%	R54,174,296	Pre-treatment of the existing road i.e., repairing edge breaks, surface patches and resurfacing	Roadmac Surfacing (Pty) Ltd
R578 Section 1 (R578-010-2019/6) from Mahodlogwa (km 35.8) to Nwamata (km 56.0)	0.00%	R62,050,000	Pre-treatment of the existing road i.e., repairing edge breaks, surface patches and resurfacing	Imvula Roads & Civils
R33 Section 6 (R.033-060-2019/1) from Mkhondo (km 0.0) to Amsterdam (km 36.0)	0.00%	R91,176,687	Pre-treatment of the existing road i.e., repairing edge breaks, surface patches and resurfacing	Roadmac Surfacing (Pty) Ltd
R33 Section 7 (R.033-070-2019/1) from Amsterdam (km 0.0) to N17 Intersection (km 52.5)	0.00%	R122,038,549	Pre-treatment of the existing road i.e., repairing edge breaks, surface patches and resurfacing	Roadmac Surfacing (Pty) Ltd

Projects behind schedule on non-toll roads

Project	Reasons for delays
R511, Section 3, from Road D2720 to Beestekraal	The progress is slow due to contractor'-cashflow issues.
R37, Section 2, in Lydenburg	All construction activities were halted as the contractor opted for voluntary liquidation due to cashflow issues.
R573, Section 3, from km 19.2 to km 43.7 Mathys Zyn Loop to Marble Hall	All construction activities were halted from September 2019 as the contractor could not fund the project. In September 2020, the contractor was able to source funding to proceed with the project and construction activities resumed in October 2020. But since February 2021, the cashflow reserve is diminishing and the contractor is delaying with wages payments, which is slowing progress.


Major projects on non-toll roads per region
EASTERN REGION

Section of road	Percent complete	Value of work done 2020/21	Scope of work	Main contractor
N3, Section 2, between Cato Ridge Interchange and Dardanelles I/C	0%	R33,222,656	The upgrade of the N3 from 4 lanes to 8 lanes (including a median barrier wall, lighting and lengthening of a rail underpass)	Raubex Construction (Pty) Ltd
N3, Section 2, between Dardanelles Interchange and Lynnfield Park Interchange	1%	R52,345,014	The upgrade of the N3 from 4 lanes to 8 lanes (including a median barrier wall, lighting and lengthening of a rail underpass)	Raubex Construction (Pty) Ltd
N3, Section 2 and 3, from Lynnfield to Ashburton Interchange	0%	R17,305,458	Upgrade of the N3, widening of the main carriageway from the current 2 lanes northbound and 3 lanes southbound to 4 lanes and 5 lanes respectively	Rumdel Construction Cape (Pty) Ltd
Widening of the National Route R22, Section 5, through Kwangwanase Town	3%	R20,116,364	Upgrade of the R22, widening of the main carriageway by addition of a parking lane both sides, new pedestrian facilities and lighting	Leomat Construction Pty Ltd
N3, Section 3, from Sanctuary Road to Link Road*	1%	R5,174,684	Slow lane reconstruction	Raubex KZN (Pty) Ltd
N6, Section 6 between Rouxville and Smithfield*	100%	R144,078,347	Rehabilitation of the N6 between Rouxville and Smithfield	WBHO Construction (Pty) Ltd
Upgrade of Hammarsdale Interchange	100%	R18,701,693	Upgrade the existing diamond interchange to a semi-parclo (partial clover leaf) free-flow interchange, which includes the construction of a new bridge and on/off ramps, crossroad upgrade, and new interchange street lighting.	Stefanutti Stocks Civils KZN (Pty) Ltd
Ethekwini Pedestrian facilities on N2 Section 25 (between km 4.0 and km 19.5)*	74%	R9,458,880	Construction of pedestrian walkways on National N2 Section 25, between km 4.0 and km 19.5.	Gn5 Civils (Pty) Ltd

Major projects on non-toll roads per region

SOUTHERN REGION

Section of road	Percent complete	Value of work done 2020/21	Scope of work	Main contractor
Green River to Buffalo River	9%	R 2,522,518	Improvement of 9.1km on the N2, Sections 14 and 15, from Green River (km 60) to Buffalo River Bridge (km 3.2)	WBHO
Fort Beaufort to Alice	11%	R83,810,514	The upgrading of 23km of road between Fort Beaufort and Alice, including the widening of two existing bridges and constructing three new bridges, community access roads and ancillary works	Rumdel
Swart Kei to Queenstown	19%	R145,070,282	The upgrading of 18km of R67 between Swart Kei and Queenstown, including construction of a new bridge and a bridge widening	RBX/RMC JV
Nqadu (km 21.40) and Mbokotwana River (km 38.00) and the safety improvements at Dan's	7.5%	R60,991,016	The rehabilitation of 16.6km of the N2 between Nqadu and Mbokotwana River and safety improvements at Dan's Place	Triamic
Msikaba Bridge	32%	R537,387,392	Construction of a 580m cable-stayed bridge across the Msikaba Gorge as part of the N2 Wild Coast Road Project	Mota Engil/ Concor JV
Port Alfred to Fish River	99%	R12,439,376	The upgrading of 29.1km of the R72, Section 3, from Port Alfred to Fish River	Concor





1.1.4 Major projects completed during 2020/21

A number of construction projects, throughout the provinces, were completed during the financial year as depicted in the table.

Major projects completed per region				
WESTERN REGION				
Section of road	Percent complete	Value of work done 2020/21	Scope of work	Main contractor
N2, Section 1, km 42.5 – Somerset West N.002-010-2019/1	100%	R 37,942,500 (excl VAT)	As part of a larger project, the City of Cape Town improved the De Beers Interchange on the N2. SANRAL contributed to the work within the SANRAL road reserve. The work included the following: <ul style="list-style-type: none"> • Removal of sidewalks on existing bridges to add lane capacity • Construction of two new bridge structures adjacent to the existing bridges to accommodate non-motorised traffic (pedestrians and cyclists) • Widening of the eastbound off-ramp • Rehabilitation of existing road pavement within the SANRAL road reserve 	Martin and East
NORTHERN REGION				
Section of road	Percent complete	Value of work done 2020/21	Scope of work	Main contractor
R53, Section 2, from Potchefstroom to Ventersdorp	100%	R26,009,692	Repair and reseal	Boitshoko Road Surfacing & Civil Works CC
N4 Section 12 between P123-1 and Road 980	100%	R32,041,407	Construction of new dual carriageway	Aveng Lubocon Joint Venture
N11 Section 9 from Hendrina to Hendrina Power Station	100%	R9,797,659	Improvement and addition of paved shoulders	Power Construction



Major projects on non-toll roads per region

EASTERN REGION

Section of road	Percent complete	Value of work done 2020/21	Scope of work	Main contractor
Upgrade of Hammarsdale Interchange	100%	R18,701,693	Upgrade of the existing diamond interchange to a semi-parclo (partial cloverleaf) free-flow interchange, which includes the construction of a new bridge and six new on- and off-ramps	Stefanutti Stocks Civils KZN (Pty) Ltd
N6, Section 6, between Rouxville and Smithfield	100%	R144,078,347	Rehabilitation of the N6 between Rouxville and Smithfield	WBHO Construction (Pty) Ltd



SOUTHERN REGION

Section of road	Percent complete	Value of work done 2020/21	Scope of work	Main contractor
Tetyana to Sitebe Komkhulu	100%	R565,594	Upgrading of N2, Section 18, from Tetyana to Sitebe Komkhulu	Rumdel
Majola Tea to Tombo	100%	R5,361,223	Strengthening of Majola Tea to Tombo	Triamic
Misty Mount to Mafini	100%	R12,342,823	Special safety improvement from Libode East (km 28.1) to Mngazi (km 73.0)	Triamic
Bhirha to Open Shaw	100%	R63,085,693	Upgrading of 35km	Concor
Grahamstown to Fish River Pass	100%	R24,291,654	Upgrading of 17km	WBHO
R67 Whittlesea to Queenstown	100%	R86,608.00	Upgrading of R67 Whittlesea to Queenstown	Concor
Road Safety R75 Port Elizabeth to km 14	100%	R13,396,633	Road safety measures and the rehabilitation of 13km of the R75 between Port Elizabeth and Dispatch	Concor


SANRAL

1.1.5 Major projects on toll roads managed by SANRAL

Several major projects were completed on SANRAL managed toll roads during the year, while other projects were at various stages of completion.

Major projects on toll roads per region
WESTERN REGION

Section of road	Percent complete	Value of work done 2020/21	Scope of work	Main contractor
N1/1 Huguenot Tunnel Paarl N.001-012-2014/1	100%	R33,668,371 (excl VAT)	Operations and maintenance	Tolcon Group
N1/1 Huguenot Tunnel Paarl N.001-012-2018/1F	60%	R2,475,607 (excl VAT)	Operations and maintenance – audit and supervision (also supervision of upgrade work still to happen under N.001-010-2019/1 in 2021/2022)	ITS/Nadeson JV
N1/1 Huguenot Tunnel Paarl N.001-012-2020/2	8.5%	R16,359,321 (excl VAT)	Operations and maintenance	Tolcon Group
N1/1 Huguenot Tunnel Paarl N.001-012-2020/1F	8.5%	R1,207,030 (excl VAT)	Operations and maintenance – audit and supervision	ITS/Nadeson JV

NORTHERN REGION

Section of road	Percent complete	Value of work done 2020/21	Scope of work	Main contractor
N1, Section 29, Musina Ring Road	53.5%	R146,151,000	Construction of 8km of new (greenfields) single-carriageway freeway	Basil Read, contract ceded to Raubex in the last quarter of 2019
N1, Section 27, Polokwane Ring Road	100%	R178,450,000	Improvement and upgrading of Polokwane Ring Road	Basil Read, contract ceded to Edwin Construction in October 2019
N1, Sections 23, 24, 25 and 26, (SAPR N0124602/1) The funding, construction, and maintenance of the proposed Warmbaths to Pietersburg Toll	100%	R7,850,008	<p>Engineering consultants: Administration of the post-construction phase of the design/build/finance/maintain contract on the 150km of N1 between the Warmbaths (Bela Bela) Interchange and Pietersburg (Polokwane)</p> <p>Contractor: Contractor was responsible for completion of incomplete aspects of the employer's design, such as the slope stability of cuttings, the design of the toll road pavement and any additional design necessitated by site conditions encountered during construction</p>	<p>Engineering Consultants: Royal Haskoning DHV</p> <p>Contractor: Northern Toll Road Venture, a joint venture between Murray & Roberts and LTA.</p>

The following projects are running behind schedule:

Project	Reasons for delays
N1, Section 29, Musina Ring Road	Sourcing material for G1 and construction of trial section thereof. Furthermore, relocation of one of the impacted landowners is delaying the construction activities, which is leading to the submission of a claim by the contractor.



Major projects on toll roads per region

EASTERN REGION

Section of road	Percent complete	Value of work done 2020/21	Scope of work	Main contractor
N2 North Coast at Umhlali River Bridge and Mvoti River Bridge*	60%	R32.7m	Realignment of the N2, Section 27, at Umhlali River Bridge (km 15.37 to km 15.98) and at Mvoti River Bridge (km 26.4 to km 27.14).	Raubex KZN (Pty) Ltd

SOUTHERN REGION

Section of road	Percent complete	Value of work done 2020/21	Scope of work	Main contractor
R61, Section 7	70%	R544,779,851	The Upgrading of 27.39km single carriageway to 13,4m wide surfaced carriageway including climbing lanes and major structures.	Basil Read – contract terminated Works retendered
R61, Section 3	75%	R82,656,567	Rehabilitation of 25km road	WTC – contractor was liquidated Works to be retendered



1.1.6 Toll road projects managed by concessionaires

SANRAL continues to monitor the quality and adequacy of roads managed by its concessionaires, similarly to those roads managed by SANRAL. Concessionaires continue with capital projects to strengthen and improve the roads that fall within their responsibility. The total value of construction and rehabilitation work performed during 2020/21 on toll routes under concession was R889m.



New construction and rehabilitation contracts on toll concessions awarded in 2020/21

Project	Start and end date	Value of contract	Scope of work	Main contractor
				
RR-2019-001 Repair and resealing N3-5	Jun 2020 to Jan 2022	R235m	Repair and resealing of N3 between Estcourt South Interchange and Frere Interchange	Roadmac Surfacing (Pty) Ltd.
				
Special road maintenance N1-21 and N1-22	1 Sept 2020 to 15 Dec 2020	R 11.221m	Road pavement rehabilitation	Actop Phambili



Ongoing construction and rehabilitation projects on concessioned toll road in 2020/21

Section of road	Percent complete	Value of work in 2020/21	Scope of work	Main contractor
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N4 between Belfast and Machadodorp, MP	70%	R226.12m	Upgrading: lane additions	WBHO/Motheo JV
N4 Upgrading of Karino Interchange	60%	R191.247m	New grade-separated interchange	Raubex Construction
N4 between Witbank and Middelburg	45%	R160.608m	Rehabilitation and lane additions	Raubex Construction
N4 between Kaapmuiden and Malelane	60%	R120.769m	Rehabilitation and Upgrading to 4 lanes	Tau Pele Construction



RR-2018-002A N3-8 and 9 Warden to R34	45%	R282m	Rehabilitation and overlay of N3 between Warden and the R34	Roadmac Surfacing (Pty) Ltd.
RR-2018-002B N3-9 R34 to Villiers	60%	R230m	Rehabilitation and overlay of N3 between the R34 and Villiers	Hillary Construction (Pty) Ltd.
RR-2019-001 N3-5 Estcourt South Interchange to Frere Interchange	20%	R110m	Repair and resealing of N3 between Estcourt South Interchange and Frere Interchange	Roadmac Surfacing. (Pty) Ltd.



N4-9 and N4-10	80%	R 201.71m	Dualling of single carriageway	Raubex
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Completed construction and rehabilitation projects on toll routes under concession



Ongoing construction and rehabilitation projects on concessioned toll road in 2020/21

Section of road	Percent complete	Value of work in 2020/21	Scope of work	Main contractor
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RR-2018-004 Cedara to Mooi River	100	R143m	Rehabilitation and overlay Cedara to Mooi River	Roadmac Surfacing (Pty) Ltd.
RR-2018-005 Van Reenen's Pass	100	R101m	Rehabilitation and overlay Van Reenen's Pass	Roadmac Surfacing (Pty) Ltd.



Special road maintenance N1-21 and N1-22	1 Sept 2020 15 Dec 2020	R 11.221m	Road pavement rehabilitation	Actop phambili
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1.2 ROAD NETWORK MANAGEMENT AND MAINTENANCE

The national road infrastructure is an asset of immense value and requires active management in order to preserve it and expand it in response to changing road use patterns occasioned by urban growth and socioeconomic development.

SANRAL utilises its asset management system to monitor and predict future road performance and plan for road maintenance and rehabilitation. This system uses data on pavement and bridge conditions, as well as traffic flows and future road usage.

The pavement management system uses life-cycle cost analysis to drive its maintenance and funding strategy. The goal is to preserve the national road network – including those roads under concession – at an adequate level within available funding. SANRAL’s automated road survey vehicles, equipped with laser, video and computer based technologies, gather detailed road condition data.

Visual inspections verify the automated assessments and enable SANRAL to review suggested solutions. SANRAL allocates available funding to maintain the efficient and safe functioning of the national road network according to the following hierarchy of priorities:

- Routine maintenance: preventive asset-preservation

action, such as cleaning drains, cutting grass, sealing cracks and patching potholes.

- Periodic maintenance: preventive asset-preservation action such as resealing and overlays.
- Strengthening/improvement: extensive reconstruction and improvement actions that extend pavement life and/or add additional lanes to relieve congestion.
- New construction: construction of new roads and ancillary services.

The effectiveness of the agency’s maintenance programme is measured against internationally used measurements:

- Road roughness, for which the desired standard is less than 4.2m/km.
- Rut depth, where standard is less than 20mm. Depressions deeper than this can hold water and cause vehicles to aquaplane.
- Macro-texture, where the desired texture is higher than 0.4mm. The coarseness of the road surface affects friction and safety at speeds exceeding 60km/h in wet conditions.

As indicated in the table below a high percentage of the national road network complies with or exceeds the international benchmarks.





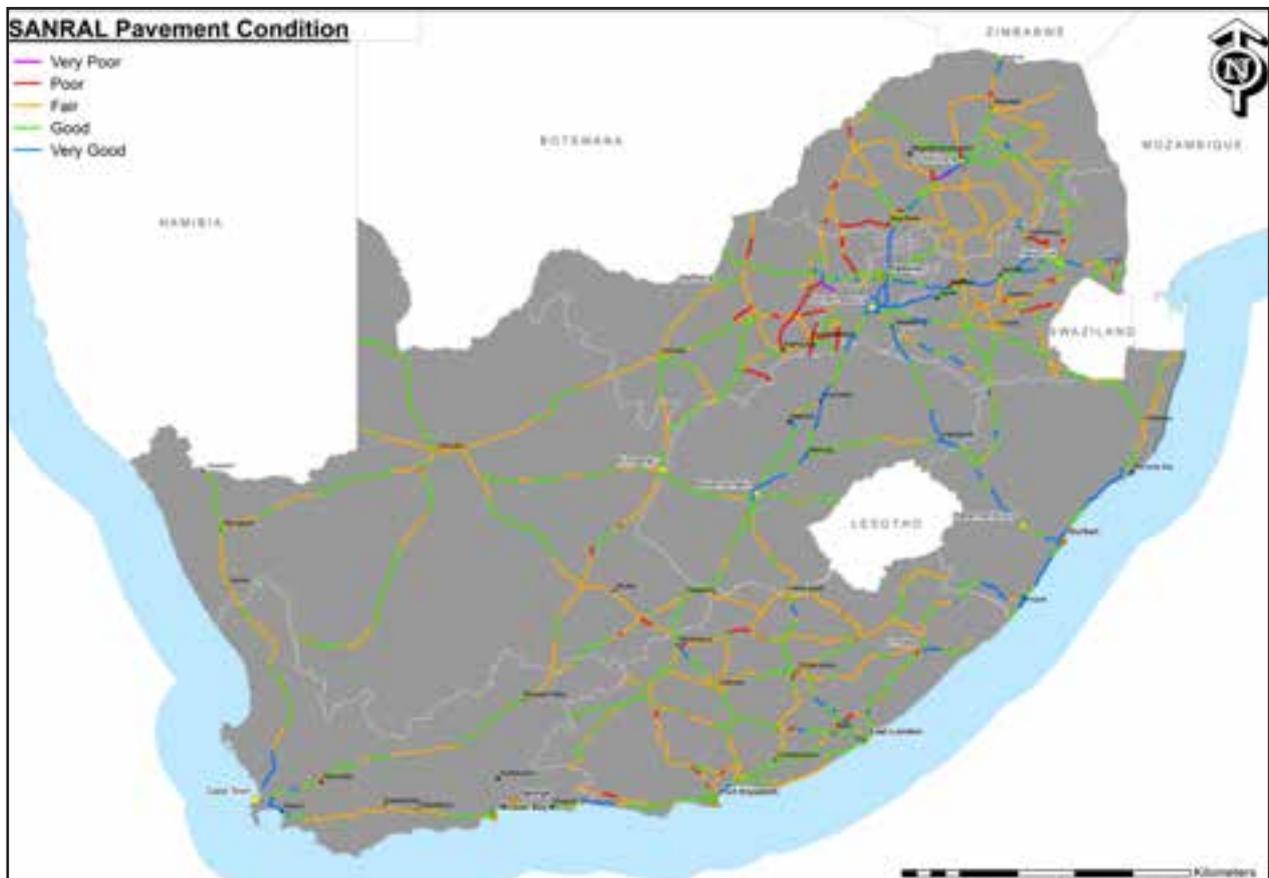
1.2.1 Pavement condition

In 2020/21, the pavement condition of about 55% of national roads was in good to very good condition and about 38% in fair condition. Just 6.9% was rated poor to very poor.

There have been small fluctuations in pavement condition over the last three years. Compared to 2018/19, the pavement condition in 2019/20 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 in 2020/2021				
Road condition / financial year	2017/18	2018/19	2019/20	2020/21
Very good	15.0%	14.8%	14.5%	14.22%
Good	46.7%	45.0%	43.9%	41.13%
Fair	34.8%	36.2%	35.2%	37.74%
Poor	3.4%	4.0%	6.1%	6.64%
Very poor	0.1%	0.1%	0.3%	0.27%





1.2.2 Bridge management

In 2020/21, the national road system included 10,126 bridges and major culverts (bridges comprised 3,868 of this figure). These require inspection every five years by accredited inspectors from the Structures Sub-committee of the Committee of Transport Officials (COTO).

The above figure includes 957 bridges and major culverts on routes managed by concessionaires. For 2020/21, the bridge condition exposure score achieved was 93% of travel over or under, which comprised bridges with an overall condition index (OCI) greater than 70%.

Bridge condition exposure measurements

	2017/18 Actual	2018/19 Actual	2019/20 Actual	2020/21 Actual
Percentage of travel over or under bridges on national roads with OCI higher than 70%*	92.81	92.93	93.49	93.43

*The OCI threshold for structures in good condition or better is 70%



1.2.3 Slope management

SANRAL undertakes proactive management of unstable slopes in all regions.

A total of 4,915 slopes were assessed during the period and 98% were in fair and good condition. Routine road maintenance teams continuously monitor and report on any serious slope incidents or maintenance requirements.

The recent completion of the new TMH 21 Manual for the Visual Assessment of Road Slopes provides an updated methodology for the visual assessment and risk classification of slope hazards. The draft TMH21 Manual methodology is specified for all future SANRAL contracts related to slope management.



1.2.4 Contracts for routine road maintenance

In 2020/21, SANRAL's four regional offices spent R2.115m on routine road maintenance (RRM) contracts. These contracts covered both non-toll and toll roads, excluding those under concession.

The cost of maintaining a section of road through its life cycle can be broken down as follows:

- Routine maintenance (Opex):**
 Includes day-to-day routine activities such as cleaning drains and culverts, vegetation control, line marking, guard rail repair, road sign repair, crack sealing, patching, edge repair, shoulder spot regravelling and shoulder blading. The cost is R0.1m per km per year.
- Periodic maintenance (Opex):**
 Includes periodically scheduled activities to waterproof surface through surface seals and functional asphalt overlays < 50 mm in thickness. The cost is R2m–R3m per km every eight to 12 years.
- Strengthening (Capex):**
 Includes increasing the structural capacity of an existing pavement through the recycling of existing layers and/or the addition of new granular layers or structural asphalt overlays >80mm thick. The cost is R12m–R18m per km every 20 to 25 years.
- Improvements (Capex):**
 This comprises works that improve the quality of service on roads with an unacceptable quality of service, such as increasing the width in selected areas (i.e., the addition of climbing/passing lanes) and increasing the width over the total length of the project (i.e., the addition of paved shoulders and localised geometric and intersection improvements). These activities could, in some instances, include the complete rehabilitation of the existing pavement structure. The cost is R20m–R40m per km every 20 to 25 years.
- New facilities (Capex):**
 This comprises works to improve network capacity and includes the upgrading of single carriageway road to a 4-lane or dual-carriageway road, as well as the construction of new surfaced road where previously no road existed (brown/greenfields construction) and the construction of new bridges to replace existing bridges or new interchanges to replace intersections. The cost is R25m–R140m per km every 20 to 25 years.

Value of routine road maintenance contracts 2020/21

ROAD AREA	CONTRACT VALUE
Northern Region	
Non-toll	R870,696,000
Toll	R240,409,000
Eastern Region	
Non-toll	R169,012,997
Toll	R91,765,180
Southern Region	
Non-toll	R503,545,699
Toll	R253,105
Western Region	
Non-toll	R323,404,037
Toll	R2,411,696
Total for SANRAL-managed roads	R2,201,497,714





1.2.5 Smart road systems

Towards the end of the reporting year, SANRAL approved the piloting of camera technology to assess the illegal use of mobile devices by drivers. Driving while distracted is a risk not only to the driver responsible, but also to other road users. Alcohol, fatigue and speeding are all known safety risks, but using a cellphone while driving is equally dangerous. Cameras have been installed on the Freeway Management System (FMS) network on the N1, and this data is currently being collected to assess the effectiveness of these devices and opportunities to link them to automated enforcement.

SANRAL has also been piloting the catz-i-unit devices on the R300 in partnership with a service provider. The objective of these devices is to verify the effectiveness of the catz-i system to improve safety and reduce incidents, specifically those involving vulnerable road users. Pedestrian incidents are a great concern nationally, and we must explore every option to reduce fatalities. This pilot study underway used four cameras. Two of these were used on a 120m section of road suitable for the eventual testing of the studs. The others were used in two separate areas where the topography, road conditions and pedestrian behaviour differ from the initial section. This will allow SANRAL to process the alerts and alarms from these cameras to obtain a better understanding of their performance in varying conditions for possible deployment on other sections of the road network.

Pilot project

In late March 2021, installation was done for the Acusensus Heads-Up Distracted Driving Solution on the gantry on the N1 at the Jip de Jager Interchange.

This system can monitor the following:

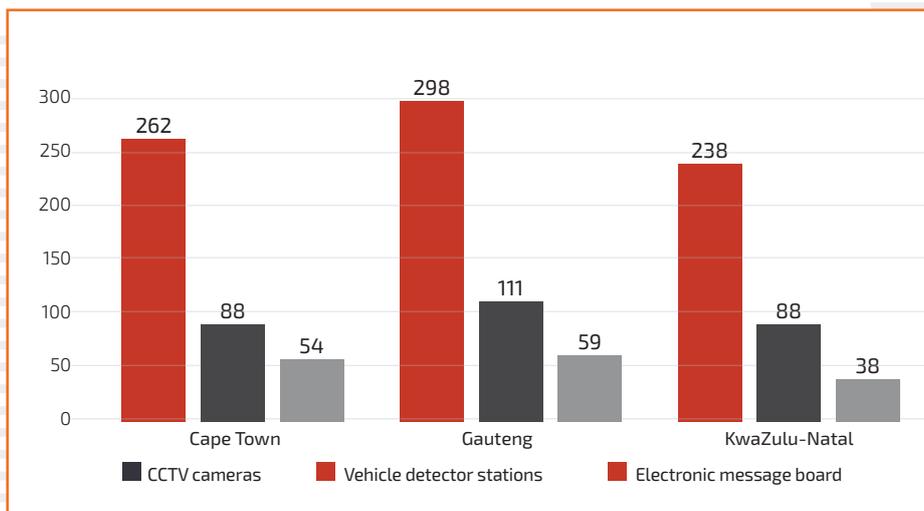
- Distracted driving
- Speed
- Automatic number plate recognition
- Traffic count

This is a pilot programme between Acusensus, WCG and SANRAL.

FREEWAY MANAGEMENT SYSTEM (FMS)

Freeway Management Systems is a means for the Agency to manage the traffic flow on freeways through the use of intelligent devices. These devices are operated through Traffic Management Centres (TMC) on a 24 hour, 365 day basis. These types of systems allow the Agency to better manage the existing road space and reduce congestion through the management of incidents. The data collected from these systems is used for various planning initiatives, law enforcement assistance, incident response planning and for research. Critical to these operations, is a high level of communication and co-operation between the various stakeholders, including law enforcement agencies.

2020/21 Device availability per province



Incident detection time in 2020/2021:	Western Cape:	Gauteng:	KwaZulu-Natal:
	2 minutes 50 seconds	8 minutes 23 seconds	2 minutes 10 seconds

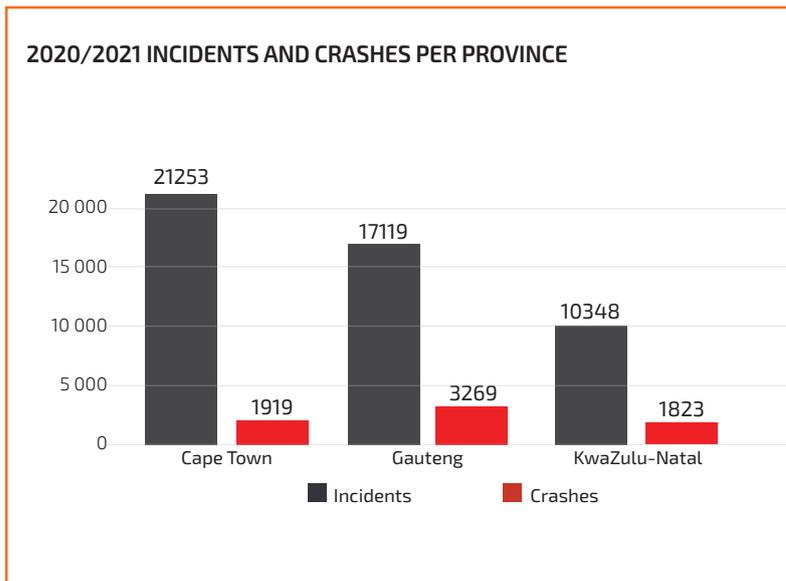
There was a significant decrease in incidents and crashes in the Western Cape and Gauteng, with a 52% decrease in the Western Cape and 62% in Gauteng. Similarly, there was a decrease in crashes of 41% and 38% in the Western Cape and Gauteng, respectively. This was largely due to the COVID 19- pandemic and the lockdown periods of restricted movement, which significantly reduced traffic volumes. Daily volumes are currently at 90% of pre-pandemic levels and 75–80% for hourly rates in the Western Cape.

This same reduction in incidents and crashes was not evident in KwaZulu-Natal, however. Due to an increase in network coverage and camera availability, as well as the appointment of the new FMS contractor during the 2019/2020 financial year, an 11% rise in the number of incidents and a 41% increase in crashes were recorded during the review period. Appointments in the Western Cape and Gauteng were delayed and interim operations were managed by the KZN FMS contractor.



Freeway management systems infrastructure 2020/21

	CAPE TOWN		GAUTENG		KWAZULU-NATAL	
	2019/2020	2020/2021	2019/2020	2020/2021	2019/2020	2020/2021
CCTV cameras	262	262	289	298	238	238
Vehicle detector stations	82	88	111	111	87	88
Electronic message boards	52	54	58	59	36	38
Average incident detection	0:02:52	0:02:50	0:03:21	0:08:23	0:02:24	0:02:10
Incidents	44,023	21,253	42,442	17,119	9,364	10,348
Year-on-year comparison for incidents	-52%		-60%		+11%	
Crashes	3,264	1,919	5,261	3,269	1,289	1,823
Year on year comparison for crashes	-41%		-38%		+41%	



Western Cape Freeway Management System

Thanks to the deployment of remote workstations, the FMS has remained 100% operational during the COVID-19 pandemic, playing a pivotal part in the strategic deployment of enforcement services during lockdown and providing visuals to the regulating authorities.

Criminal activities such as cable theft and lighting infrastructure vandalism increased drastically during this reporting period. FMS operators played a vital role in combatting these and other crimes. For example, the alertness of the TMOs resulted in a successful arrest when a housebreak was detected, and security services were directed to the incident. Theft of road-milling material was also detected, and the suspects were tracked on the N1 until responding services could make a successful arrest.

These arrests would not have been possible without the cooperation of the other security, traffic and law enforcement services. These collaborative efforts were coordinated by the ongoing N2/R300 priority stakeholder forum.

KwaZulu-Natal Freeway Management System

To mitigate the impact of COVID-19 and remain 100% operational during the peak of the pandemic, the contract instituted an effective risk-mitigation plan.

A new technologically advanced digital video management system (DVMS) has been rolled out in KZN, supporting video analytics. Artificial intelligence capabilities supported by the DVMS are currently being tested in terms of vehicle identification and people detection. This efficient and innovative methodology will ultimately help minimise vehicle and pedestrian detection times, as well as helping to combat criminal activity on the network.

Like the Western Cape and Gauteng, KZN experiences criminal activity that impacts operations and results in losses of capital infrastructure. In an attempt to address this, the ER and the contractor have come up with innovative crime-combating methods and techniques based on lessons learnt. These involve hardening devices, electrifying vulnerable areas, and utilising video analytics and various sensor technology to minimise theft and vandalism. The pilot sites where these new security and vandalism measures have been rolled out appear to be yielding positive results.



Gauteng Freeway Management System

Few could have predicted the new challenges posed by 2020. The period highlighted the need for the use of technology to manage the pandemic's impact and ensure the economy continued to operate. The Traffic Management Centre and the on-road services (ORS) were declared essential services. Dedicated staff ensured that the roads were safe throughout the entire period.

The Gauteng network covers 251km of national roads. The infrastructure includes 298 CCTV cameras, 111 video detection systems (VDS) and 59 variable message signs (VMS).





ON ROAD SERVICES (ORS)

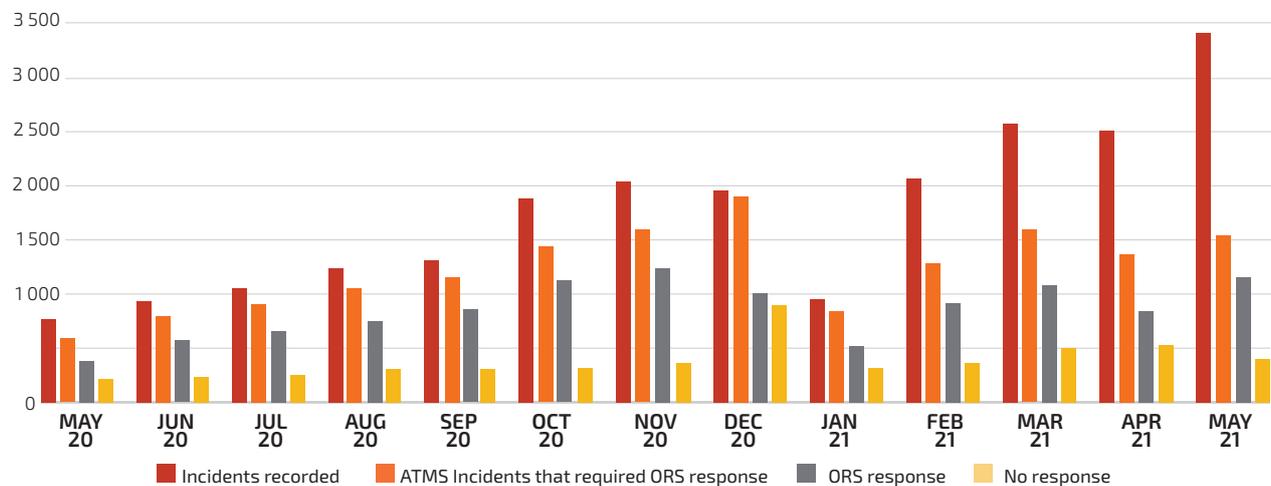
The on-road-services (ORS) is a unique feature of the Gauteng Freeways which provides rescue services to road users. The fleet comprises of 25 vehicles of which there are 9 light and 8 heavy towing vehicles (LTRU and HTRU), 5 incident response units (IRUs) and 4 medical response units (MRUs). The current fleet of ORS vehicles covers over 251km of Gauteng freeways.

During 2020, the ORS was considered an essential service and continued to provide a high level of service during the various levels of lockdown.

These vehicles responded to between 53% (Dec 2020) to 78% (Oct 2020) of all incidents which required 3rd party assistance within the road network.



Incident vs response



First responder on scene for crashes

Response Service	Jun 20	Jul 20	Aug 20	Sep 20	Oct 20	Nov 20	Dec 20	Jan 21	Feb 21	Mar 21	Apr 21	May 21	Jun 21
MPDs	56%	0%	6%	27%	16%	19%	24%	14%	14%	13%	8%	18%	8%
ORS	6%	8%	9%	5%	4%	7%	9%	0%	7%	8%	15%	15%	24%
SAPS	6%	12%	0%	0%	0%	0%	0%	0%	0%	3%	0%	3%	4%
PRIVATE AMBULANCE	0%	28%	23%	14%	11%	4%	11%	18%	5%	3%	8%	6%	4%
PROVINCIAL AMBULANCE	0%	0%	3%	0%	0%	0%	2%	0%	0%	3%	0%	0%	0
RRM	0%	0%	0%	3%	0%	1%	2%	0%	0%	0%	0%	0%	0
GTP	0%	0%	0%	0%	0%	3%	0%	5%	0%	0%	0%	0%	8%
NTP	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%
PRIVATE TOWING	33%	52%	60%	51%	69%	66%	52%	64%	72%	73%	70%	58%	52%

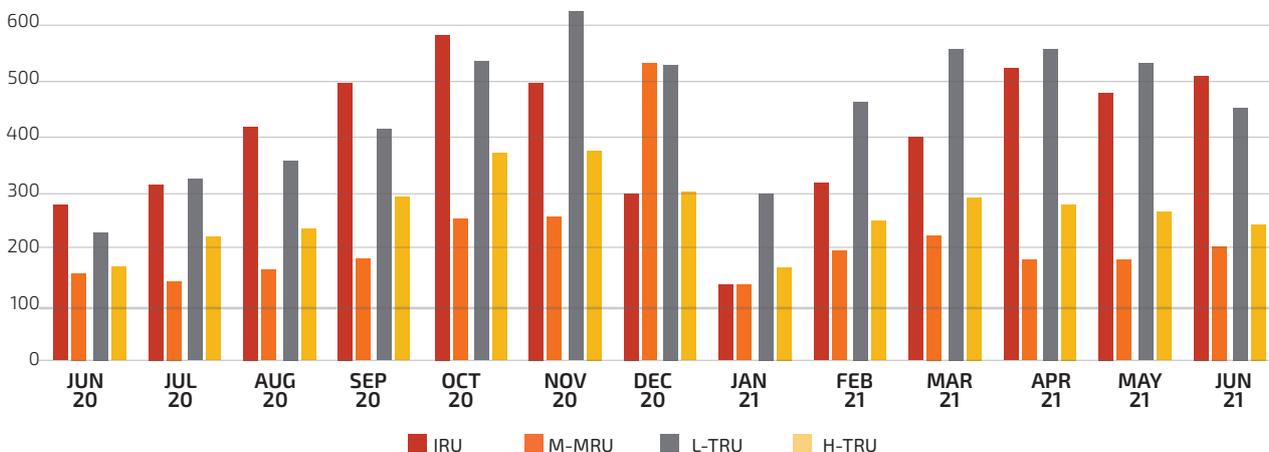
For crashes, the private towing companies together with private ambulances are usually the first on scene with the ORS responding afterwards in order to provide a more comprehensive road safety regime thus insuring that no secondary incidents occur.

First responder on scene for stationary vehicles

Response Service	Jun 20	Jul 20	Aug 20	Sep 20	Oct 20	Nov 20	Dec 20	Jan 21	Feb 21	Mar 21	Apr 21	May 21	Jun 21
GTP	4%	3%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	2%
MPDs	24%	14%	20%	18%	10%	22%	15%	24%	22%	5%	13%	11%	15%
ORS	60%	82%	73%	76%	82%	76%	75%	70%	70%	84%	79%	79%	71%
RRM	4%	2%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%
PRIVATE AMBULANCE	0%	0%	0%	3%	0%	0%	0%	0%	1%	0%	0%	0%	0%
SAPS	0%	0%	0%	0%	1%	0%	1%	3%	0%	1%	3%	0%	0%
TOWING	8%	0%	7%	4%	7%	2%	8%	3%	7%	9%	5%	9%	11%
RRM	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	2%

For stationary vehicles, the ORS teams are usually the first on scene, ensuring that the road network is cleared promptly to proactively prevent secondary incidents that may occur because of road obstructions caused by the stationary vehicle. Although unquantifiable, the impact of clearing stationary vehicles can never be undervalued.

ORS responses per month



The current fleet attends to an average of 1 500 incidents per month. The varying levels of incidents responded to in 2020/21 corresponded to the traffic volumes during the various stages of lockdown.



OVERALL INCIDENT STATISTICS

Freeway Management Systems: Incidents and crashes 2020/21

SANRAL maintained road incident management systems (RIMS) operations during the COVID-19 pandemic to ensure programme continuity and stakeholder management in delivering post-crash care to the travelling public.



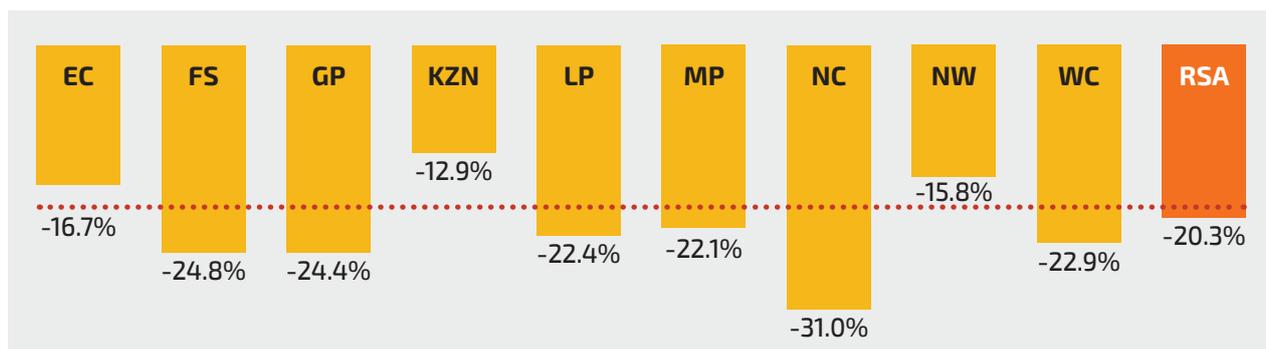
Fatalities per province

YEAR	EC	FS	GP	KZN	LP	MP	NC	NW	WC	Total
2019	1 603	860	2 453	2 331	1 496	1 343	384	855	1 178	12 503
2020	1 336	647	1 855	2 031	1 161	1 046	265	720	908	9 969
Change	-267	-213	-598	-300	-335	-297	-119	-135	-270	-2 534
% Change	-16.7%	-24.8%	-24.4%	-12.9%	-22.4%	-22.1%	-31.0%	-15.8%	-22.9%	-20.3%

In line with the distribution of fatal crashes for 2020, the fatalities during the period followed the same trend per province in the country with a crash severity of 1.19 people dying per crash during the total period in 2020, slightly lower than as crash severity of 1.20 in 2019.

A total number of 9 969 fatalities were recorded in 2020 which is a decrease of -20.3% from 2019. Even though the Northern Cape recorded the largest percentage decrease from 2019 with -31 % , an absolute decrease of 598 fatalities was recorded in the Gauteng province from 2019. The lowest percentage decrease was recorded in KwaZulu-Natal province at -12.9%. The % change for the country was -20.3% from 2019 to 2020.

Percentage change of fatalities per province from 2019-2020



Gauteng Incident Statistics (2020/21)

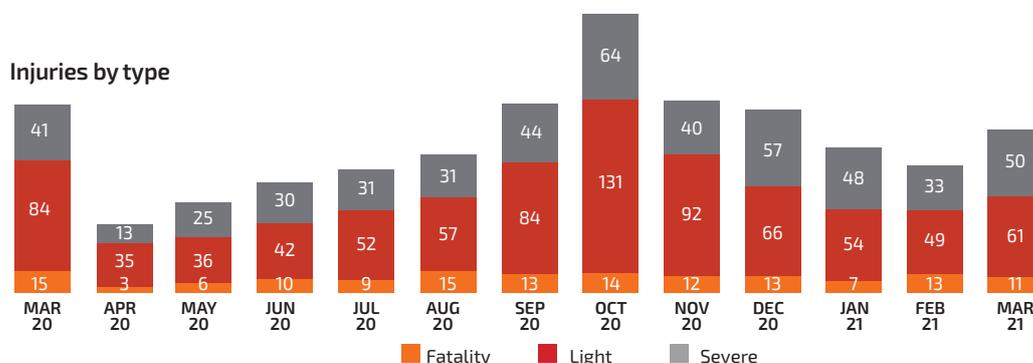
Gauteng recorded a total number of 18,566 incidents between April 2020 and March 2021. This was a significant decrease from the 42,442 incidents recorded in the previous financial year. Road fatalities also decreased for this reporting period. These declines were a direct result of reduced traffic volumes during lockdown.

Gauteng incident statistics 2020/21

Month	Total incidents*	Confirmed incidents	Crashes	Known fatalities	Pedestrian fatalities
Apr-20	614	573	74	3	0
May-20	789	757	104	6	1
Jun-20	1 009	935	212	10	2
Jul-20	1 138	1 052	209	9	2
Aug-20	1 350	1 227	224	15	5
Sep-20	1 423	1 307	297	13	5
Oct-20	2 027	1 874	396	14	5
Nov-20	2 217	2 040	432	12	4
Dec-20	1 883	1 772	353	13	6
Jan-21	1 035	958	230	7	1
Feb-21	2 268	2 057	332	13	4
Mar-21	2 813	2 567	406	11	1

*Includes all closed, confirmed, planned and rejected incidents

Although crash rates declined, pedestrian fatalities remained high at 36, compared to 43 in the previous year.



Injuries by type

Experiences during COVID-19

- Among EMPD staff at the TMC, only one fatality was recorded. There were no other incidents of severe illness leading to hospitalisation.
- No staff retrenchments occurred despite the reduced level of operations at the height of COVID-19.
- All personal protective equipment supplies for COVID-19 were readily available.
- Staff members' COVID-19 tests were paid for by the Agency, which made testing a norm as and when required, thus reducing the risk of further infections.

- The disaster recovery site was used effectively to ensure operational continuity when positive COVID-19 results were detected, allowing sufficient time to disinfect the work zones.

The COVID-19 pandemic and its effects on our mobility and road network provided valuable data for road authorities to rethink transport solutions for the future. These solutions include optimising our journeys and reducing our dependency on cars; Reducing our transport overheads as SANRAL; and as government, reconsidering the road space and reducing private vehicle usage.



1.2.6 Combatting vehicle overloading

Overloading of heavy vehicles is a major problem on South African roads and takes a toll in terms of damage 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 2020/21, approximately 5.6m vehicles were screened using weigh-in-motion devices at weighbridges. A total of 1.5m vehicles that were possibly overloaded were directed for weighing on the static scale. There was an approximate 25% decline in freight traffic due to the negative impact of the COVID-19 pandemic and associated lockdown regulations on economic activity. The highest impact was during lockdown level 5; all weighbridges were shut down, though some were used for lockdown-related law enforcement purposes.

Vehicles weighed at SANRAL weighbridges and number overloaded

Value of fines imposed:	R32.5m
Value of fines paid:	R4.2m
Number of arrests:	540
Percentage of overloading:	2% of all vehicles statically weighed
Number of drivers arrested:	540
Number of drivers warned:	405,000
Number of drivers charged:	27,390

Overloading measures by concession holders

The three toll-road concession holders all have facilities to weigh vehicles and relationships with relevant traffic authorities to impose sanctions where required. Data on overloading are collected and analysed.

- **At Bakwena weighbridges**, fines to the value of R10.6m were imposed and R1.2m in fines was collected during the year.
- **At TRAC weighbridges**, fines to the value of R9.04m were imposed and R0.89m in fines was collected during the year.
- **At N3TC weighbridges**, fines to the value of R6.2m were imposed and R0.691m in fines was collected during the year.



Number of vehicles weighed and number overloaded

	TRAC	N3TC	Bakwena
Total number of vehicles weighed	587,200	166,435	359,058
Overloaded but within grace limit	158,984	53,629	30,006
Overloaded	7,929	4,410	4,872

Vehicle safety inspections

SANRAL has nine vehicle inspection facilities at major weighbridges, which tested 4,872 vehicles in 2020/21. Of these, 60% failed to meet road safety standards. Traffic police on site either issued fines to the drivers or removed the vehicles from the road.

Traffic monitoring

Two traffic monitoring contracts were active during FY21. There were 585 long-term traffic-monitoring stations in operation. No short-term traffic-monitoring counting was conducted during this period due to COVID-19.





1.3 TRANSFORMATION WITHIN THE SECTOR

Since its approval for implementation in 2018, SANRAL's Transformation Policy has sought to increase access for Black-owned businesses to SANRAL's procurement opportunities. Although the unprecedented challenges brought on by the COVID-19 pandemic early in 2020 impacted the construction industry detrimentally, SANRAL maintained its efforts and commitment to transform this sector. SANRAL is currently a level 4 BBBEE contributor.

As SANRAL continues to pursue strategic partnerships with industry, the focus has moved to secure partnerships with funding and development finance institutions. Discussions are underway with various entities with the hope that SANRAL can assist with special dispensation facilities in the funding sector in the 2021/2022 financial year. Funding is critical in construction due to the cost of high-ticket items, such as plants and equipment, and the short-term working capital required to deliver a quality product within tight time frames.

SANRAL has pursued its transformation mandate by creating vehicles to capacitate Black-owned businesses and to level the playing field through internal and external initiatives. A key internal mechanism has been to revise all pro forma tender documents to align with the objectives of the Transformation Policy. The revision process focused on creating a dedicated section to deal specifically with the

procurement, training, mentoring, assistance and guidance to be given to subcontractors by the main contractor.

SANRAL is also in the process of establishing supplier development desks at all its regional offices and its head office. These desks will provide a service facility for SMMEs to access information on upcoming subcontractor tenders, tender opportunities related to SANRAL's strategic partnerships and assistance to register with applicable compliance and statutory bodies within the construction industry. An online portal that supports the physical supplier development desk is also being developed and will host the same services and information. The online portal will also contain information for SMMEs on how to tender for SANRAL subcontracts.

Through internal monitoring, SANRAL has established that a significant number of bidders are being disqualified due to eligibility criteria and are not able to proceed through the tender process and win tenders. This has also had a negative impact on the objective of increasing participation by small, Black-owned businesses. To counter this, SANRAL has initiated feedback sessions for unsuccessful bidders that will outline the reasons for disqualification and how to address these in future bids. In addition, SANRAL is procuring accredited training services for pre-tender training for SMMEs. The primary objective of this training



is to prepare small, Black-owned contractors to manage a successful construction entity and to understand the construction industry and the way that work is sourced. Trainees will learn the basic techniques of tendering, including financial management and discipline, business and resource management, and quality control. Accredited training will be offered to emerging companies/contractors in numerical skills and maths literacy, entrepreneurship, business management, conditions of contract, and tendering techniques and procedures. The estimated project investment is R12,000 per trainee, or a total of R600,000,000. The intention is to roll this out nationally and train some 50,000 participants over the next four to five years.

The long-awaited upgrade to the National Route N3 is also a project for transformation success. With work commencing on 21 January 2021, the project forms part of a R30bn upgrade programme for both the N2 and N3 highways in and around Msunduzi and the Durban Metropolitan Municipality in KwaZulu-Natal. Three packages have already been awarded for the N3 corridor. The awarded packages are located between the Dardanelles Interchange and the Lynnfield Park Interchange, Cato Ridge and Dardanelles, and Lynnfield Park and Ashburton. All three packages amount to R3.2bn, of which 30% has been allocated to targeted enterprise businesses in and around the project location.

In pursuit of its Transformation Policy objectives, SANRAL has committed to supporting the development and participation of Black-owned businesses by embarking on an extensive training programme. This programme seeks to empower the targeted enterprises with much-needed skills and knowledge to effectively participate in the upcoming subcontract opportunities created on the N2 and N3. More than 10,000 individuals from different targeted enterprise businesses will benefit from this initiative in the next two to three years.

SANRAL has also appointed a Regional Transformation Officer (RTO) at each of its regional offices. This role includes:

- Ensuring that SANRAL projects support the realisation of its Transformation Policy in terms of the project specifications
- Developing and maintaining excellent working relationships with all key stakeholders
- Assisting the regions in achieving meaningful transformation of key industry players, including consultants, contractors and suppliers
- Monitoring and measuring the progress of transformation initiatives within the regions

- Developing and growing the number of Black-owned service providers
- Assisting established Black-owned service providers to become larger entities

The introduction of this role has resulted in the Transformation Unit being better represented and participating across various SANRAL operations. There is also involvement by the RTOs in SANRAL's efforts to increase local participation in second-tier procurement. Through the efforts of the RTOs, the implementation of SANRAL's Transformation Policy is gaining momentum. Information sessions, facilitation of stakeholder inputs and the introduction of service providers to SANRAL's MoU partners are additional key areas managed by the RTOs. Interactions between the RTOs and stakeholders at initiatives such as the 'Taking SANRAL to the People' events encourage SMMEs to engage with SANRAL on matters that affect them. In addition, the RTOs will also host tender feedback sessions with SMMEs to create awareness around tender procedures for SANRAL project opportunities.

Although COVID-19 restrictions forced many stakeholder engagements to take place virtually, stakeholders welcomed the introduction of the RTOs and the supplier development desks. These initiatives have given them greater access to SANRAL and created a platform for quick responses to queries and concerns on the ground. The platform also serves as a control measure for the reporting of alleged fronting practices in addition to SANRAL's independent fraud hotline.

Eight percent of contracts – representing 77% of contract value – are being awarded to companies in which the majority of shares are owned by Black people. Black women held 12% of all contracts among the Black-owned companies.

1.3.1 Competency certification of Black-owned companies

The Construction Industry Development Board (CIDB) operates a voluntary grading system. SANRAL had contracts with 69 CIDB-graded companies with a majority of Black shareholders. As can be seen in the table below, the majority have capacity at the lower end of the scale, but there is a modest selection of Black-owned companies at the top end, and this will surely grow. CIDB registration is a pre-requisite for companies to compete for SANRAL-issued construction and consulting work.

CIDB gradings of registered Black-owned construction companies

	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8	Level 9	Total
Number	0	0	0	0	0	0	7	14	48	69
Percent	0%	0%	0%	0%	0%	0%	10%	20%	70%	100%



1.3.2 Regional SMME contracts for routine road maintenance

SOUTHERN REGION

The rehabilitation of National Route 2 (N2), Section 19, between Nqadu (km 21.40) and Mbokotwana River (km 38.00), and safety improvements at Dan's Place (between km 17.00 and km 19.00), are being performed in the Eastern Cape's District Municipality of OR Tambo and the Local Municipalities of Nyandeni and Mhlontlo. MARISWE (Pty) Ltd, formerly known as UWP Consulting (Pty) Ltd, are the appointed consultants on this project.

The aim of the project is to improve safety along this section of road and to upgrade it to current SANRAL standards. The volume of traffic using the road further underscored the need for improvements. The annual average daily traffic is in the order of 10,200 vehicles per day, with truck traffic of approximately 940 per day.

The project is located approximately 20km north of Mthatha and entails:

- N2, Section 19 will be rehabilitated, including safety improvements at Dan's Place between km 17.54 and km 18.54 and the rehabilitation and widening of the existing road from Nqadu (km 21.4) to Mbokotwana River (km 38.0).

- Ten major access roads linking to the N2, Section 19 will be upgraded.
- Approximately 12km of community access roads linked to the major access roads will be upgraded from gravel to surfaced road standards.
- Approximately 10km of concrete walkways will be constructed.
- A new pedestrian bridge will be constructed on the N2 at Mhlakulo School at km 21.75, where more than 1,800 learners cross the N2 daily.
- A taxi holding area will be constructed at the intersection of the N2 and R396 to Tsolo.

The R816m contract awarded to Triamic Construction (Pty) Ltd. commenced in July 2020 and the expected completion date is February 2023. An amount of R4,579,168 has been earned by 19 targeted enterprises engaged on the project to date. As the project continues, additional targeted enterprises and labour will be engaged to enable the contractor to reach the project's community participation goals.

Regional SMME contracts for routine road maintenance

EASTERN REGION

SANRAL R.022-050-2012/1: Widening of National Route R22, Section 5, through KwaNgwanase

The project is on the National Route R22, Section 5, from km 20.55 to km 24.42. The contract falls within KwaZulu-Natal and is situated within the Umkhanyakude District Municipality. This section of the R22 runs through the town of KwaNgwanase in the Umhlabyalingana Local Municipality.

The executive engineer undertook an independent analysis and confirmed that the project is feasible at the preferred bidder's tender price. KwaNgwanase is the gateway to Mozambique and is a renowned tourist attraction that forms part of the Isimangaliso Wetland Park, a World Heritage Site. It is also a business hub that serves a population of more than 500,000 people. The R22 acts as the main access road connecting all the businesses in the CBD, as well as communities to local schools and the only hospital (Manguzi Hospital). The need for the project arose due to increased traffic and a declining level of service resulting from the rapid growth of the CBD, which has seen many formal and informal businesses being opened.

Challenges on this section of the R22 include:

- Heavy delays through town due to illegal U-turns and vehicles parking on the road
- Poor access to the hospital and clinic
- Delivery trucks parking on the R22
- Influx of illegal traders with solid structures within the road reserve
- Conflict between vehicular and pedestrian traffic

The cost of the project is R325,074,590.14 (incl VAT and excluding contingencies and CPA).

The project division is made up as follows:

Description	Amount (Excl. VAT)	VAT	Total amount (Incl. VAT)
Scheduled work	R 282,673,556	R 42,401,033	R 325,074,590
Contingency	R 57,000,000	R 8,550,000	R65,550,000
Total	R 339,673,556	R 50,951,033	R390,624,590.14
Contract price adjustment (CPA)	R 56,000,000	R 8,250,000	R63,250,000
Total incl. (CPA)	R 394,673,556	R59,201,033	R453,874,590

Project status:	Mobilisation completed in December 2020; construction is in its fourth month
Progress:	4% to date
Number of SMMEs:	Three SMMEs, plus five to be appointed on an ad-hoc basis (all appointed in March 2021)
Value earned by SMMEs:	Work of SMMEs commenced this month (no payment to date)
Estimated completion date:	December 2022

Sub-contracts invoiced to date

Subcontract/ RFQ	Company	Value (incl. VAT)	Invoiced to date
RFQ745/001 Supply and delivery of concrete pipes	Zine Lezintombi Trading and Services (Pty) Ltd	R3,182,500	Nil
R.022-050-2-12/1_SC1 Site security services	Masweswe Security	R1,370,203 (excl VAT)	R46,483 – invoice not yet paid
R.022-050-2-12/1_SC3 Traffic accommodation	TN Kwesaba Contracting CC	R8,040,725	Nil
RFQ745/003 Provision of plant	<ul style="list-style-type: none"> • Zabalaza Lodge CC • Maputaland Housing • Siyamdumisa Trading • Opulence Group • PCB Projects 	Ad-hoc contract	<ul style="list-style-type: none"> • R32,740 – invoice paid • R62,445 – invoice paid • R27,25 – invoice not yet paid • Nil • Nil

Regional SMME contracts for routine road maintenance



WESTERN REGION

N.012-060-2018/1:

Periodic maintenance (resurfacing) of National Route 12 (N12), Section 6, between Victoria West (km 0.00) and Rietpoort (km 28.00)

The project to patch and reseal the current road surface is in the Northern Cape in the district Municipality of Pixley ka Seme and the Ubuntu Municipality.

Project cost:

R81,885,000
(inc VAT, excluding CPA and contingencies)
(Total contract value)

Project status:

Awarded and in construction phase

Progress:

75% complete

Number of SMMEs:

13 SMMEs appointed

Value earned by SMMEs:

R11,388,846

Estimated completion date:

30 June 2021



NORTHERN REGION

N.001-290-2005/1:

Construction of the Musina Ring Road Project

The project is located on National Route 1, Section 29, to the west of the town of Musina in the District Municipality of Musina in Limpopo, forming part of the Great North Toll Road N1, Section 29, Musina Ring Road.

The work consists of the construction of approximately 8km of greenfields single-carriageway freeway to form the western ring road around the town. The alignment deviates from the existing N1, Section 29, alignment at km 0.0, south of Musina, and ties back into the existing alignment at km 7.7 north of the town.

Project cost:

Basil Read R237,557,350 (incl. CPA and VAT)
Raubex R511,291,063 estimate (incl. CPA and VAT).

Project status:

Construction re-commenced under cession from Basil Read to Raubex on 3 December 2019, with contractual completion being 20 January 2022 and anticipated completion on 11 May 2022.

Progress:

54% complete at end of March 2021

Number of SMMEs:

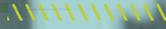
Five SMMEs employed to date by Raubex and a further eight have been awarded contracts but still await their activities to start

Value earned by SMMEs:

Value earned by SMMEs: Value paid to the SMMEs at the end of March 2021 was R23,887,209 on targeted enterprises. The total for BR and Raubex is thus R43,765,169.

Estimated completion date:

11 May 2022 (the contract was delayed by a homeowner who is unwilling to relocate; further delays may postpone project completion).



2

SECTION 2 CAPITALS AND PERFORMANCE

2. Funding Capital

2.1 Annual Income	69
2.2 Toll roads under concession	75
2.3 Land portfolio management	78

SANRAL recorded revenue of R12.604bn, including grants in the 2020/21 financial year.

In addition, SANRAL received finance income of R1.420bn and other income of R1.581bn, bringing total income to R15.605bn.



The following summary outlines 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. These 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 Gauteng Freeway Improvement Project (GFIP), government grants have become a significant supplementary funding source for the toll portfolio.

In addition, 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 and 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.

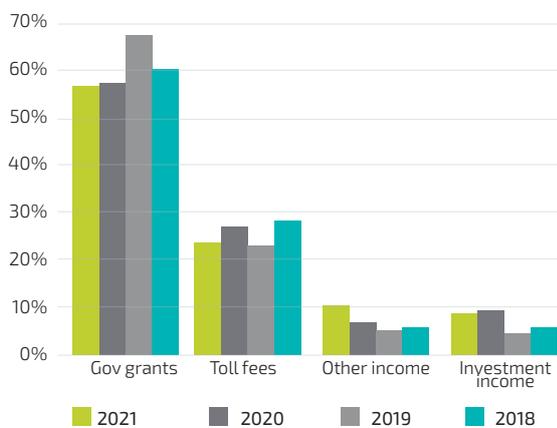


2.1 ANNUAL INCOME

SANRAL recorded revenue of R12.604bn, including grants, in the 2020/21 financial year. 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. In addition, SANRAL received finance income of 1.420bn and other income of 1.581bn, bringing total income to R15.605bn.

Main sources of revenue R'000	Current year	Prior year
Government grants: Non-toll	R6,175,693	R6,551,922
GFIP grant: Toll	R2,721,793	R2,667,939
Toll income	R3,706,874	R4,370,120
Investments	R1,420,419	R1,478,131
Other income (sundry, concession and rental)	R1,580,559	R1,071,320

Total Income





Msikaba Bridge: Innovative design meets smart mobility

The N2WCR Project on the N2 will serve as a vital economic artery, connecting the Western Cape, Eastern Cape, KwaZulu-Natal and Mpumalanga, and the cities and towns of Cape Town, George, Knysna, Port Elizabeth, East London, Mthatha, Durban and Ermelo.

This strategic project for the Eastern Cape forms part of the government's Strategic Infrastructure Projects (SIP-3) and is endorsed by the Presidential Infrastructure Coordinating Commission (PICC) as a catalyst for economic development in the province.

However, the project is not just an economic masterpiece of planning; it has also engaged our engineers in resolving substantial geographic challenges, notably in the construction of numerous bridges, including the mega-bridge structure spanning the Msikaba River. The tender for the bridge was won by a joint venture between South Africa's Concor and Mota-Engil, a major international construction firm.

The 580m-long, R1.65bn Msikaba Bridge will be the longest main span (constructed using the cable-stayed method) bridge in Africa, and the second-longest main bridge span in Africa, after the Maputo-Catembe suspension bridge in Mozambique. The size and complexity of the bridge are beyond anything previously built in southern Africa.

Designed by the Danish architectural firm Dissing+Weitling, the bridge is a concrete structure with a deck 22.8m wide, with walkways on both edges. Some 2,700 tons of structural steel and 2,500 tons of cables are expected to be used in its construction. Dissing+Weitling was also the firm behind the award-winning Nelson Mandela Bridge in central Johannesburg.

With a deck height of 194m above the river valley, Msikaba will become the third-highest bridge in Africa and the 133rd highest in the world. In addition, its cable-stay design will ensure that construction will





have no direct impact on the pristine gorge environment almost 200m below, which is one of the environmental requirements of the build.

Apart from the sheer engineering ingenuity required, the construction of the bridge – expected to be completed by the end of 2023 – provided a large number of job opportunities for local suppliers, service providers, local subcontractors and residents.

It is estimated that during the construction of the N2WCR, more than R4bn will be earned by targeted enterprises, predominantly local, with more than R700m in direct wages flowing into surrounding communities. Construction work will create approximately 8,000 direct full-time employment jobs, with a wage bill of roughly R750m, as well as between 21,300 and 28,100 indirect jobs. Once the road is completed, ongoing operational work is anticipated to create 900 direct jobs and up to

18,900 indirect jobs. These figures underscore the positive long-term economic impact of the project.

N2WCR covers approximately 410km between the Gonubie Interchange near East London in the Eastern Cape to the Mtamvuna River on the border of KwaZulu-Natal and the Eastern Cape near Port Edward. The new N2 route will reduce carbon emissions and result in a time-cost saving to motorists and logistics operations of approximately R1.5bn per year. It will benefit existing and new businesses, communities and farmers along the route, as well as freight and logistics, tourism and road users. It is estimated that regional and local economies will be boosted significantly, with a return on investment of R3,15 unlocked for every R1 spent on construction.

A perfect example of innovative design meeting the needs for smart mobility.



2.1.1 Non-toll road revenue and expenditure

The annual grant made by the National Treasury to SANRAL in respect of capital and operational expenditure on non-toll national roads amounted to R20.400bn in 2020/21. Except for the 2021 financial year, this grant has increased steadily at a rate above inflation since SANRAL's inception. In the 2021 financial year, the National Treasury approved special adjustments to the budget allocations. These included an overall reduction on the non-toll grant of R1.351bn.

SANRAL defers the unspent portion of the National Treasury allocation to the following year. In the 2021 financial year, the deferred amount was R12.002bn. This was mainly due to a decline in road maintenance expenditure and a slowdown in rehabilitation and upgrading projects. The underspending was exacerbated by the restrictions imposed by the national lockdown regulations. Of the total grant, R1.430bn was capitalised.

The remainder of the annual grant is allocated to road

maintenance and operational expenditure, of which R6.175bn was recognised as revenue.

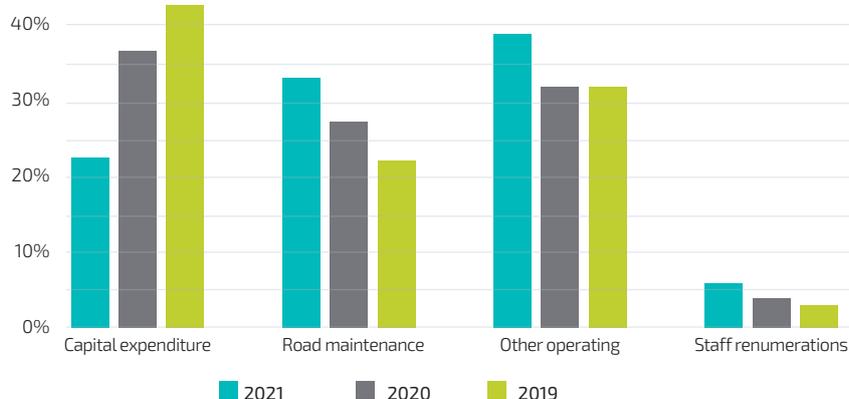
The previously deferred grants that are realised in the current year. In the 2021 financial year, the previously deferred income realised in the current financial year amounted to R2.339bn.

Total capital expenditure on construction projects on non-toll roads amounted to R1.875bn in 2020/21 while special and periodic maintenance projects amounted to R559m. There were 137 routine maintenance projects in operation on the SANRAL non toll road network amounting to a total expenditure of R1.783bn in the 2020/21 financial year.

The decline was due to significant underspending on toll projects as a result of delays on procurement processes, which was exacerbated by the effect of the lockdown regulations on the progress of construction projects.

The main categories of expenditure on non-toll roads were:

Non-toll expenditure



Non-toll expenditure			
Non-toll roads	Number of projects	Length of road involved (km)	Cost ('000)
Periodic maintenance	13	51,533	R228,474
Special maintenance	14	74,845	R330,269
Total	27	126,378	R558,743

Non-toll roads Capex			
Non-toll roads Capex	Number of projects	Length of road involved (km)	Cost ('000)
Strengthening	7	19,017	R240,561
Improvements	21	36,127	R894,109
New facilities	19	15,372	R740,644
Total	47	70,516	R1,875,314

2.1.2 Toll road revenue and expenditure

SANRAL's toll roads comprise the following:

- Sections of the N1 in the Western Cape, Free State, Gauteng and Limpopo north of Bela Bela
- A section of the R30, R34 and R730 from the N1 South of Brandfort, past Theunissen, Virginia, Riebeeckstad, back to the N1 near Kroonstad in the Free State, from the R30 Toll Road.
- Several sections of the N2 in the Eastern Cape and KwaZulu-Natal, including near King Shaka Airport
- A short stretch of the N4 just west of Pretoria
- The N17 from Gauteng through to Ermelo in Mpumalanga
- The Gauteng freeway system (N1/N3 and R21)



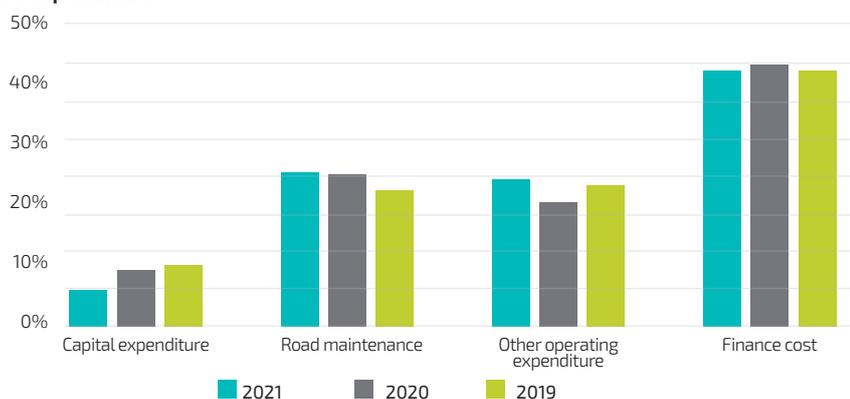
Total toll revenue realised on these routes during 2020/21 was R3.706bn, representing a decrease of 15.2% from the previous year. The tariff adjustment for the year was restricted to a CPI-related rate of 3.31%, and the decline of revenue was mainly due to decreased traffic volumes on these roads as a result of the travel/mobility restrictions during the national lockdown (level 2 to 5).

The GFIP showed a decrease of 31.3% in revenue. This project is SANRAL's only toll route that receives a government grant. This grant is intended to offset the discounts on tariffs instituted in response to public opposition to tolling on Gauteng freeways and to compensate for the loss of income while the decision on its future is awaited. In 2021, this grant amounted to R2.722bn. The Minister of Transport, as SANRAL's sole shareholder, approved a transfer of R2.530bn to the GFIP account from the non-toll government grant to reduce the expected shortfall. The decrease in revenue collection was also worsened by the impact of lockdown; however, this impact could not be quantified.

All other toll roads operated by SANRAL realised an increase in revenue of 12.3%, which was attributable to the decreased traffic volumes and tariff adjustments.

Total capital expenditure on construction projects on SANRAL toll roads amounted to R373m in 2020/21. There were 25 routine maintenance contracts in operation on the SANRAL managed toll roads amounting to a total expenditure of R332m in the 2020/21 financial year.

Toll expenditure





Toll road expenditure			
Toll road capex	Number of projects	Length of road involved (km)	Cost ('000)
Strengthening	1	0.058	R887
Improvements	2	4.466	R211,480
New facilities	6	2.476	R160,437
Total	9	7.0	R372,804

Due to the declined revenue flow for toll roads and the overall cost reduction in operating these roads, the net loss for the 2021 year was R529m.



Profit/loss before taxation

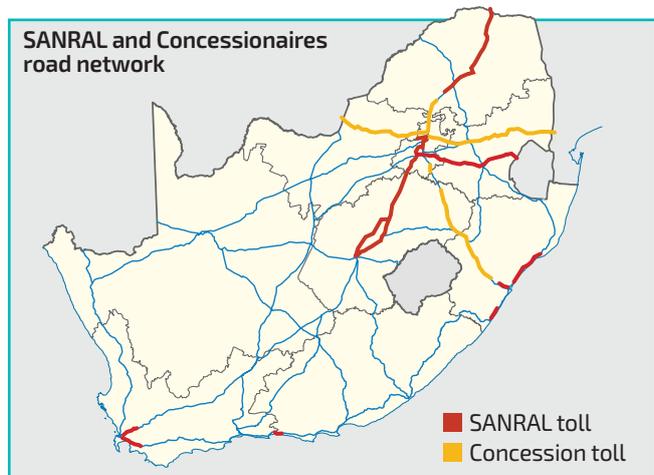
Trend in profit/loss before taxation

	Non-toll operations	Toll operations	Total
2017/18	+R1.104m	-R1.521m	-R418m
2018/19	-R96m	+R2.517m	+R2.421m
2019/20	+R710,843	+R552,498	+R1,263,341
2020/21	+R836,334	-R455,552	+380 782

2.2 TOLL ROADS UNDER CONCESSION

The toll roads under concession and the companies responsible are as follows:

- TRAC manages the N4 eastward from Pretoria (Tshwane) to Maputo for the period 1997–2028.
- N3TC holds the concession for the N3 between Cedara in KwaZulu-Natal and Heidelberg in Gauteng for the period 1999–2029.
- Bakwena manages two routes: the N1 between Pretoria and Bela Bela in Limpopo and the N4 going west from Pretoria to the Botswana border. This concession is for the period 200–2031.



All three companies are non-listed entities purpose-built for toll road management. Their shareholders are various, but all three include the Public Investment Corporation (PIC), which is responsible for investing the Unemployment Insurance Fund and the Government Employees Pension Fund.

Initial capital for construction of the toll roads under concession was raised by the relevant companies by shareholder contributions and borrowings on capital markets. The servicing of this debt is entirely the responsibility of the concession holders.





2.2.1 Road infrastructure expenditure

The total expenditure of the three companies on capital road improvement projects in 2020/21 amounted to R1.675bn and spending on routine road maintenance was R145.1m

TRAC capital improvements	R562.7m
TRAC road maintenance	R57.1m
Bakwena capital improvements:	R212.9m
Bakwena road maintenance:	R42m
N3TC capital improvements	R899m
N3TC road maintenance	R46m

The second figure excludes costs associated with the repayment of debt, debt servicing (interest), taxation and other operational costs.





2.3 LAND PORTFOLIO MANAGEMENT

SANRAL leased 362 properties (amounting to 202 leases) in 2020/21 and realised R28,484,865 during the year. Properties include SANRAL's head office and its regional offices. SANRAL has three green buildings in Tshwane, Nelson Mandela Bay and Cape Town that reduce SANRAL's carbon footprint, realise savings in energy consumption and adhere to green principles. While road reserves are maintained using routine road maintenance contracts, the surplus land is managed by a specialised service provider that carries out surveying, valuing and general property management services and maintains all of SANRAL's offices. The contract was concluded in 2015 for an initial period of five years and has a value of R943.4m.

The current contract has been split into nine contracts and let to tender. Three contracts are for land acquisition and survey, property management and valuation, and five contracts are for facilities management. This approach was adopted to allow more contractors to access opportunities emanating from SANRAL's property portfolio. At year-end, the property management contract and two facilities management contracts had been awarded.







3

SECTION 2 CAPITALS AND PERFORMANCE

3. Intellectual Capital

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COVID-19 accelerated the adoption of digital technologies. As a result, the SANRAL mobile app has increased users and top-ups over the past 12 months. There are currently more than 51,000 active users using iOS and Android, with a total of R226 million top-ups to mobility accounts.

The TIH is exploring machine learning (ML) to make more effective use of SANRAL's data. Data is collected from various sources, such as field devices like vehicle detection systems (VDS), cameras and floating car data (a collection of anonymised road traffic data from GPS and cellular providers).



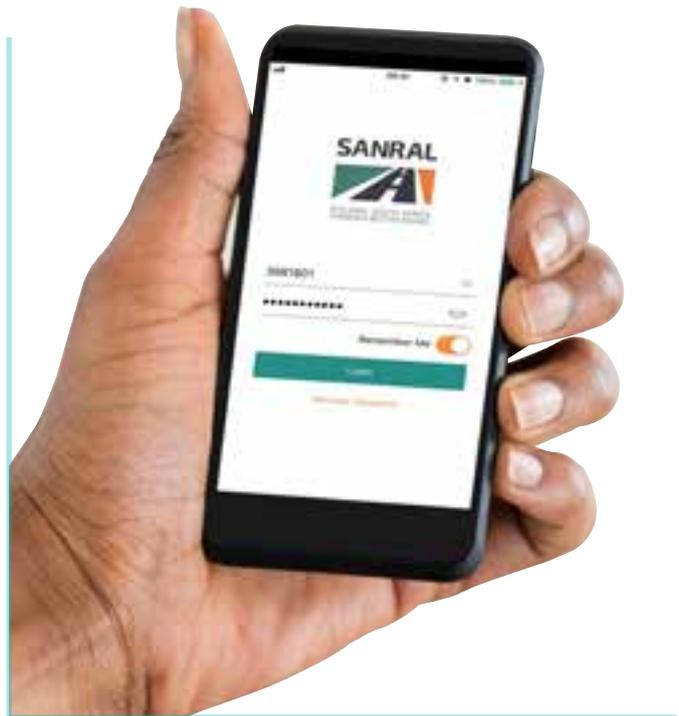
3.1 VALUE-ADDED SERVICES

The road to mobility as a service (MAAS).

NORTHERN REGION

SANRAL's e-toll system has created significant infrastructure development and capabilities that the Agency is using to leverage additional value. SANRAL will continue to investigate and implement several projects to leverage this existing infrastructure to the benefit of road and public-transport users and to generate additional income for the Agency.

SANRAL developed a mobile application to allow road users and commuters improved access to information services, planning tools and top-up or payment channels.



3.2 STAGES OF PROGRESS

Value-added services (VAS) are in various stages of development, and are classified as follows:

STABLE SOLUTIONS:

Services such as parking and account-based ticketing that have reached some state of implementation and maturity, and are either being operated or are at the point of piloting.

DEVELOPING SOLUTIONS:

Services such as average speed over distance (ASOD), for which requirements have been completely developed but the administration is yet to be completed for full implementation.

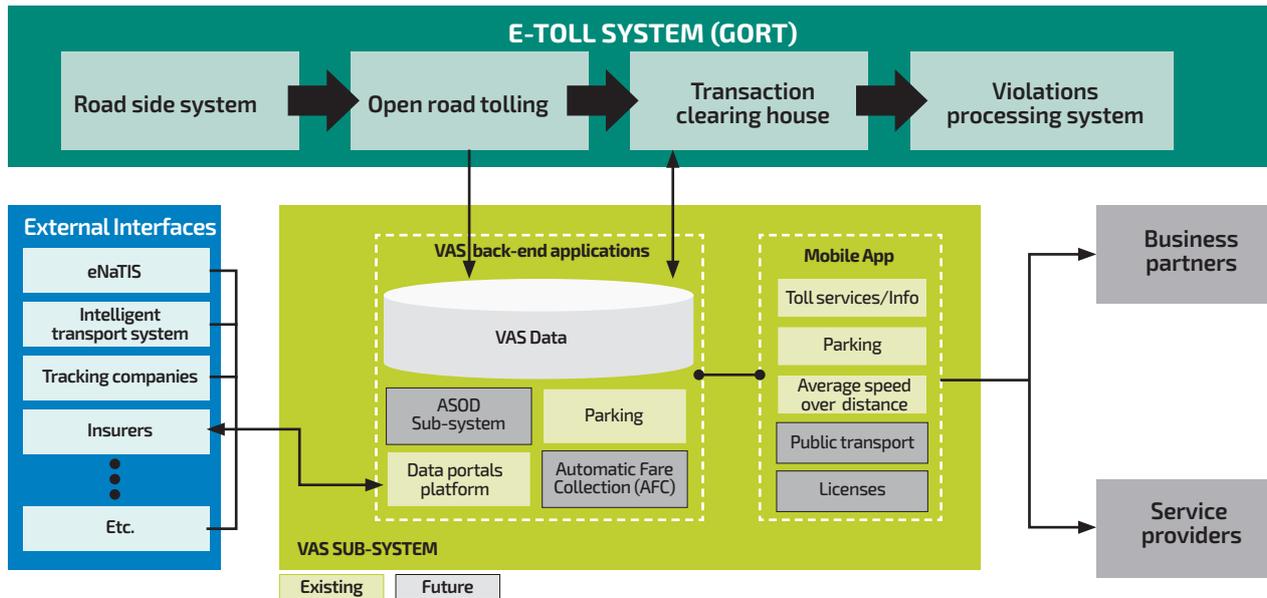
PLANNED SOLUTIONS:

Services are still at the concept stage.

3.3 OVERVIEW OF THE CURRENT VALUE-ADDED SERVICES ENVIRONMENT

Value-added services (VAS) are being developed to reposition the Transaction Clearing House (TCH), where the e-toll account becomes a 'mobility account' that can be used nationally for the payment of mobility and transport-related services, such as public transport.

VAS system conceptual overview



The VAS system has a number of key technical and operational relationships and interfaces, including:

- Main interface with the TCH (technical) for account-hosting and transaction-processing services.
- External data partners that provide data inputs into the VAS environment. The objective of managing the relationship with these partners is to ensure that data flow into the VAS environment is maintained and/or adjusted as required. This includes the technical interface to obtain the data and is subject to the availability criteria as specified for the main interface above.
- External business partners refer to any other business partner that SANRAL has engaged with to develop or maintain any part of the VAS environment.
- Service providers are external organisations contracted to deliver a part or the whole of a value-added service (for example, parking).





3.4 MOBILITY ACCOUNT STRUCTURE

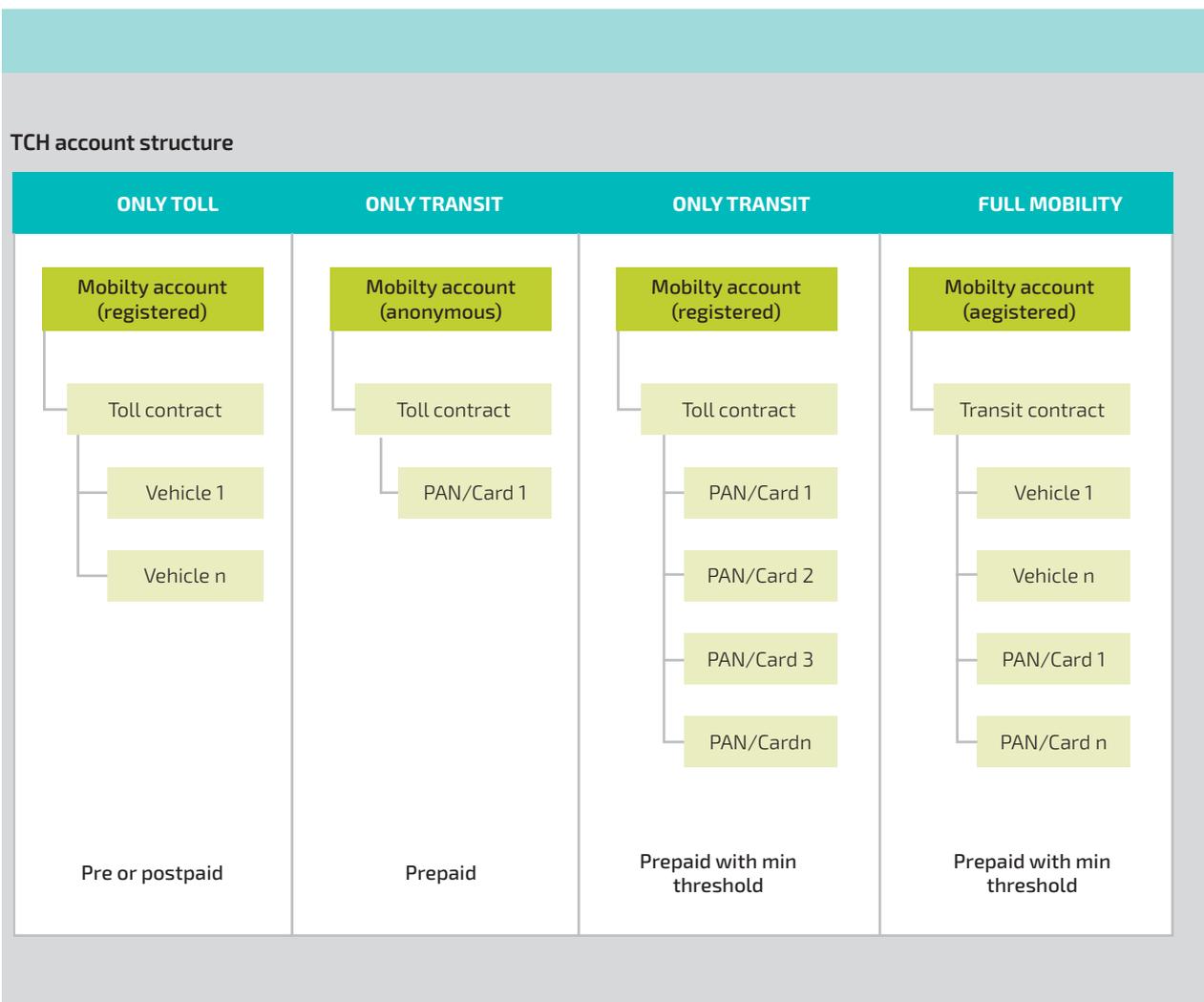
The mobility account structure is shown in Figure 2, and supports the following three types of concepts:

- **Only Toll Concept** (default existing in the system)
 - This allows for the processing of electronic and manual toll transactions (e-tag or VLN is the unique identifier).
- **Mobility Concept** – This allows for any service that requires a vehicle registration, e.g., parking, licensing, loyalty, etc. (e-tag or VLN is the unique identifier).
- **Transit Concept** – This enables public transport services and where no vehicle will be required for a transaction. A 16-digit PAN will be used as the unique identifier.

A road user can have a mobility account in the TCH that uses only the Toll Concept, the Toll and Mobility Concepts or all three. Lastly, a commuter can use the Transit Concept only (people who use public transport only).

The Transit Concept can accommodate both anonymous prepaid accounts and registered prepaid accounts. The registered account option allows an account holder to link multiple PANs/ cards to the same account, in which case the account will have a funding requirement of prepaid only with a minimum threshold.

A final option of the Transit Concept includes the full mobility account (available for registered accounts only). The full mobility account can include a hybrid of a vehicle and PAN/ card identifier and has a prepaid minimum threshold funding requirement.



3.5 SANRAL MOBILE APP

Background

COVID-19 accelerated the adoption of digital technologies by several years, pushing companies over the technology tipping point and transforming business models forever. This resulted in SANRAL making significant strides with the SANRAL app.

Current functionality addressed by the SANRAL app includes:

- Logging into one's mobility account and obtaining an account overview
- Obtaining account balances and financial transaction history
- Managing linked credit/debit cards
- Topping up an account with a linked credit/debit card
- Lodging an enquiry with SANRAL
- Contacting SANRAL via email or call centre from the mobile device
- Logging into the account using biometric authentication (if available)
- Updating the account profile from a mobile phone
- Providing feedback to SANRAL on app improvements, mobility account uses and general SANRAL improvements
- Reporting on transactions, monthly spend and discounts received (if applicable)
- Other value-added services (VAS) functions, including:
 - Enabling the renewal of licence discs and the payment of traffic fines
 - Registering for parking and speed alert services
 - Managing vehicles and tags that are linked to an account

SANRAL mobile app statistics

The SANRAL mobile app has seen an increase in users and top-ups over the past 12 months. The table and graph show that there are currently more than 51,000 active users on iOS and Android, with a total of R226m top-ups to mobility accounts.

Active users

MONTH	NO. OF USERS	CUMULATIVE USERS	MONTHLY TOP-UP VALUES
Apr-20	381	33,696	R3,329,447
May-20	- 643	33,425	R6,499,630
Jun-20	1,761	34,343	R8,366,985
Jul-20	459	34,802	R9,707,674
Aug-20	2,961	37,763	R11,524,522
Sep-20	720	38,483	R12,549,789
Oct-20	1,128	39,611	R14,050,303
Nov-20	5,942	45,553	R15,222,354
Dec-20	3,259	48,812	R14,729,693
Jan-21	- 77	49,367	R13,212,525
Feb-21	1,008	49,880	R13,741,389
Mar-21	1,730	51,473	R16,920,550

Cumulative SANRAL app users



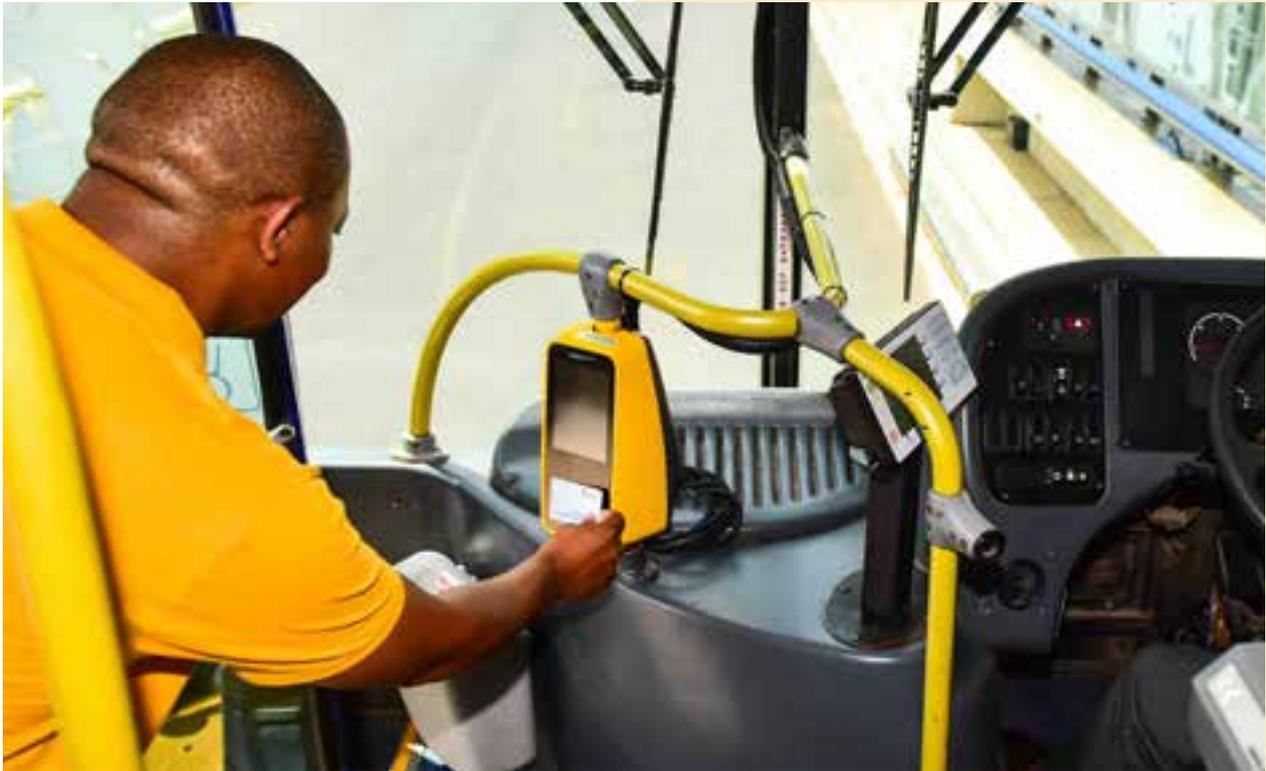


3.6 PARKING

SANRAL developed a parking value-added services solution using a vehicle licence number (VLN) as an identifier to link users to their mobility accounts. SANRAL has entered into partnerships with service providers (such as KaChing and Admyt) with installed infrastructure at parking facilities across South Africa. It is envisaged that this will ultimately be expanded nationally.

The SANRAL VAS Parking Solution has been implemented on a pilot basis at 22 parking facilities in Gauteng. The two service providers have processed more than 16,000 transactions in the past 12 months. The implementation and take-up of this parking solution by road users has been hampered by the COVID-19 pandemic, and the fact that many shopping malls are not charging for short-term parking during this time.





3.7 ACCOUNT-BASED TICKETING

With the National Department of Transport (NDoT)-sanctioned account-based ticketing (ABT) solution facilitated by SANRAL, public transport operators (PTOs) can move away from multiple, non-integrated fare collection systems to systems that require only a single account identifier. This will allow commuters to utilise multiple modes of transport, regardless of whether the services are managed by a single operator or by multiple operators.

The ABT solution is not intended to replace any existing automated fare collection (AFC) systems at PTOs. Instead, the objective is for them to interface their systems to the ABT back-office infrastructure at the SANRAL TCH to take advantage of the account-hosting and transaction-processing services and capabilities on offer. This will connect PTOs to a common technology and services platform and allow commuters to experience truly integrated multimodal public transport services in an integrated public transport network.

Implementing a fare collection system based on the NDoT ABT system has vast benefits and can largely mitigate many of the challenges faced by the public transport industry. Salient benefits that can be achieved include the following:

- There is no need to establish an electronic ticketing clearing house for the settlement of obligations between

operators. Operators receive payment when the service is provided. Clearing fare transactions and the settlement of the fare transaction value take place between the operator and SANRAL.

- Account top-up points-of-presence (PoP) and infrastructure are put in place by SANRAL.
- An ABT system will result in major capital and operational cost savings for transport operators and regulators.
- Simple and reliable fare collection and payment services where the balance 'open to spend' and proof of entitlement to travel are held in the back-office account hosting system as well as on the fare media.
- Full multimodal travel and integrated fare with the use of a common (contactless) fare media that is interoperable across the services of all participating PTOs and meets the common requirements of all PTOs in an integrated public transport network.
- The collection and distribution of operational and management information could leverage off the fare collection network infrastructure. This would greatly reduce the cost of establishing new collection and distribution systems for travel data collection.



SANRAL's roadmap to mobility as a service (Maas)

- 1 Mobile account
- 2 Interoperable fare collection
- 3 Extensive POP's
- 4 AFC hosting
- 5 3rd party apps
- 6 Full mobility account
- 7 Route planning
- 8 Maas
- 9 Through ticketing



ABT end-to-end process flow

The process starts with the commuter, who either wishes to travel using public transport or to top up their mobility account. The PTO is allowed to focus on its core business (i.e., the provision of transport), while the ABT system deals with processing both usage and top-up transactions. In addition, the ABT system provides numerous account top-up POPs for commuters – referred to as payment channels. The process ends where the PTO receives funds from SANRAL for the services provided.

Stakeholders

The stakeholders in the ABT system, as depicted in their numerical order in the infographic that follows, are defined in their respective roles and responsibilities below.

Commuter (1)

The commuter is the end user of the ABT system and uses ABT fare media (travel card) linked to a mobility account to pay for travel on a PTO's system. A commuter participates either by topping up their mobility account at the selected payment channels or by paying for transport using the ABT fare media.

Public transport operator (2)

The PTO provides the transport service to the commuter. To utilise the ABT system, the PTO is required to accept the commuter's ABT fare media as means of payment for the travel fare.

AFC system provider (2)

The AFC system provider implements the PTO's AFC system. In some cases, the AFC system provider also operates the AFC system on behalf of the PTO.

SANRAL ABT (VAS) (3)

The SANRAL ABT (VAS) implements and operates the ABT system that deals with the transaction acceptance for both usage (from PTOs) and top-ups (from top-up agents), and the forwarding of transactions to the SANRAL TCH.

SANRAL TCH system (3)

The SANRAL TCH system deals with the transaction processing for both usage (from PTOs) and top-ups (from top-up agents) via the SANRAL ABT (VAS) system.

National payment system operator (4)

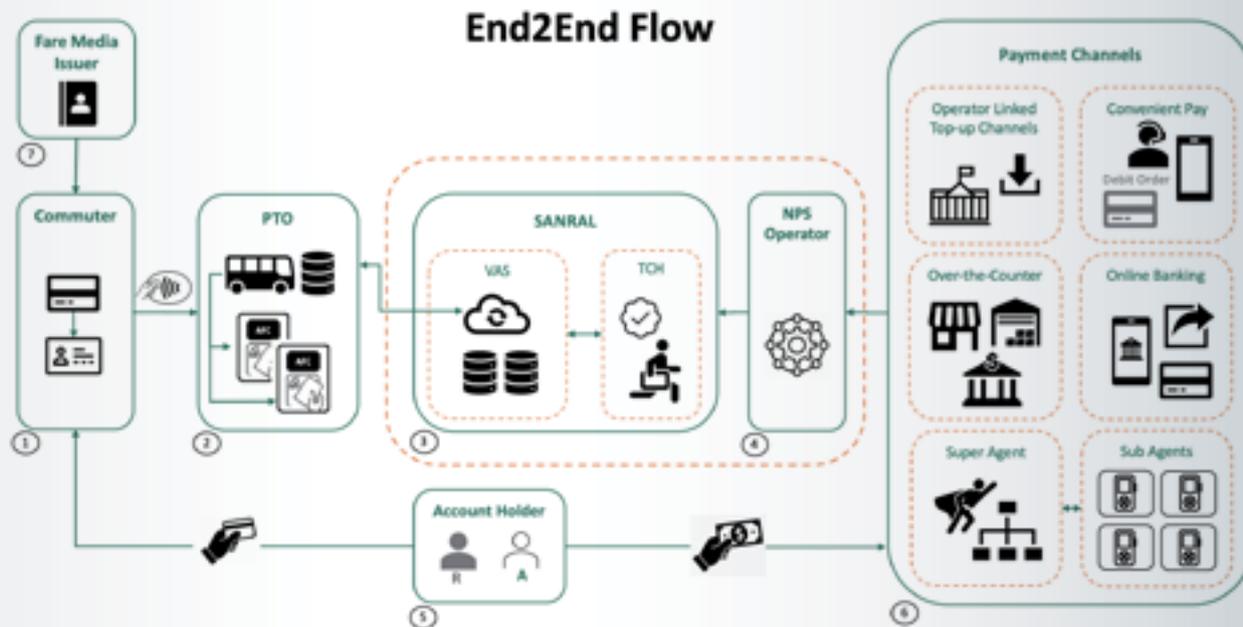
The national payment system operator (NPSO) facilitates the submission of top-up transactions from payment channels (top-up agents) to the SANRAL TCH.

Mobility account holder (5)

The mobility account holder is the person who has a mobility account and, in most cases, is the same person as the commuter. The mobility account holder is responsible for managing the mobility account. Multiple travel cards (i.e., commuters) may be associated with (using) the same mobility account.



End-to-end process flow



Payment channels (6)

The commuter may use various payment channels, including:

- Operator-linked top-up channels
- Convenient pay options (debit order, call centre and the mobile app)
- Over-the-counter options (selected retail outlets and municipalities)
- Online banking (EFT and scheduled payments)
- Top-up super-agent or a top-up sub-agent

Top-up agents (6)

The top-up agents are appointed by SANRAL and are responsible for performing top-ups to mobility accounts on behalf of a commuter. Super-agents and sub-agents are special types of agents performing this function.

Top-up super-agents

The super-agent performs the functions of a top-up agent by appointing and managing numerous sub-agents who top up mobility accounts via the super-agent. They are the intermediaries between SANRAL and the sub-agents.

Top-up sub-agents

Sub-agents have the same function as a top-up agent, except they have no direct relationship with SANRAL. They perform their top-up functions via a super-agent.

Fare media issuer (7)

The fare media issuer is an entity that elects to issue ABT fare media and enters into an agreement with SANRAL to do so. The fare media issuer orders ABT fare media from a fare media supplier and, once certified, distributes the ABT fare media to the commuter. This role can be performed by the public transport operator or any other third-party issuers, like retail agents.

Fare media supplier (7)

The fare media supplier is the entity contracted by a fare media issuer to manufacture the ABT fare media as per relevant specifications. This is then supplied to the fare media issuer.





STAKEHOLDER RELATIONSHIPS

Regulatory changes

A strategic imperative for the NDoT is the achievement of integrated fare collection and multimodal travel. The ideal fare collection system needs to facilitate convenient travel via multiple modes of public transport using a single or common fare media.

To facilitate the achievement of the NDoT's objectives, the Minister of Transport issued regulations in June 2011, under the auspices of the National Land Transport Act of 2009, detailing fare media requirements with which AFC systems need to comply. The NDoT has endorsed the SANRAL ABT solution and advises cities and PTOs to obtain proposals from their AFC vendors and to investigate the feasibility of upgrading their current AFC systems to accept the SANRAL ABT solution. In addition, they are advised to include the ABT solution in the requirements of any AFC tenders to be issued.

Amendments to the regulations, which include the SANRAL ABT solution as a mandatory fare collection method for all public transport services, have been drafted and published in the Government Gazette for comment.

Automated electronic toll payment

During 2020/21 the implementation of Electronic Toll Collection at all SANRAL Managed Toll Plazas, and Toll Plazas managed by Concessionaires continued. The adoption of the electronic payment option by many road users has reduced congestion at toll plazas during busy periods. An increased use of ETC in especially KZN Toll Routes and plazas were evident.

In 2020/2021, the average electronic toll transactions at SANRAL managed toll plazas per route ranged up to 16% of the total traffic, at a combined value of R753,273,744.

During the same period, the average electronic toll payment transactions of the traffic at toll plazas managed by concessionaires were:

<p>Bakwena 23% of total traffic, to the value of R373,535,027</p>	<p>TRAC 25% of total traffic, to the value of R462,751,714</p>	<p>N3TC 21% of total traffic, to the value of R583,418,163</p>
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Photo credit: CSIR

3.8 TECHNICAL INNOVATION HUB

The Technical Innovation Hub (TIH) is located in the SANRAL Western Region offices. The TIH is tasked with investigating and piloting new technologies within the road environment. It has five staff members: the head of the TIH and four project managers in training, with mechatronics, electronics and electrical engineering backgrounds.

The following are some of the exciting projects the TIH has been involved with over the past year:

- Transport has been identified as the fastest-growing source of greenhouse gas (GHG) emissions, accounting for around 10,8% of national emissions. Direct emissions from the road sector account for 91,2% of this. The TIH has identified key sites along the major national road network for the erection of electrical vehicle (EV) fast-charging stations (≥ 60 kWh) based on the currently available infrastructure and average EV range capabilities. As part of this project, the N3 corridor has been identified as a trial section to construct EV fast-charging stations. The budget has been allocated to pursue this as part of project X.004-030-2021 in the next financial year.
- The TIH is exploring machine learning (ML) to make more effective use of SANRAL's data. Data is collected

from various sources, such as field devices like vehicle detection systems (VDS), cameras and floating car data (a collection of anonymised road traffic data from GPS and cellular providers). Two aspects of ML are being investigated. The first is the use of image recognition on camera systems for real-time incident detection. The second is the use of historical data for predictive modelling.

- The manufacturing of road signs from recycled tyres is an innovation that can reduce the environmental impact of used tyres and is supported by the Waste Management Bureau of the Department of Environment, Forestry and Fisheries. The TIH has conducted a pilot into the use and feasibility of rubber road signs manufactured from recycled tyres. After monitoring the rubber road signs for six months, no ultraviolet (UV) degradation (i.e., fading in colour, loss of strength, premature cracking or disintegration of the rubber) could be observed. Furthermore, no delamination between the retroreflective material and the rubber mould could be observed upon visual inspection after six months of sun exposure. This is part of an ongoing study and further monitoring is being conducted. It is hoped that this pilot project will serve as a benchmark for adopting South African standards for the use of rubber road signs.

Conductive (catenary/overhead) ERS concept

- The TIH is actively participating in the PIARC (World Road Association) Task Force 2.2, which is investigating electrical road systems (ERS). Electrically powered vehicles are increasingly seen as a solution to reduce transport carbon emissions. One potential method of charging electric vehicles is through ERS that provide dynamic on-road charging.
- The TIH is investigating the use of touch tables within the SANRAL environment. A touch table is an interactive multi-touch screen. It is interactive in that it allows

a two-way flow of information between a computer and the computer user, responding to a user's input. Additionally, multi-touch technology enables a surface to recognise the presence of more than one point of contact with the surface.

Touch tables support collaboration and learning. The technology enables several people to control and interact with the information on the same screen simultaneously (Shen et al, 2009).

Touch table in use (*photo taken pre-COVID regulations)



Machine learning can make our roads safer

SANRAL's Technical Innovation Hub (TIH) is exploring the use of machine learning in improving road safety, reducing congestion and informing infrastructure development.

The TIH is at the forefront of harnessing technology to inform, improve and expedite road safety across the South African road network, drawing from extensive research into industry best practice and collaborations with various stakeholders in the road safety arena, both nationally and abroad.

Data is collected from various sources, such as vehicle detection systems (VDS), cameras and floating car data (FCD), a collection of anonymised road traffic data from GPS and cellular providers. Machine learning is then applied to further enhance the use of this data for applications such as automated incident detection and incident prediction models.

TIH mechatronics engineer Ruan van Breda notes that South Africa has a poor road safety record compared to other middle-income countries.

"Road traffic crashes have a significant socio-economic impact," he says. "In 2015 alone, they cost the country an estimated R143bn, or about 3.4% of gross domestic product. By enhancing our data, we hope to make

better decisions regarding engineering, education and enforcement interventions. One example is the optimised deployment of resources where and when they are most needed."

SANRAL has been using Freeway Management Systems (FMS) for more than a decade in Gauteng, KwaZulu-Natal and the Western Cape. These FMS systems use an Advanced Traffic Management System (ATMS) that allows for real-time incident management and data capture.

Information from ATMS enables more efficient detection and reporting of incidents. It is used to notify first responders of incidents and assist in scene management, as well as helping to reduce the time it takes for first responders to arrive at an accident scene. Quicker response times result in improved survival rates for accident victims, while reducing the impact of the incident on traffic flow by allowing for faster scene clearance.

ATMS also allows SANRAL to capture incident data such as the type, location, time and severity of incidents. Additional information such as weather and congestion levels are also captured.

Two aspects of machine learning are being investigated.

The first is the use of image recognition on camera systems for real-time incident detection. The second is the use of historical data for predictive modelling.

Image recognition improves the detection rate of incidents from real-time video. As a result, minor incidents such as jaywalking are more readily detected and recorded. This information provides a better understanding of the road network and facilitates planning for future interventions.

Predictive modelling allows the Agency to identify areas where the likelihood of incidents is high, based on historical data and current real-time data such as levels of congestion, weather, time of day and average vehicle speeds.

Analysis of data provides detailed input for civil engineering and road construction. Identifying hotspots for incidents or congestion can highlight the need for an engineering solution to address a problem in road design. For example, inclement weather might be a strong factor, requiring an engineering intervention to improve road drainage. In another instance, high average vehicle speeds may point to the need for speed enforcement measures.

Freeway management systems are in place in the major metros, but effective rural freeway management is much more complex. This is where machine learning can add value through the use of other data sources and methods of detection.

The Agency's research partners, the Stellenbosch University Smart Mobility Laboratory, have analysed FCD, which makes use of vehicle information obtained

indirectly through devices such as mobile phones or GPS. This information is augmented with vehicle detection systems on specific segments or the monitoring of interchanges to validate and ensure system accuracy.

SANRAL's TIH is investigating a suitable balance between FCD and active road sensors and vehicle detection systems, such as radar and magnetometers, to classify and monitor traffic on rural segments of national roads.

Machine learning is most effective in highlighting areas of concern, and traffic and road civil engineers will need to do in-depth analyses to serve as the foundation for their designs.

SANRAL is currently in the process of drafting its smart mobility strategy. Smart mobility relies on integrated systems and collaboration to promote resource efficiency, customer-centricity and sustainability. The vision is to use all applicable technologies to ensure national roads help to deliver a better South Africa for all.

Although there are many significant benefits, this technology also comes with some potential privacy risks, which is why efforts are being made to ensure strict compliance with legislation relating to the privacy of road users. The intention is not to track individuals, but to identify trends and incidents to inform appropriate response and interventions.

Through the TIH, SANRAL wants to improve road data standards and produce better systems over the next decade. These will integrate with the public and government and allow for the sharing of pertinent information that is relevant to other agencies.





3.9 GEOTECHNICAL SOLUTIONS

WESTERN REGION

The project entails the implementation of slope stabilisation measures at the following two road cuttings along National Route 7 (N7) in the Northern Cape and Western Cape:

Garies cutting on N7 Section 7 (km 19.32)

The site is adjacent to the northbound carriageway of the N7, Section 7, with the road cutting extending over a 280m length from km 19.16 to km 19.44 near the town of Garies in the Northern Cape. The project site included the road section required for traffic accommodation facilities and extends over a 2km length from km 18.32 to km 20.32.

Piekenierskloof cutting on the N7, Section 3 (km 73.50)

The site is adjacent to the northbound carriageway of the N7, Section 3, with the road cutting extending over a 180m length from km 73.385 to km 73.565 at Piekenierskloof Pass near Citrusdal in the Western Cape. The project site includes the road section required for traffic accommodation facilities and extends over a 2km length from km 72.50 to km 74.50.

These slopes were identified for remedial measures, based on their visual condition rating. The slopes were part of the priority list of slopes requiring mitigation.

The aim is to improve the safety of these cuttings through preventative maintenance as follows:

Garies cutting (N7, Section 7, km 19.32) slope stabilisation measures:

- Removal of loose or unstable rock particles from the surface of the cutting by means of barring down with hand tools.
- Spoiling of removed rock particles and debris and breaking down of larger particles by chemical splitting to facilitate loading.
- Removal and spoiling of loose rock and sand material and trimming back of the crest to a slope of 1:3 over a 25m length of the cutting.
- Installation of a steel-wired mesh system (rockfall netting) secured by rock dowels in a specified arrangement over a 95m length of the cutting. This also includes the installation of 4m rock dowels and hydro-seeding over a 25m length.
- Drilling of 20m-long horizontal drainage holes and installation of slotted high-density polyethylene pipes lined with non-woven punched geosynthetic.

Rock dowels sections at Garies cutting (Zone 2 and 3)

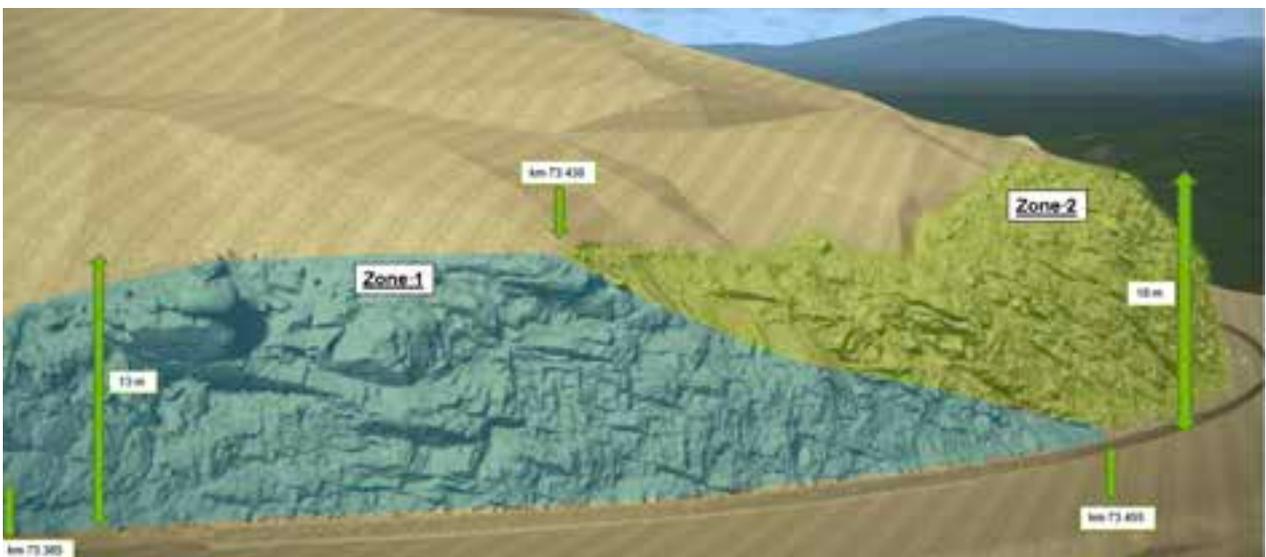




Piekenierskloof cutting (N7, Section 3, km 73.50) slope stabilisation measures:

- Removal of loose or unstable rock particles from the surface of the cutting by means of barring down with hand tools.
- Spoiling of removed rock particles and debris and breaking down of larger particles by chemical splitting to facilitate loading.
- In-situ stabilising and securing of large protruding boulders and smaller unstable boulders and wedge blocks to the cut face by installation of rock dowels (1–5 m length), as directed by the engineer.
- Installation of shotcrete in selective bands (±0.5m wide) into softer shale jointing planes, including the installation of 3m securing dowels, geosynthetic band drains, weepholes and a coloured pigment to reflect the natural rock colour, as directed by the engineer.

Model of slope at Piekenierskloof indicating two zones based on geological properties



The supervision tender has been awarded to HHO Consulting Engineers (Pty) Ltd and amounts to R7,348,895 (incl VAT). The construction and works tender closed on the 26 March 2021 and is currently in the tender evaluation stage. The estimated award date is mid-July 2021.

Estimated project cost:	R33.5m, inclusive of supervision and construction costs (estimated construction costs are R26.1m)
Estimated completion date:	June 2022



EASTERN REGION

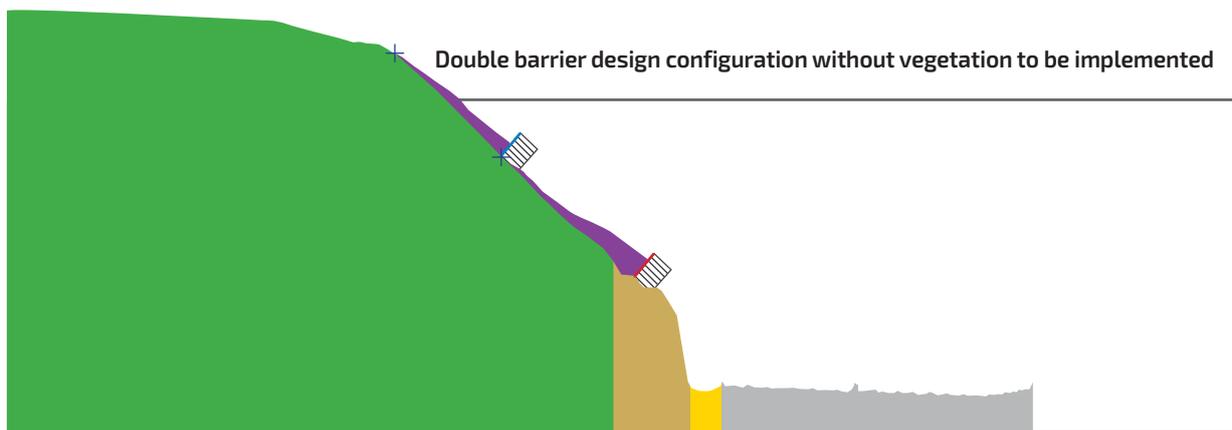
The project entails the upgrading of National Route 3 (N3) from Mariannhill Toll Plaza (Section 1, km 25.0) to Key Ridge (Section 2, km 2.8).

The project traverses a sandstone rock cutting immediately after the uMhlatuzana Viaduct. This cutting is approximately 450m in length and 50m high, making rockfalls onto the N3 a hazard for motorists. It comprises a 15m-high near-vertical lower section adjacent to the N3, while the upper 40m is battered at 1:1, with one bench above the 15m vertical cut. An approximately 10m-wide debris trough is located at the toe of the cut, between the cut and the existing N3. Presently, any loose rocks or other debris falling from the cut collect in this debris trap. A widened N3 to a 5-lane configuration will eliminate the debris trap, with the V-drain abutting the cutting.

The design of the rockfall protection measures consisted of 3D computer modelling that considered a number of variables, including geometry, slope materials, vegetation, rock size, location and shape to ultimately determine parameters such as rolling friction, velocity, trajectory and energy to predict the associated rockfall patterns.

The preferred solution to be implemented entails the following:

- Meshing of the exposed rock face at the lower cut using high-tensile mesh with a pinned-pattern rock bolt solution
- Provision of two 5m-high 500kg rock impact barriers along the length of the cut. The barriers would be positioned as follows: the first on the top of the lower exposed quarzitic sandstone face along the entire length of the cut and the second approximately mid-slope over the higher sections of slope (approximately 50% of the length of the cutting).
- Provision of two non-vehicular maintenance tracks for access to the barriers.
- A wall along the lower maintenance track to protect workers inspecting or clearing the rock-impact barriers from falling onto the freeway, and to collect, channel and prevent erosion from washing down onto the freeway.



Estimated project cost:	R2.6bn
Project status:	Detail design
Estimated commencement:	March 2022
Estimated completion:	March 2022

NORTHERN REGION

The assessment and rehabilitation of the sinkholes in Stilfontein is on the N12, Section 16, between km 5 to km 23.6.

The project aims to assess the risk posed by sinkholes formed on dolomite land through various investigations. A suitable rehabilitation technique will then be designed to rehabilitate the affected area according to all relevant legislation, standards, guidelines and best practice.

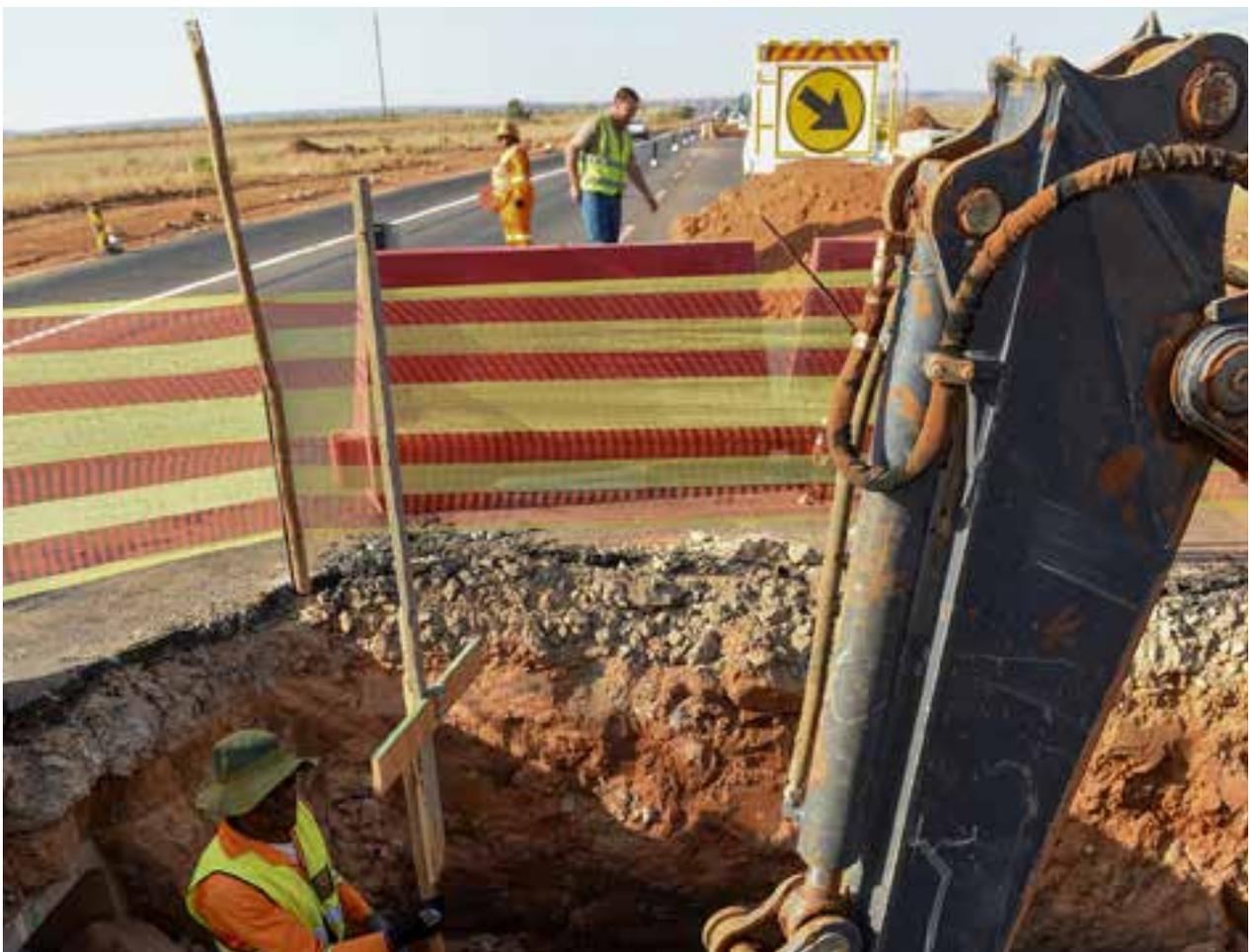
The extent of the sinkholes spans the SANRAL and Matlosana local municipal areas of jurisdiction, necessitating a collaborative approach between all stakeholders bound by an MoU. In addition, key services within these servitudes are affected, such as bulk-water supply pipelines with related electrical cables and telecommunication lines (optical fibre cables).

The rehabilitation will entail a combination of specialist techniques, such as the grouting of boreholes, bulk excavations with reverse-filter compacted reinstatement of material, installation of stone columns, soil nails and a sub-surface grout curtain. The abovementioned services should therefore be re-routed.

The cost for the assessment, rehabilitation design and all related professional fees stands at R6.5m, with an estimated budget of between R50m and R70m for construction during rehabilitation, depending on which method will be used.

The project is active and currently in the tender evaluation phase.

The estimated completion date is mid- to end-2022, depending on effective collaboration with all stakeholders.





SOUTHERN REGION

The project was on the National Route 2 (N2), Section 18, between Tetyana and Sitebe Komkulu (km 24 to km 41) in the Eastern Cape.

The aims of the project included the following:

- Reconstruction and geometric improvements
- Widening of the cross-sections and auxiliary lanes to improve passing opportunities
- Provision of turning lanes
- Installation of new on-road drainage
- Five new box culverts
- Widening of one river bridge and refurbishment of another existing bridge
- Geotechnical works to stabilise cuttings

The consultants, GIBB Consulting Engineers, were required to optimise the stability design of a number of large cuttings consisting of predominantly dolerite and sandstone hard rock, with a thick mudstone layer within the sandstone and overlying the mudstone. The cuttings vary from 5m to 10m in height, with the cutting at km 40.5 being 70m high, with five cut faces.

Cuttings with rock falls before treatment



The solution included the following:

- All potentially unstable rock blocks were removed.
- Fibre-reinforced concrete (shotcrete) was required in areas to prevent excessive ravelling or weathering of the mudstone.
- The overlying soils and weathered mudstone were cut back to facilitate revegetation and a catch water drain was installed to prevent surface water from running onto the rock face.
- Drainage holes were installed in the shotcrete rock face to prevent excess pore pressure building up in the rock mass.
- On the cutting at km 40.5, the cut face was benched in preference to rock bolting, with integrated drainage channels to enhance stability.

Cuttings after treatment with gunite



Project cost:	R643,777,424 (incl VAT and CPA)
Project status:	Completed on 15 April 2019



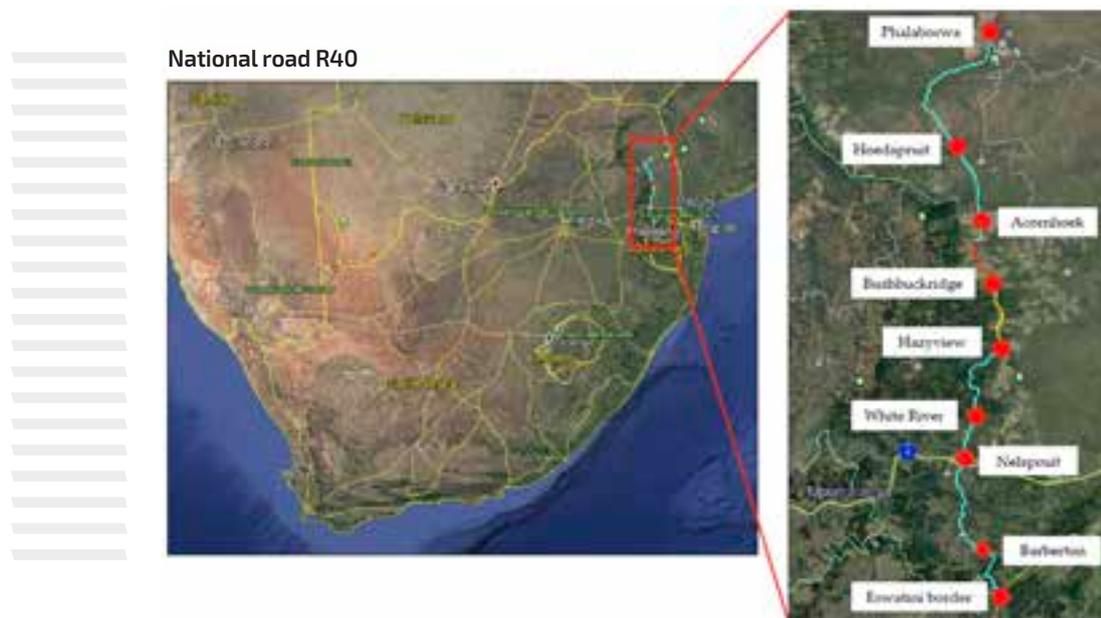
3.10 GEOMETRIC DESIGN SOLUTIONS

NORTHERN REGION

The project is National Road R40, Section 5, from Hazyview to Maviljan (km 0,00 to km 32,1) and from Maviljan to Arthur's Seat (km 32,1 to km 53)

The project is within the northern part of the City of Mbombela Local Municipality (COM) and the southern part of the Bushbuckridge Local Municipality (BLM). These municipalities are within the Ehlanzeni District Municipality in Mpumalanga.

The route traverses rural, semi-urban and urban areas, connecting the COM with several towns, and runs alongside the Kruger National Park, towards Phalaborwa. Being recently incorporated into the SANRAL network, the route has strategic importance as it connects mining towns in the eastern parts of Limpopo, such as Phalaborwa and Hoedspruit, with National Route 4 (N4), a major trade route known as the Maputo Corridor. The route also serves the agricultural, logging and tourism industries.



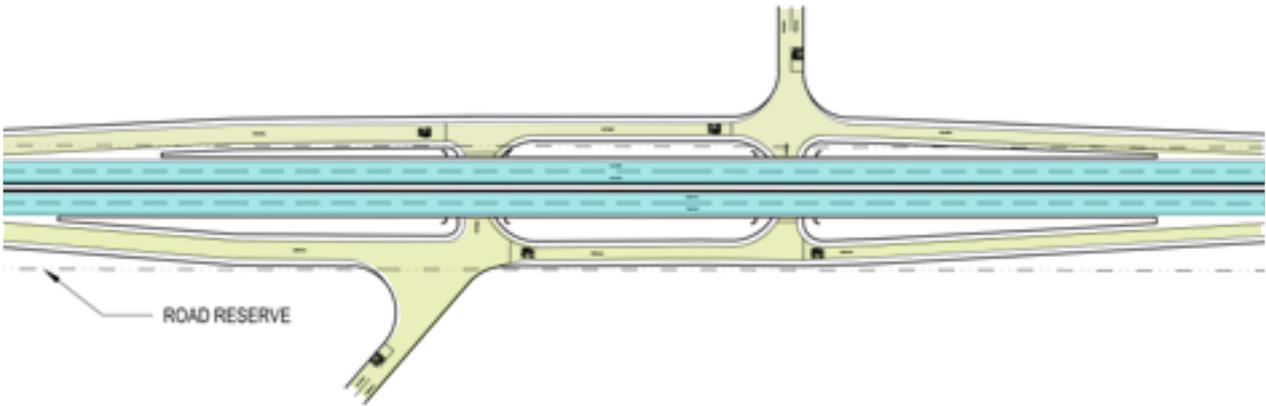
The project objectives include:

- Relieving congestion to an acceptable level of service
- Improving mobility and road safety
- Ensuring adequate pavement capacity for the design period of 20 years

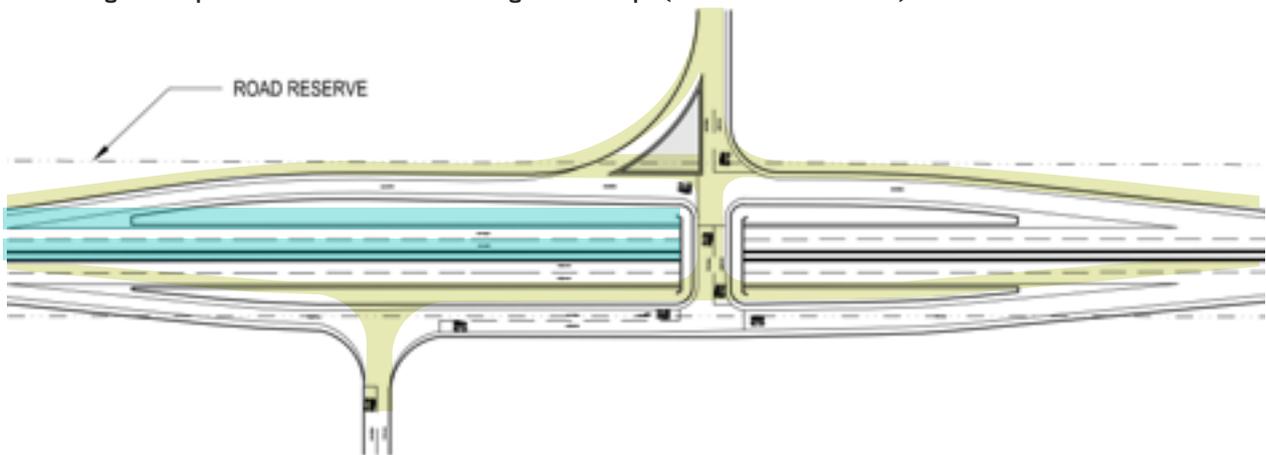


The following interchange concepts were considered and deemed suitable to aid the overall geometric conceptual design.

Interchange concept – dual culvert with ring road (diamond intersection.)

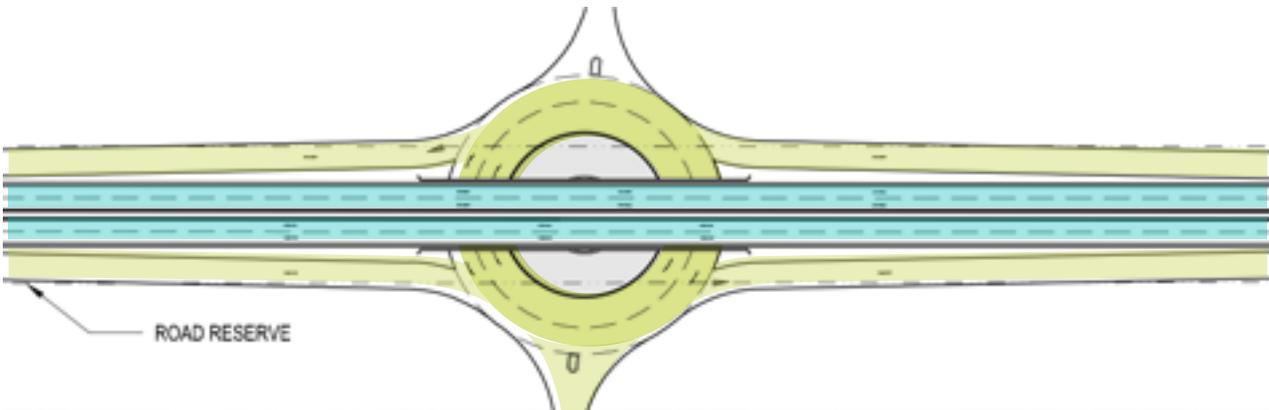


Interchange concept – road-over-road interchange with ramps (diamond intersection.)





Interchange concept – road-over-road interchange with ramps (diamond intersection.)



Estimated project cost:

Hazyview (km 0,00) to Maviljan (km 32,1): R767,000,000

Maviljan (km 32,1) to Arthur's Seat (km 53,0): R943,000,000

Status: The projects have completed the concept stage.

Progress: The gateway review has been concluded and the preliminary design stage has commenced.

Estimated completion date: The design stages are expected to be concluded in November 2021.

WESTERN REGION

The project involves upgrades on National Route 2 (N2), Section 7, between Kraaibosch and Die Vleie (km 28.60 to km 43.58).

This geometric assessment covers a portion of the N2, Section 7, which runs from west to east, between Kraaibosch (km 28.60), to the east of George, and Die Vleie intersection (km 43.6) at Kleinkrantz, at the eastern end of the Wilderness urban area, a distance of 14.72km. This portion of the N2 passes through three distinct roadside development environments: the semi-urban/semi-rural area on the eastern outskirts of George, the rural area through the Kaaimans River Pass and the urban area of Wilderness.

The N2 is intended to operate as a Class 2 rural inter-urban arterial route. However, this function was compromised along the portion in question. This is because several local streets intersect with the route where it passes through the urban area of Wilderness, affecting mobility and safety, and reducing the N2 level of service.

As an essential inter-urban arterial road, this portion of the N2 carries significant volumes of long-distance through traffic, both light and heavy (average daily traffic of 11,000). However, it also functions as an important link in the urban

road network of Wilderness and carries significant volumes of local and recreational traffic, particularly during holiday periods. Unfortunately, because of the lack of a suitable Wilderness bypass, there is no way of separating the through and local traffic.

Aim of the project

The general objective is to manage the conflicting needs of the two traffic streams to create a safe and efficient facility for both long-distance through traffic and local traffic. The aim is for all inter-urban arterial roads to conform to accepted Class 1 controlled-access dual-carriageway freeway standards. However, because of the local access requirements and the development environment through which the N2 passes, the requirement to upgrade to full freeway standards was not possible here. It was necessary to achieve an acceptable trade-off between the needs of the two traffic streams. The needs of non-motorised transport (NMT), mainly cyclists and pedestrians, as well as buses and bus passengers, also had to be taken into account.

The objectives of the project included:

- Reducing congestion to an acceptable level of service while giving safe accessibility to the N2
- Improving mobility and safety along the corridor
- Ensuring adequate pavement capacity for the design period of 20 years



Geometric design solutions

The N2 between Kraaibosch and Die Vleie intersects with the following roads and streets:

- Two provincial main roads (MR 350 at km 30.29 to Victoria Bay and MR 352 at km 39.60 to Hoekwil).
- Three provincial divisional roads or provincial minor roads (OP 6889 at km 33.60 to Kaaimansgat (DR 1612 at km 42.95 to Kleinkrantz and DR 1614 at km 43.32 to Die Vleie).
- Eighteen local, urban or municipal streets.

The basic parameters agreed for the N2 upgrade are as follows:

- A basic four-lane cross-section (two lanes in each direction) to be provided for the full length of this portion of the N2, which will increase capacity and mobility.
- No direct property access off the N2. Where possible, existing accesses to be rerouted via new frontage roads or the existing lower-order road network. Right turns onto and off the N2 to be accommodated only by roundabouts. Reducing the conflicting right-turn movement will significantly increase safety. An added advantage of removing the right-turn movements is that one can reduce the median island to 2m as no right-turn slot is required, significantly reducing the footprint needed and the expensive widening into adjacent sand dunes.
- Informal cyclists to be accommodated on continuous outer-surfaced shoulders eastwards from George Road, Wilderness.
- Pedestrians to be accommodated by a longitudinal

walkway on the seaside of the N2, between the Touw River Bridge and Kleinkrantz.

- Bus stops will be provided at certain locations along the N2.
- Street lighting will be provided.

Outcome of design solutions

The results of the analysis of the VISSIM microsimulation model indicated the following:

- Average travel speed on the route will reduce in the future if no upgrades are implemented. This will be aggravated during seasonal traffic peaks.
- The proposed upgrades increase the average travel speed over the network for the existing (2016) traffic conditions.
- The proposed upgrades retain the average travel speed over the network for future (2026) traffic conditions.

Dualling of the road, the implementation of roundabouts and the consolidation of access points were proposed for this section of the N2 to increase the safety of local access while maintaining mobility of through traffic. The introduction of roundabouts provides for safer, easier access and serves a traffic-calming function for the N2. The results of the analysis also show that accessibility of the route is retained without negatively impacting its mobility.

The following concepts were considered and deemed suitable to aid the overall geometric conceptual design.

Roundabout concept with left in/left out accesses





Roundabout concept



Grants Place underpass with left in/left out configuration



Kraaibosch (km 28.6) and the Touw River (km 36.80):	R260,000,000
Touw River (km 36.80) and Die Vleie (km 43.58):	R385,000,000
Project status:	The detail design is complete and ready to be let to tender for construction.
Estimated completion date:	December 2024





3.11 INNOVATIVE DESIGN

SOUTHERN REGION

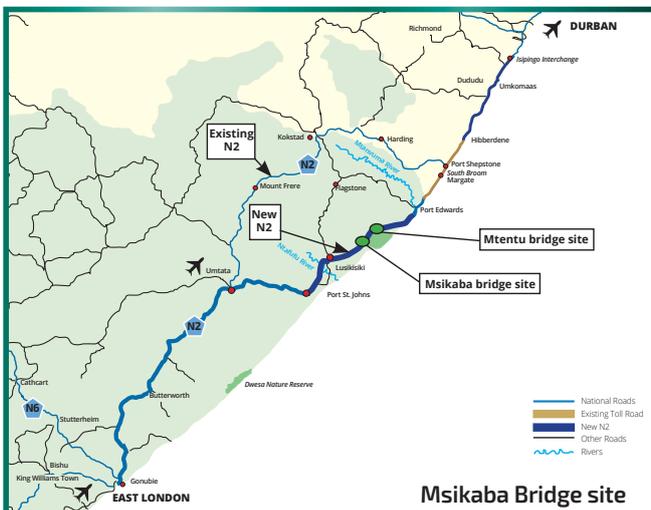
Msikaba Bridge



The Msikaba Bridge lies 25km east of Lusikisiki, in the Ingquza Hill Local Municipality, OR Tambo District, in the Eastern Cape. The area is also known as Pondoland and forms part of the Wild Coast region of South Africa.

The aim of the project is to construct a 580m-span cable-stay bridge across the Msikaba Gorge. The bridge pylons on either side will be 130m high, while the bridge deck will reach a maximum height of 195m above the river valley floor. This will make the Msikaba Bridge the third-highest bridge in Africa and the Southern Hemisphere, after the nearby Mtentu Bridge (under construction) and the Bloukrans Bridge. The 580m main span will make it the longest cable-stay bridge in Africa.

The bridge is one of the key components of the N2 Wild Coast Road (N2WCR) Project, which forms part of government's Strategic Infrastructure Projects (SIP-3): South-Eastern Node and Corridor Development. The key purpose of the projects is to serve as catalysts for economic growth in the country. It is endorsed by the Presidential Infrastructure Coordinating Commission (PICC) for economic development in the province.



Project cost: The construction award value for the main works is R1.65m. Together with consultants' design and supervision fees, the separate costs to construct the haul roads to reach the north and south banks, escalation and approved claims, the total cost of the project is likely to be close to R2bn on completion.

Project status: Under construction

Progress: 40% complete (by value)

Estimated completion date: December 2023

EASTERN REGION

Bridge design at the N2/M7 Edwin Swales Interchange

As part of the N2/M7 Edwin Swales Interchange upgrade in KwaZulu-Natal to a four-level free-flow interchange, two new directional ramp bridges – B0421 and B0422 – were required.

Bridge B0421 on the M7 westbound ramp to the N2 northbound carriageway (directional ramp F) will consist of a nine-span continuous prestressed concrete box girder with cantilevers supported on reinforced concrete columns. The total bridge length will be 410m, providing two traffic lanes (3.7m wide) and two shoulders (2.55m wide).

Bridge B0422 on the N2 southbound off-ramp to the M7 westbound (directional ramp G) will consist of a 12-span continuous prestressed concrete single box deck, 2.8m deep. The total deck length will be 627m and a width of 12.5m to provide for two traffic lanes (3.7m wide) and two shoulders (2.55m wide).

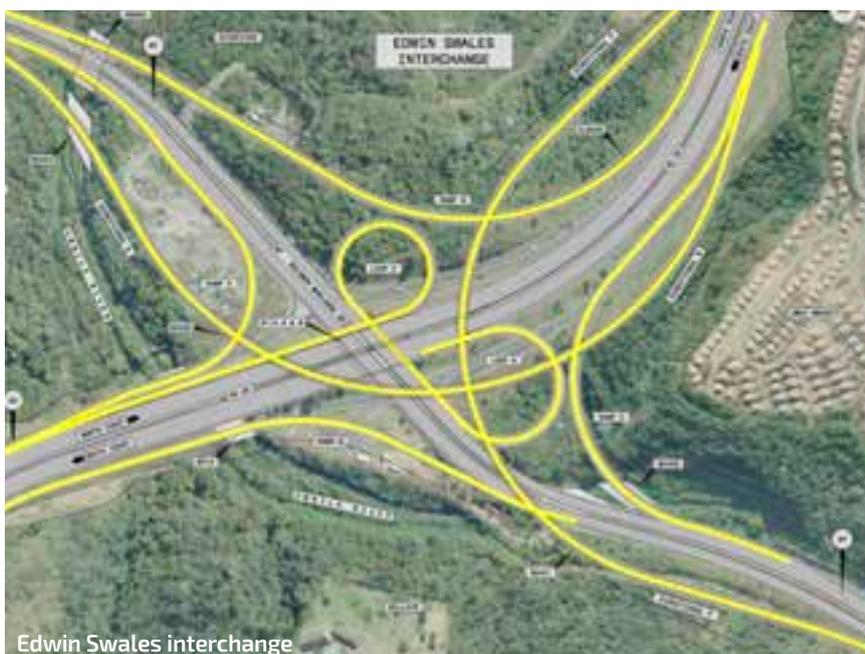
Due to the elevation of Bridge B0422 crossing the existing N2 over 25m above ground level, regular scaffold-supported formwork construction of the superstructure was not economically feasible. Alternative construction methods, such as the incremental launching previously used with success on other major interchange structures, had to be considered. However, the geometric requirements could not be achieved with a constant radius incremental launched structure.

The designers, therefore, proposed a new method not previously utilised in South Africa. The 12-span continuous prestressed concrete single-box deck for Bridge B0422 was designed to be cast in-situ, span by span, using a movable scaffolding system (MSS).

The MSS consists of the complete launching of the scaffolding/formwork required for the span-by-span construction. It is erected on the first span to be constructed and then moved using integrated launching girders onto the next span to be built.

The MSS system can be underslung (constructed below the proposed bridge deck) or overhead, where the MSS travels on the newly cast concrete deck to build the next span. Bridge B0422 can be constructed by either the overhead or the underslung type MSS, depending on the proposed vertical alignment and clearances.

MSS is a generic term that covers numerous unique systems utilised for bridge construction around the world. The systems are continually being developed to include the latest experience and technology in the field.



The tender for the upgrade of the Edwin Swales Interchange is to close in the first half of 2021.

Estimated project cost:
R2.25bn (Bridges B0422 and B0421 estimated at R600m)

Project status: Construction monitoring tender phase

Estimated commencement:
June 2021

Estimated completion: June 2025

General arrangement of Future Edwin Swales Interchange



4

SECTION 2 CAPITALS AND PERFORMANCE

4. SOCIAL AND RELATIONSHIP CAPITAL

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SANRAL leverages road construction and maintenance contracts to help address South Africa's most pressing social and economic challenges.

In the year under review, SANRAL conducted 130 workshops for parents, sharing the road safety education content received by their children in the different grades. A total of 2,327 parents attended.

The S4F Programme Director and Family Math Manager visited six South African universities from April to May 2019 to meet with the relevant role-players to inform and invite them to participate in the Universities Collaboration initiative. As a result, Memorandums of agreement's were sent to the respective champions, and all six universities signed the MoUs.



Government policy and strategy influence SANRAL's corporate ethics, particularly how the state-owned agency builds and consolidates its social and relationship capital.

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

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

Details of performance in areas that contribute to the above.

- 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 to facilitate aspects of the Agency's work, to account for its use of public funds and to improve understanding of SANRAL's mandate.

4.1 SOCIAL IMPACT OF CONSTRUCTION AND MAINTENANCE PROJECTS

SANRAL provided 1,265 SMMEs with work on road construction, rehabilitation and maintenance projects during 2020/21. The total amount earned through these contracts was R1,568,526,911.

Black-owned SMMEs derived significant benefit, accounting for 85.9% of contracts awarded and 48% of the value of work performed.

Community development projects	
Number of registered community development projects:	111
Number of active community development projects in 2020/21:	13
Number of completed community development projects in 2020/21:	5
Number of community development projects in 2020/21 in construction:	8
Value of work completed:	R62,354,259
Number of SMMEs contracted:	32
Number of work opportunities created:	322

Empowerment and job creation

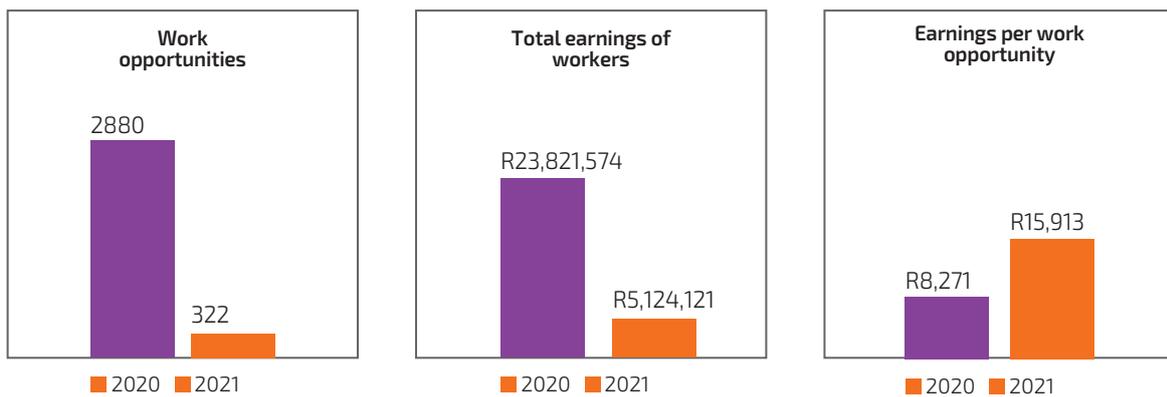
Community development projects benefited a total of 32 SMMEs and 72% of these were Black-owned. The total amount earned by these enterprises was R1,753,193,066.

Benefit for SMMEs

The programme generated 322 work opportunities in the reporting year and this was equivalent to 25,61 full-time jobs (43,531 hours).



Job creation and poverty alleviation



Training and skills building

A total of 59 workers on community development projects received training during 2020/21 and the total spending on training was R39,950.

Concessionaires building small businesses and creating jobs



Empowerment of small business	TRAC's expenditure was R57,25m, distributed across 13 SMME contracts – three of which are women.	Value of SMME work R196m	Value of SMME work R42m
Job creation in construction sector	Construction – 628 Maintenance – 210	On average, 1022 jobs per month	1006 Construction – 117 Maintenance – 889



4.2 ROAD SAFETY PROGRAMMES

4.2.1 Engineering for safer roads: A multifaceted approach

Catching up with road safety engineering

Two years into the development of South Africa's Roads Policy, and against a backdrop of an ever-evolving landscape, SANRAL continues to meet its road safety engineering challenges head-on.

Managing and mitigating risks on our road network is a key deliverable for the Road Safety Engineering Focus Group. The team's task is to identify and implement cost-effective road safety engineering priorities that create a more forgiving road environment and reduce the risk of severe injuries and fatalities when crashes occur.

In the absence of accurate crash data, a risk calculator (Netsafe) has been used in conjunction with the Integrated Transportation Information System (ITIS) to assist in understanding crash patterns and underlying common denominators.

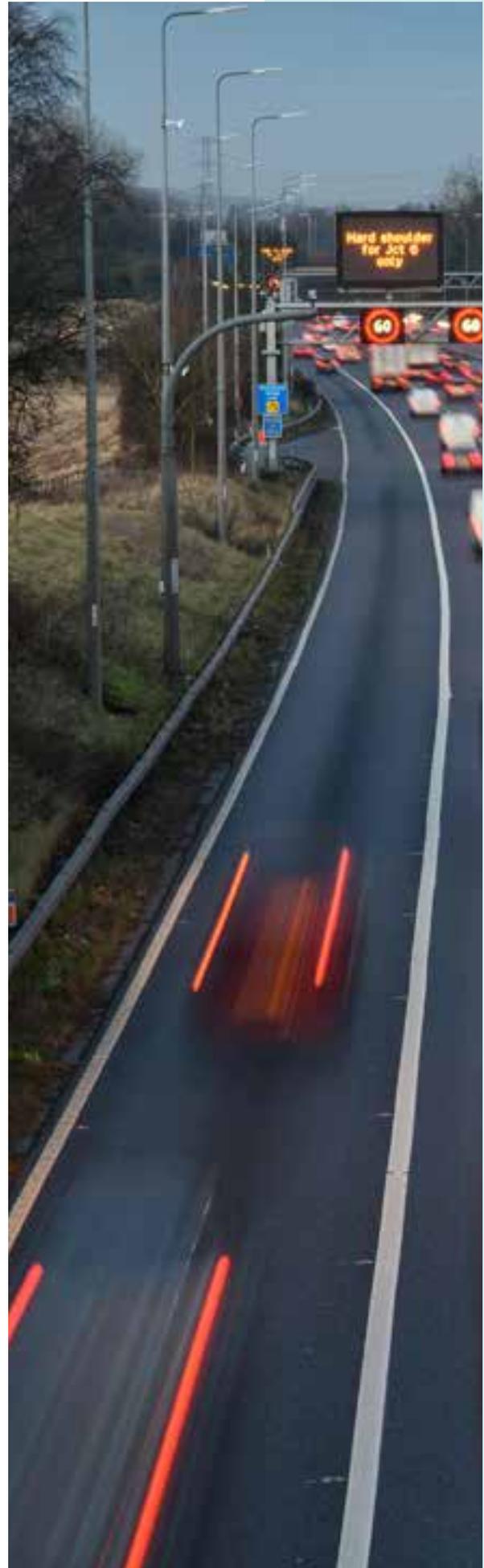
SANRAL developed an ITIS app midway through 2019, which is primarily used by the road incident management system (RIMS) and routine road maintenance (RRM) teams. It contains a module for detailed crash reporting, informed by critical information as supplied on the blue marker location boards (these boards are found every 200m on all national routes). This data will become crucial in how SANRAL designs and manages safer roads in the future.

In response to the need for NMT safety on the national road network, we developed new standard details to deal with lower-mobility routes. These are not traditionally associated with engineering design for national roads, but SANRAL puts people at the forefront of its operations and adapts to the evolving landscape that is South Africa's national road network.

Scientific research will pave the way for safer roads

The national road network is maintained according to international standards using an integrated transport information system. Proactive planning, design, construction and maintenance are benchmarked against industry best practice to ensure we can hold our own with the best in the world.

Road authorities are moving towards a 'Safe System' approach, assessing road networks holistically to ensure





engineering standards and a safe environment for all road user groups.

South Africa experiences approximately 832,000 road crashes every year. These accidents translate to roughly 2,200 crashes on our country's roads daily. According to the Road Traffic Management Corporation (RTMC) 2018 crash statistics, the 120 major crashes recorded between January and December resulted in 802 fatalities and 1,170 persons sustaining injuries. These statistics underscore just how severe the impact of even a small number of crashes can be – not to mention the resulting economic costs. Refocusing government efforts on serious and fatal crashes will not only save lives but also makes a sound business case for road safety.

The RTMC report notes pedestrians accounted for approximately 35.6% of South African road fatalities in 2018. A sharper focus on pedestrian behaviour and on the creation of a road environment more conducive to pedestrian safety should improve our country's road safety statistics.

The 'Safe System' approach rests on four main design elements.

1. Safe roads and roadsides that are predictable and forgiving of human error
2. Safe speeds that suit the function and safety level of the road
3. Safe vehicles that prevent crashes and protect road users, including occupants, pedestrians and cyclists, in the event of a crash
4. Safe road users who are alert and unimpaired, and willing to comply with the rules of the road





4.2.2 Contributions to road safety

Safer road infrastructure

Three examples of this are:

- **N6 upgrade between Rouxville and Smithfield, Free State**

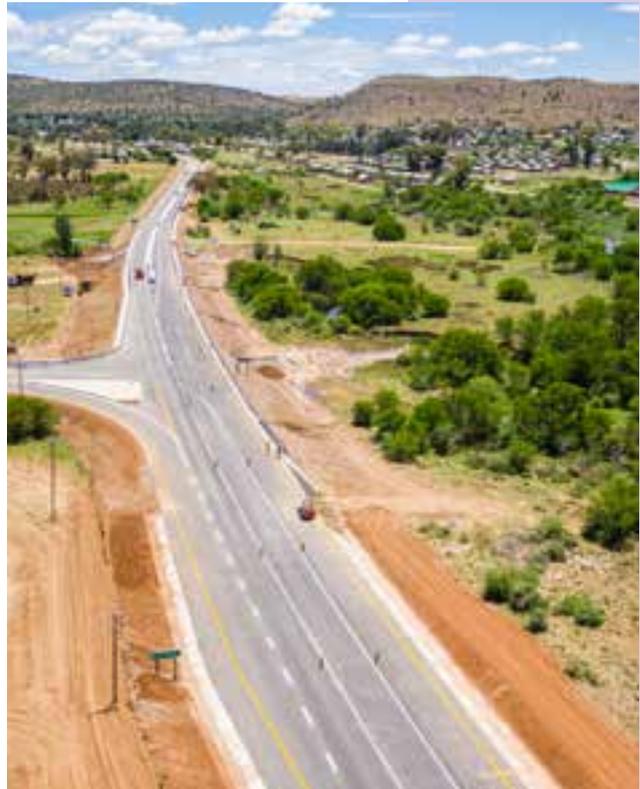
Risks mitigated

- Marginal and undulating alignment leading to challenging vehicle operation: Improvement of the existing road's vertical alignment to allow for improved vehicle operation and sight distance.
- Recovery areas: The existing road did not have surfaced recovery areas, meaning that only marginal loss of control would likely cause a vehicle to leave the roadway. Surfaced shoulders were added to allow for wider recovery areas.
- Limited overtaking opportunities: The existing road did not have any passing lanes. Passing opportunities were also limited by the undulating alignment. The addition of passing lanes allowed for safe overtaking opportunities for all vehicles.
- Public transport and non-motorised transport (NMT) users operating on the N6: The installation of public transport and NMT facilities on the approaches to both Rouxville and Smithfield. The works in Rouxville also included the formalisation of the main road through town (addition of parking bays, kerbed sidewalks and streetlighting).

- **N2 pedestrian facilities within eThekweni, KwaZulu-Natal**

Risks mitigated

- NMT users operating on the N2: The N2 is a two- to five-lane dual carriageway highway with a 120 km/h sign-posted speed limit. NMT users operated within the shoulders of the highway, often walking with their backs to oncoming traffic. An extensive network of sidewalks is being installed within SANRAL's road reserve under this contract. The sidewalks are positioned away from the road edge (generally near the road reserve fence) to allow NMT users to walk safely along the national road and link to their local road destinations.

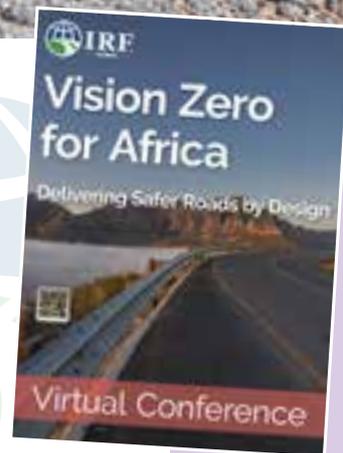


• **Realignment of the N2, Section 27, from km 26.5 to km 28.5, KwaZulu-Natal**

Risks mitigated

- The N2 is a two-lane dual carriageway highway with a 120 km/h sign-posted speed limit. On approach to a river bridge, the highway had been constructed with relatively tight horizontal curves to allow an optimised (i.e. square) crossing of the river. These curves, however, had resulted in a number of crashes since the N2 was opened to traffic in the 1990s. This project increases the radii of the horizontal curves on both approaches to the river bridge, which will significantly improve traffic operation and road safety.

Note that SANRAL received the International Road Federation's Road Safety Award for 2020 for 'finding a way' in improving road safety on our network.



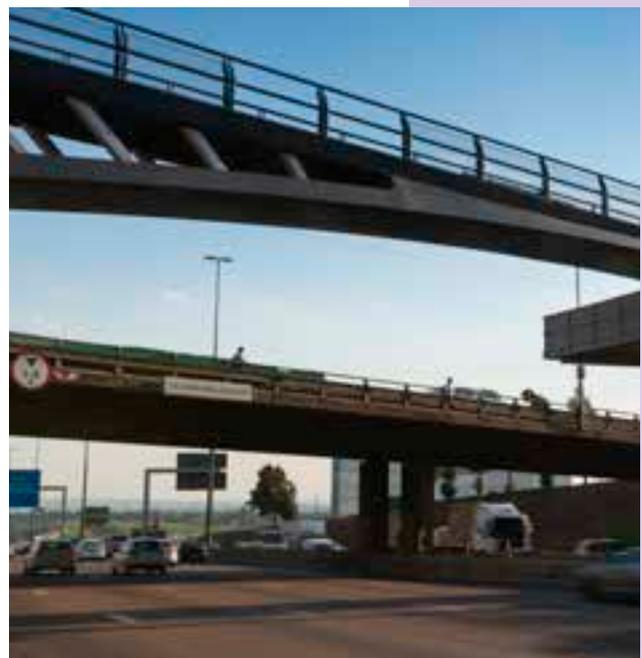
Safer roads

Improved and innovative engineering solutions contribute to a safer road environment for all road users. SANRAL used both a proactive and reactive approach to safe roads.

Proactively, SANRAL continuously evaluated the national road network against a set of standards and norms during project design, construction and operation. Reactively, SANRAL identified and addressed high-incident areas, where, in many cases, solutions required close partnerships with education and traffic law enforcement entities to achieve a safer road environment.

SANRAL promoted pedestrian accessibility and mobility by providing appropriate infrastructure, focusing on:

- Constructing pedestrian and bicycle paths to accommodate non-motorised modes of transport safely.
- Providing effective traffic-calming at locations with pedestrian activity.
- Building strategically located pedestrian bridges.
- Creating safe access for communities living next to the SANRAL network.
- Planning and constructing safely located public transport infrastructure.





Safer road users

SANRAL's mandate in the road safety arena goes beyond the design and construction of safer roads. The Horizon 2030 Strategy emphasises road safety as a national priority, and as such, secures SANRAL's prominent role in road safety education and awareness (RSE).

RSE entails the implementation of educational and awareness programmes that lead to changed attitudes and behaviour among all road users. A community development philosophy is embodied in the delivery of programmes offered to all communities adjacent to the declared national network (5km radius), as well as those communities affected by the national network.

SANRAL's road safety education strategy includes content development for learners, the training of teachers and the education of community members (parents) to promote the development and formation of appropriate road user behaviour.

In cooperation with the Department of Basic Education (DBE), the SANRAL RSE programme addresses the following educational phases:

- Foundation phase (Grades R–3)
- Intermediate phase (Grades 4–6)
- Senior phase (Grades 7–9)
- Further education and training (FET) phase (Grades 10–12)
- Identified stakeholders (parents)

4.2.3 Road safety education

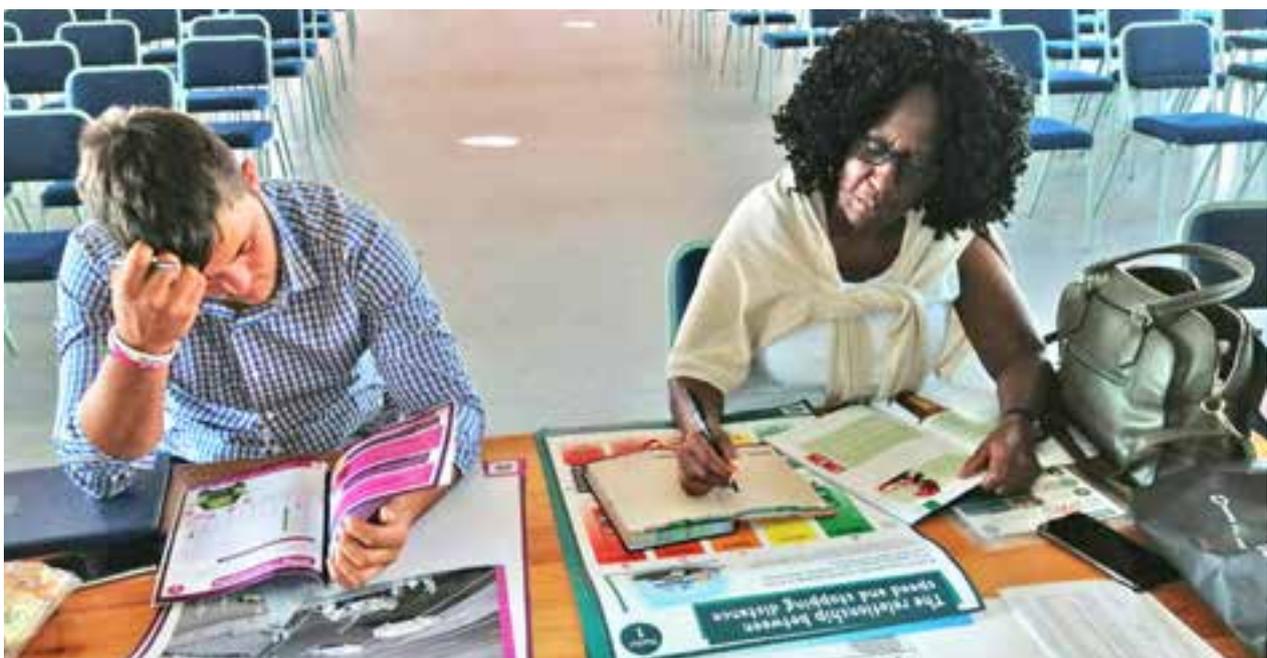
Road safety education and awareness are important contributors to safer road use, as outlined in the United Nations Declaration on Road Safety under Pillar 4. This links to the SANRAL Horizon 2030 strategy under the Road Safety Pillar.

The SANRAL road safety education programme is delivered to teachers to enhance road safety education for learners. In the year under review, programme delivery was significantly influenced by the COVID-19 pandemic, but SANRAL is proud to report that these challenges were effectively dealt with in response to 'the new normal'. In the past, face-to-face teachers' workshops were conducted to transfer knowledge, content and teaching styles relating to road safety. In anticipation of the impact of the COVID-19 pandemic, the programme managers changed the methodology and developed a set of online tools to enable SANRAL to continue with the workshops seamlessly. All material and training presentations have been digitised to make virtual training sessions viable and interesting. In remote areas, virtual training was not possible due to challenges relating to network connectivity, as well as lack of data and remote working tools for teachers. In these instances, one-on-one sessions between teacher and facilitator were conducted to make sure all teachers received the training in the identified areas.

Training was delivered at 74 sites along the SANRAL national road network.

Breakdown per province	
Mpumalanga	45
Eastern Cape	30
Limpopo	30
KwaZulu-Natal	20
Western Cape	20
Gauteng	15
Northern Cape	6
Free State	8

Programme summary	
Number of sites for 2021	74
Number of workshops	174
Number of teachers attending workshops	527
Number of teachers receiving SANRAL road safety material	4,527
Number of schools	445
Number of learners who benefitted	181,080
Number of parents who benefitted from parent workshops	2,327





School-going children are taught in their mother tongue in the foundation phase (grade R–3). During the year, SANRAL translated all learning content for the foundation phase into all 11 official languages. The intermediate phase content was translated into Afrikaans to accommodate most schools in the Northern Cape and Western Cape. A total of 39,400 teachers, representing schools engaged in the SANRAL training programme, received the translated material.

In the year under review, SANRAL conducted 130 workshops for parents, sharing the road safety education content received by their children in the different grades. These workshops adhered to all COVID-19 regulations. The participation of parents highlighted the need to keep them empowered and informed about curriculum content, as well as to provide them with tools to assist learners at home or when they travel. A total of 2,327 parents attended. During the workshops, small group discussions were led by the following questions, with the opportunity to submit answers. A total of 1,130 answer forms were received, with the following results:

Road safety education workshops for parents feedback

General feedback	Strongly disagree	Disagree	Agree	Strongly agree	Total
Well organised and flowed smoothly	0	1	338	808	1,147
Just the right length and time	0	4	422	725	1,151
Information was clear and understandable	1	2	308	807	1,118
Information was relevant and useful	0	3	308	815	1,126
Increased my knowledge of the road safety situation in South Africa	0	2	286	836	1,124
Increased understanding of role to promote road safety behaviour and awareness	1	3	320	792	1,116
Total forms (average received)	0	3	330	797	1,130
	0%	0%	29%	71%	100%

A total of 1,124 parents indicated that the sessions increased their knowledge of the road safety situation in South Africa and 1,116 indicated that they had an increased understanding of their role in promoting safer road use.

Statistics for road safety education for 2020	
Number of sites for 2020	75
Number of sites including special requests	79
Number of workshops	124
Number of teachers attending workshops	1,963
Number of teachers receiving SANRAL road safety material	6,428
Number of schools	1,538
Number of learners to benefit	238,594
Number of parents to benefit	554

During the year, 1,963 teachers attended train-the-teacher workshops, while 6,428 received resources to provide road safety education. A total of 238,594 learners benefited from the workshops.

SANRAL reaching more learners, teachers and parents

Material for the learners

Curriculum and policy statement (CAPS) documents highlight road safety in a practical and useful way, developing learning opportunities in the form of lessons with a road safety theme to suit the respective grade levels.

Critical thinking in the FET Phase

The RSE FET programme spans three years and is presented as a countrywide competition. It presents road safety to learners as a real-life situation, challenging them to demonstrate relevant competencies in maths and science while addressing increasing infrastructure needs and developments within their community.

The learners' task is to plan, design and build a scale model of all infrastructure needed. They conduct integrated scientific research and find possible road safety solutions to real-life situations through the application of maths and science.

'Train the teacher' workshops equip teachers with knowledge about road safety as a subject and enable them to implement road safety education aligned to the CAPS.

Engaging the parents

Educational materials and teacher efforts have little effect unless parents are equally engaged and receptive to road safety education. Parents are road safety role models and primary trainers in road safety skills for their children. SANRAL continues to reach more teachers and parents through its initiatives, helping them to become road safety ambassadors in the holistic education of children.





Engineering 4.0: SANRAL makes a smart move on mobility

The South African National Roads Agency (SANRAL) had a vision for a smart approach to mobility. It wanted to create an internationally recognised platform encompassing three focus areas:

1. Providing academic and vocational training support in transportation infrastructure materials testing
2. Instituting a national transportation materials reference testing platform
3. Establishing high-quality research facilities with a skilled staff component

The result was Engineering 4.0, housed in the Faculty of Engineering, Built Environment and Information Technology (EBIT) at the University of Pretoria (UP). The facility was launched in November 2020 as a unique collaboration between SANRAL, the Council for Scientific and Industrial Research (CSIR), UP and York Timbers, an integrated forestry company.

This collaborative venture, a first for the African continent, covers integrated education, national certification, national reference and research

laboratories. The objective was to maximise cooperation between the members and consolidate laboratory facilities and human resources to enhance outputs and avoid costly duplication of laboratory facilities.

South Africa has a shortage of civil engineering and other transportation engineering-related skills. The Engineering 4.0 facility will address this by optimising current facilities and staff available at the UP, SANRAL and CSIR through a managed partnership and unified effort to train engineers, technologists, technicians and materials testers for the transport engineering sector. This initiative will also open a pipeline of transportation engineers exposed to the latest technologies and methods used by governments, roads agencies and industries in South Africa and beyond.

Engineering 4.0 will house the SANRAL National Certification Laboratory, providing independent certification of all material testers responsible for quality control testing on road construction sites. It will also be home to the SANRAL National Reference Laboratory, which certifies the International

Organization for Standardization (ISO) test standards of all local road laboratories involved in testing road construction materials. A laboratory for the structural testing of concrete in road construction and

infrastructure build is also planned. Two of the most innovative additions to the Engineering 4.0 facility are the accelerated pavement testing (APT) track and the active 2km-long test lane on Pretoria's N4 highway.

**ENGINEERING 4.0 BENEFITS:**

- Increases the variety of technical skills in transportation engineering
- Improves the skills of transportation engineers, technologists and technicians
- Saves costs due to improvements in design, construction, maintenance and management of transportation infrastructure
- Provides a better-performing transportation infrastructure to improve quality control and reduce user operating costs
- Lessens the environmental impact of transport infrastructure construction and maintenance



4.3 INCIDENT MANAGEMENT SYSTEM

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, as well as emergency and health 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.

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

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

SANRAL supports RIMS in various locations by advocating for their development to stakeholders at management level and collaborating to provide training for staff members. A course accredited by the South African Qualifications Authority (SAQA) was developed by SANRAL and is offered through the Transport SETA.

SANRAL is assisting the Department of Transport in expanding RIMS into the Southern African Development Community (SADC) region, working through relevant committees.



TRAC is incorporated and aligned into the SANRAL RIMS structures. The South African section of the TRAC concession spans both the Gauteng and Mpumalanga area in the SANRAL Northern Region. Following the COVID-19 pandemic, SANRAL advised that RIMS meetings be categorised as non-essential, putting all meetings on hold from April 2020 until September 2020.

Mpumalanga steering committee areas include both the Ehlanzeni and the Nkangala regions. Steering committee meetings were held in October 2020 and March 2021 for both the Ehlanzeni and Nkangala regions under the guidance of experts-on-the-go RIMS consultants. Two Mpumalanga provincial coordinating advisory committee (PCAC) meetings were convened in the year under review. Representatives from TRAC, as well as TRAC's route service contractor, attended the steering committee and PCAC meetings.

No steering committee meetings were held for the Gauteng section because coordinating consultants appointments by SANRAL had not taken place.

TRAC has appointed a service provider to conduct route patrols and attend to accident scenes doing traffic accommodation and coordination at crash scenes.

In a further effort to minimise accident reaction and response times, TRAC created new base offices at the various TRAC SA toll plazas used by the accident response vehicles: the Diamond Hill, Middelburg, Machado and Nkomazi toll plazas. During the year, TRAC responded to 1,623 accidents on the SA sector.

TRAC's 24/7 helpdesk coordinates and deploys accident

teams to the scene following notification of an accident. TRAC is part of various Zello groups where accident notifications are posted. As per RIMS protocol, TRAC notifies the central communication centre (CCC) for each region to advise them about any accidents. Social media is used to inform and update road users of closures and delays on the TRAC N4 route.

The average reaction time (from the time that the helpdesk dispatches a patrol team to arrival on scene) was 24 minutes for the reporting year. Average response time (from the estimated accident time to the time of arrival on scene) was 50 minutes.

Detection, notification, communication and mobilisation are some of the key components in RIMS. Swift detection is a critical component, as any obstruction on the roadway creates a hazard for other road users and could potentially cause secondary incidents.

SANRAL is developing an app that allows road users to obtain the contact details of the nearest call centre and log the incident in real time, notifying emergency services in rural areas as the incident occurs.

CCCs have been established across all provinces to coordinate the response of emergency services.

There are 54 CCCs across all provinces in South Africa. All CCCs are being audited to establish standardised procedures and investigate better and faster technology.

SANRAL maintained RIMS operations during the COVID-19 pandemic to ensure programme continuity and stakeholder management in delivering post-crash care to the travelling public.



We effectively equipped first responders with one-day workshop training, via VC training to new RRM subcontractors and emergency services.

Our steering committees and provincial coordinating advisory committees (PCAC) held meetings during the pandemic. Post-incident assessments (PIAs) were held on most major crashes.

From a RIMS perspective, there were fewer challenges during the hard lockdown since travelling was restricted and minimal crashes were recorded. This brought some major relief, with a decrease of 20.35 % in fatal crashes compared to 2019. (As per RTMCC report) There has been a significant increase of protesting incidents on our roads because of the impact of COVID-19. This has caused some disruptions requiring RIMS interventions.

The floods in the Northern Cape caused significant damage to our roads and resulted in a few major road closures.

Our emergency first responders and partners in RIMS deserve a special mention for putting their lives at risk when dealing with patients during post-crash care. We commend them for their services.

The RIM protocols had to be adjusted during the pandemic to ensure all first responders complied with the new Regulations and Standard of Practices (SoP) for COVID-19 transmission and exposure prevention.

The above has allowed for innovative ideas as part of adapting to the new normal and in preparation for normalcy for future response, on-scene management, and RIMS programme deployment with enhanced technologically

driven and innovation practices for swift detection, response resource deployment, crash scene management and rehabilitation of affected infrastructure.

Smart road operations by motorists require an equally smart deployment of resources to save lives and reduce growing economy in the regions. The impact of crashes to health and social welfare of the country is huge and can be costly.

New tenders are underway to appoint service providers in various provinces. As we hit the end of the three-year cycle, we continued to contribute to transformation and continuity of these operations and management projects to promote safer roads for all.

SANRAL endeavours to find new uses of technology to support our CCCs, as centralised communication is a key component in RIMS. The enhancement of RIMS using technology and innovations to improve communications is currently underway.

From an incident detection perspective, an overview of the Emergency '112' number routing to designated CCCs is currently underway. Meetings with the relevant national departments have been held and an assessment of CCCs readiness has commenced.

The SANRAL app is being developed to support this function. This central communication system will ensure accurate and faster mobilisation of emergency services, and allow for an emergency panic button for road users during crisis crash situations. Fast mobilisation has always been key to road safety and the prevention of secondary incidents.

4.4 ROAD SAFETY ON TOLL ROUTES UNDER CONCESSION

TRAC, N3TC and Bakwena make a contribution to road safety on the national toll routes that they manage.

Their approaches differ but all address the challenges of creating safer roads, modifying the behaviour of road users and responding effectively to road incidents, including crashes. For example, N3TC emphasises law enforcement as a means of influencing road-user behaviour and ensuring that drivers are screened for health conditions that might compromise their driving.



N3TC is committed to the important principles of the United Nations 'Decade of Action', specifically the five pillars of road safety and the requirements of RIMS. N3TC is an active member of the SANRAL RIMS structure and is the main driver and supporter behind the four highly active provincial RIMS sectors of KZN, Free State, Mpumalanga and Gauteng, along the N3 Toll Route. The provincial RIMS Meetings continued on a virtual platform during the COVID-19 pandemic.

N3TC has a 24/7 route patrol service on the N3 Toll Route, with base operations located at three of the mainline plazas and in Harrismith. The route is split into six sections, each monitored by a fully equipped patrol vehicle manned by two well-trained operators. Four experienced

senior incident managers, each with their own specially equipped vehicle, oversee the route services operations. The route services team attends to a variety of IMS functions, from crash management and hazardous goods incidents to customer services, vehicle obstructions and the management of stray animals. In Van Reenen, there is also a response vehicle that provides additional traffic accommodation support. Response time is a critical KPI and the service has maintained a response time of less than 30 minutes for all incidents attended, even in zones of high traffic volumes.

The route services operation is further supported by two emergency normalisation vehicles (ENVs). The ENVs are large modified water tankers, also carrying specialised firefighting equipment, which provide support to the local fire departments in the event of vehicle or veld fires along the route.

N3TC's 24-hour route control centre (RCC) is based in Harrismith. This facility acts in the same manner as a CCC, facilitating communication between incident scenes, via the route patrol service, and the various emergency services. The RCC is also the central point of communication from which important information is shared with road users via various social media platforms. Route updates that may have an impact on travel, such as weather, road closures due to incidents and construction activities, are communicated by the RCC.

Between 1 April 2020 and 31 March 2021, the N3TC RIMS team successfully managed 1,143 crashes on the N3 Toll Route.





SAFER ROADS



TRAC

- TRAC continued to keep the N4 safe during peak travel periods through our annual December Road Safety and Swift Response Campaign. Although no engagement with road users was done due to the national lockdown, our strong partnerships with emergency service teams and law enforcement authorities enabled us to deploy emergency response units to strategic points on the route, making it possible for them to respond to incidents and accidents faster and more efficiently during busy traffic days over the festive season.
- TRAC lowered the speed limit from 100km to 80km in three areas that we found to be high-accident zones.
- TRAC conducted an investigation into the increase in truck-turning movements to improve safety at the Sunbury and Eersteling Fontein intersections.
- TRAC increased our daily route patrols from one to two a day, which allows us to be more proactive than reactive in terms of road safety.
- TRAC made our toll plazas the base for our TRACAssist (roadside and accident response) units. This too ensures faster and more efficient response times to incidents and accidents on the route.



N3TC

- RRM teams carried out roadway and roadside furniture improvements (e.g. COSBI markings and signs on the N3-4).
- N3TC enhanced signage and additional road studs in critical zones.
- Detailed incident reporting information system [IRIS].
- Special operations exercises were coordinated with authorities.
- A public-private partnership with Mpofana Local Authority allowed for enhanced law enforcement.
- Operations of CCTV and VMS systems.
- Detailed post-accident assessments were made as per RIMS guidelines and supervised by the NDoT.
- IMS and focus meetings targeted causes and intervention measures.
- Road safety awareness programmes were facilitated.
- N3TC carried out alcohol and drug screening, as well as public transport compliance screening.
- In conjunction with the authorities, speed monitoring and control devices were implemented.



Bakwena

- Bakwena partnered with Motus Corporation and Kia South Africa for an additional six vehicles to be added to the N1N4 route over Easter and the December festive period to ramp up on visibility, crash assistance and motorists assistance.
- Bakwena conducted removals of road debris.
- Bakwena ensured regular culvert clearing and checking, and replaced roadside furniture when damaged due to crashes.



SAFER ROAD USERS



TRAC

- During 2020/2021, TRAC continued with its popular Schools Road Safety Campaign whenever COVID lockdown regulations permitted. TRAC visited one local rural pre-primary school along the route to show an interactive presentation featuring TRAC's road safety mascot, Sipho. A theatre production was presented with Siphos as the main star and basic pedestrian (rural) and passenger (urban) road safety rules were taught.



N3TC

- IMS and focus meetings targeting causes and intervention measures.
- Facilitation of road safety awareness programmes.
- Alcohol and drug screening, public transport compliance.
- Implementation of speed monitoring and control devices in conjunction with the authorities.



Bakwena

- The Safe to School Programme entailed visits to schools and stakeholder meetings focusing on improving the physical road safety environment around schools in the Bapong, Majakaneng and Modderspruit areas along the N4.
- Volunteers trained up in first-aid level ensured the safety of learners by assisting children with crossing of the N4 pedestrian bridge between Bapong and Majakaneng.
- Local representatives in Bapong, Swartruggens, Groot Marico and Dinokana were trained in basic road safety to empower volunteers in these areas to engage in the Safe to School activities.
- Car seat campaigns in partnership with Wheel Well (NPO that focuses on children in road safety) were aimed at motorists travelling over the Easter and December holiday period.





PROMPT AND EFFECTIVE INCIDENT RESPONSE



TRAC

- In the period reported, TRAC's 24-hour helpdesk and TRACAssist units responded to a total of 15,075 calls. The breakdown is as follows:
Accidents: 2,071
Incidents: 3,405
Roadside assistance: 467
General enquiries: 9,132



N3TC

- Electronic implementation of RIMS. Electronic implementation of winter and fire break protocols.
- Route Control Centre for effective coordination and scene management.
- Twenty-four-hour route patrol service – six sections.
- Four special response vehicles were designated for major incidents.
- N3TC operated two emergency normalisation vehicles.
- Scene safety management system.
- Training of services in the management of dangerous goods scenes.



Bakwena

- Support was provided to law enforcement authorities to assist with planning for busy periods.
- We operated 24/7 route patrols and a customer call centre.
- RIMS (in three provinces) cooperated with law enforcement rescue services along the whole of the N1N4 route.



4.5 UNIVERSITY PARTNERSHIPS

SANRAL's partnerships with universities centre on a shared interest in increasing relevant research and postgraduate study in the engineering and related fields. We are promoting science and mathematics at school level to ensure a flow of talented young people into these professions. The partnerships increase the public visibility of SANRAL, help the Agency meet its demand for engineering professionals and relevant research, and contribute to a dynamic engineering sector.

SANRAL has endowed three specialised chairs at universities:

- The SANRAL Chair in Transport Planning at the University of Cape Town (UCT)
- The SANRAL Chair in Pavement Engineering at Stellenbosch University (SU), Western Cape, which has a dual teaching and research function.
- The SANRAL Chair in Mathematics, Natural Science and Technology Education at the University of the Free State (UFS), which directs its energies at postgraduate research on the teaching of maths, science and technology, as well as the training of teachers for these subjects.

University of Cape Town

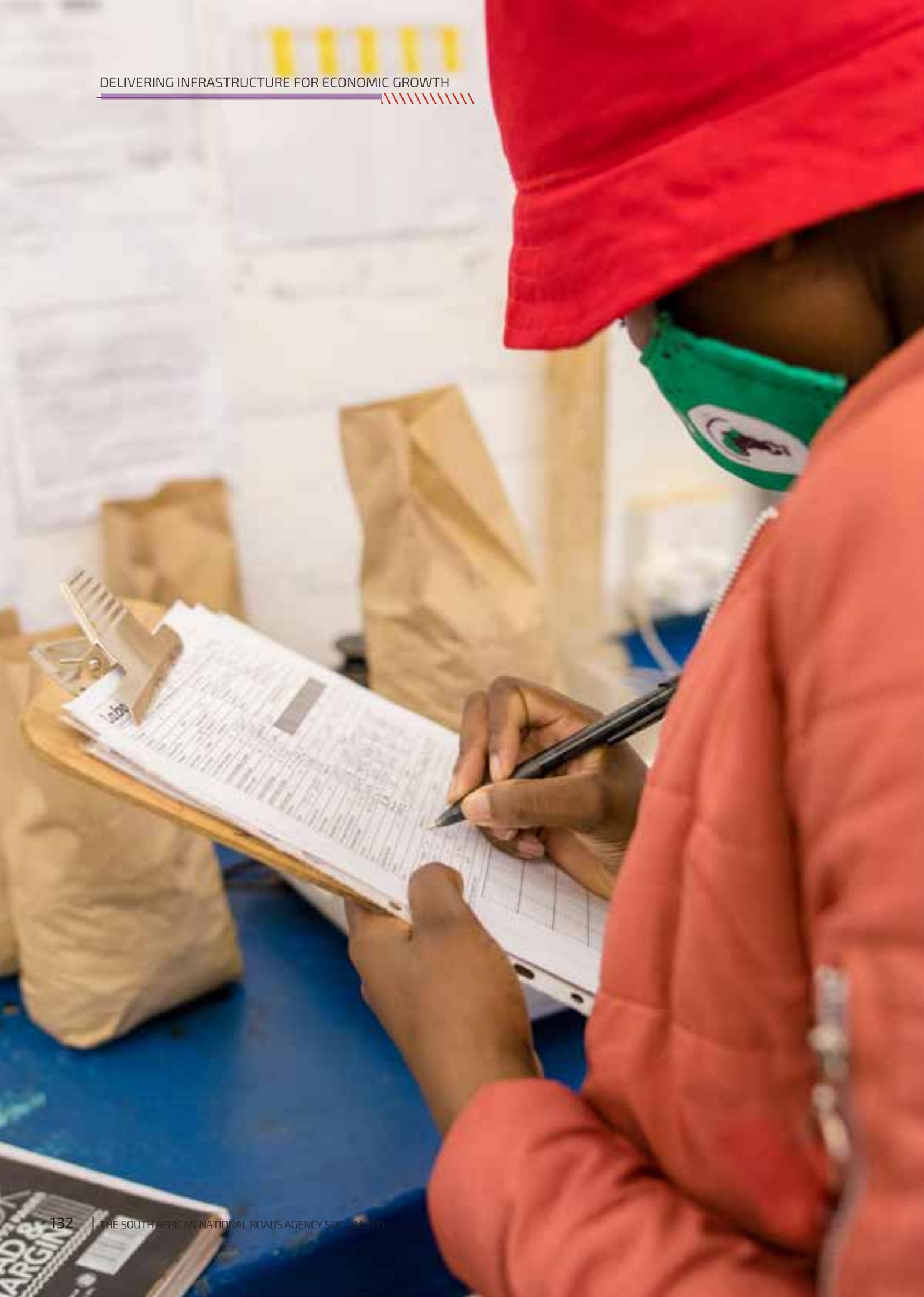
SANRAL's investment in creating the Chair in Transportation Management is bearing fruit. In a partnership that dates back to 2013 between SANRAL and the University of Cape Town, the expertise and commitment from current incumbent, Dr Mark Zuidgeest, from the University of Twente in The Netherlands, has been invaluable. The objectives of the partnerships have been to:

1. Promote transportation-related research in South Africa.
2. Develop human capital in the area of transportation planning and engineering through the training of undergraduate and postgraduate studies.

During 2020, the Chair has been involved in teaching, research collaboration, university management, establishment of the SANRAL-UCT Digital Laboratory and corporate social responsiveness. The university's response to the COVID-19 pandemic impacted on the activities of the Chair, with a significant investment of time being devoted to the development of an emergency remote teaching (ERT) strategy for the department (i.e., shifting all undergraduate teaching activities to online teaching and assessment mode, as well as the development of a distance-learning strategy, focusing on the delivery of teaching materials to those vulnerable students in the department who cannot work online).

In addition, the Chair contributed to academic journals and book chapters, as well as attending conferences.





Chair in Transportation Planning and Engineering teaching in 2020

UG/ PG	Course code	Course	Lecture hours	Tutorial hours	Project hours	Total workload SANRAL Chair (h)	Student numbers	Convenor
UG	CIV4044S	Research project	1			144	10 thesis students	Behrens
	CIV4046F	Transportation engineering	29	10	22	208	~120 students	Zuidgeest
PG	CIV5035Z	Supply – demand	4			10	~ 25 students	Behrens
	CIV5038Z	Integrated land use – transport	4			10	~ 25 students	Behrens
	CIV5133Z	Research methods	20		6	86	~ 25 students	Zuidgeest
	CIV5071Z	Public transport	14	9	6	95	~ 25 students	Zuidgeest
	CIV5131Z	Transport modelling	20	20		130	~ 25 students	Zuidgeest

Undergraduates supervised	11
Masters and PhD supervised	31

University of Stellenbosch

The Postgraduate Programme in Pavement Engineering at Stellenbosch University, under the leadership of the SANRAL-sponsored Chair, Prof Kim Jenkins, continues to grow from strength to strength. The SANRAL Chair offers specialised postgraduate courses to students and practitioners in the roads industry to keep them abreast of new global developments. It is also responsible for teaching undergraduates and for managing asphalt and pavement research labs.

The research includes new material investigations and performance analysis, road rehabilitation, recycling, sustainable road construction practices, numerical modelling and design systems for pavements, and appropriate seal and asphalt technology for developing areas.

During the 2020 academic year, four master's degrees were awarded in pavement engineering and seven new postgraduate students registered for studies in pavement engineering. These activities reflect the fifth year of the contract between SANRAL and Stellenbosch University. The main thrust of the SANRAL Chair is "development of human capital and capacity building ... in the field of pavement engineering", which is achieved through:

- Short courses for practitioners
- Capacity building in pavement engineering at universities of technology
- Close liaison and cooperation with the SANRAL Focus Group (Materials Cluster), the Council for Scientific and Industrial Research (CSIR) and other universities
- Specialist consulting work

The activities of the Chair continue to support the objectives of the sponsorship agreement, which are:

- Undergraduate and postgraduate education
- Development and management of the asphalt and pavements laboratories
- Study guidance for postgraduate students
- Academic administration

The 2020 activities included training academic courses at US and the Delft University of Technology (DUT), Netherlands. In 2020, the COVID-19 pandemic impacted on the teaching model, forcing the offering of more remote courses. The first course, Flexible Pavement Design (FPD), was presented before the lockdown, leaving the second course, Pavement Management Systems (PMS), to be fully online, and the third course, Pavement Materials III BSMs (PMIII), to be solely for registered postgraduate students (face to face) in October 2020.



Master's degree courses offered by the SANRAL Chair in 2020

Course	Duration	Delegates (students)	African union country (other international)	Main presenters (besides prof jenkins)
Flexible Pavement Design (FPD)	27–31 Jan 2020 (5 days)	24 (18)	1 (0)	Prof Andre Molenaar (Delft University of Technology)
Pavement Management Systems (PMS)	14–18 Sep 2020 (5 days)	29 (21)	3 (0)	Gerrie van Zyl
Pavement Materials III BSMs (PMIII)	5–9 Oct 2020 (5 days)	14 (14)	1 (0)	Dr Fenella Johns (Rubicon Solutions)

The SANRAL Chair participated in presenting several virtual seminars and webinars, as summarised.

Industry courses for consultants in 2020

Course	Duration	Delegates	Client	Presenters (+ sanral chair)
Cold Recycling Technology	28 May 2020 13 Oct 2020	1,350 175	AMIVTAC: Mexico	Kim Jenkins and Joachim Kemp
BSM Technology	6 Aug 2020	30 to 50	University of West Indies	Dr Fenella Johns, Andre Greying and Dave Collings
BSM Technology	10 Oct 2020	45	Downer, Australia	Dr Fenella Johns, Andre Greying and Dave Collings
Cold Recycling Technology	27 Oct 2020	180	ARRA	Dr Fenella Johns, Andre Greying and Dave Collings

Another positive trend has been the growth in registered, postgraduate students attending the block courses. In 2020, a total of 53 postgraduate students participated in three courses. The number of students attending the block courses relative to the total number of delegates was 79% in 2020. In line with SANRAL's directives, the block courses in pavement engineering remain a focus area of the Chair. In 2020, as is the annual objective of the Chair, three courses were presented at Stellenbosch University. The government subsidies for postgraduate work, which recognise only the research component of such courses, thus favouring the full-time Master's programme with a large research component, have encouraged the Chair to find an equitable balance between courses and the research component of a part-time Master's degree in pavement engineering. The SANRAL Chair continued to co-operate with some of the major role players in the roads industry in southern Africa, namely SANRAL, Sabita, the Concrete Institute, CSIR and the Asphalt Academy. This relationship yielded some stimulating research projects for 2020. In addition, the Chair contributed to academic journals, book chapters and conferences.



4.6 SCIENCE PROGRAMMES FOR LEARNERS, PARENTS AND TEACHERS

University of the Free State: Science for the Future (S4F)

ICT Laboratory

The Physical Sciences ICT Laboratory at the University of the Free State utilises the advantages of information and communication technologies (ICTs) to support effective science teaching and learning. This initiative aims to encourage and enable more learners and students to enter science-related studies and careers such as engineering and science teaching. In this quest, it is very important to have a strategy that takes into account the characteristics of the participants, as well as the essential 21st-century skills required for success.

At the ICT Laboratory, learners and students with the necessary potential are exposed to carefully planned curriculum-related physical sciences activity sessions. These sessions are underpinned by a philosophy of learning called social constructivism – hands-on, minds-on activity sessions in a social context that enable learners to construct their own understanding of science concepts. This also promotes the understanding of overarching concepts rather than focusing on isolated facts and 'textbook knowledge'. With regard to the latter, different authentic experimental set-ups in the laboratory provide learners with opportunities to collect data in a real-life context to investigate science concepts. According to social constructivism, an essential component of the learning process takes place when learners interact with each other as well as the facilitators. This frequently happens in the ICT Laboratory when information is discussed, analysed and interpreted. It is said that "you only really understand the meaning of a concept once you have verbalised it".

The constructivist approach in the ICT Laboratory provides the ideal teaching and learning environment for the development of 21st-century skills while addressing the needs of the 21st-century learner. Since communication, collaboration, teamwork and cross-cultural understanding are essential skills in the modern workplace, the learners in the ICT Laboratory work in groups of four, with a high premium on diversity. The 21st-century learner, also referred to as the techno-clever generation, has no problem exploring new ICTs since they "often have higher levels of digital literacy than their parents or teachers".

This programme resulted in a different approach to

addressing the understanding of science principles by utilising a 21st-century science teaching-and-learning environment where the components of theory, practice and technology are integrated into a single classroom facility.

In 2020, a total number of 266 Grade 9, 10, 11 and 12 learners from 18 different schools were nominated by their respective schools and attended the sessions at the ICT Laboratory. During the sessions, the learners engaged in curriculum-related activities regularly.

Apart from conducting experiments and other hands-on activities, learners were also exposed to events like a visit to Boyden Observatory, the digital Planetarium at Naval Hill and a career guidance session, which established an official link between the learners and the Unit for Prospective Students at the university.

One of the key elements of the success of the schools' project is that every individual learner, on average, will be exposed to at least 30 sessions over three years (when progressing from Grade 10 to 12). S4F sincerely believes that this approach, rather than one-off engagements, is very efficient and can only maximise the 'return on investment' of the programme.

Project outreach

Target group: Grade 9–12 learners.

One of the characteristics of effective teaching and learning is its cumulative nature. According to this principle, learners will progress only if they have the necessary background knowledge. Thus, to maximise the impact of the ICT Laboratory activities (and SANRAL's investment), schools were asked to identify and encourage learners with an average of at least 60% in science and mathematics, and those who showed a genuine interest in these subjects, to enrol in the programme.

Participating learners were expected to:

- Attend all the ICT Laboratory sessions.
- Make a long-term commitment towards attending during the FET phase.
- Make use of the opportunity to benefit from the programme.
- Be an ambassador for their school as well as individually responsible.

The programme is regarded as a partnership between S4F, SANRAL and the participating schools.



Number of learners enrolled during the first term for 2020

	Grade 7 (achievers)	Grade 9 (selected)	Grade 10 (selected)	Grade 11 (selected)	Grade 12 (selected)	Total number of selected learners
Bloemfontein Campus	20	-	67	50	50	187
Qwaqwa Campus	-	18	23	18	0	59
Total	20	18	90	68	50	246
						TOTAL: 246

Due to the national COVID-19 lockdown regulations at universities and schools, learners could not continue with the laboratory activities on campus after the first term, even after the move from lockdown level 5 to level 1. It is envisaged that laboratory activities not covered during 2020 will be integrated into the laboratory sessions of 2021. In this way, the learners will cover all the activities over a period of time. The annual SANRAL scholarship application session was facilitated through an online zoom session.

Number of exposures (number of learners x number of two-hour sessions)

	Grade 7 (achievers)	Grade 9 (selected) Number of learners	Grade 10 (selected) Number of learners	Grade 11 (selected) Number of learners	Grade 12 (selected) Number of learners	Total number of exposures of selected learners
Bloemfontein Campus	20 x 0 = 0	-	67 x 3 = 201	50 x 4 = 200	50 x 2 = 100	501
Qwaqwa Campus	28 x 0 = 0	23 x 0 = 0	18 x 0 = 0	-	0	0
Total	0	0	201	200	100	501
						TOTAL: 501

Summary of enrolled learners by race	White	Coloured	Asian	African	Total
Selected learners (Gr 9-12)	70	19	7	150	246
%	28,6	7,7	2,8	60,9	

Key Concepts in Science: A 21st-century teaching-and-learning approach

Underachievement and a low throughput rate are some of the challenges facing science teaching and learning in South Africa. This is underscored by the fact that research findings from cohort¹ pass rate statistics² for the period 2013-2017 indicate that only about 40% of learners who enrolled for grade 10 will eventually pass matric, if the current trend continues. This is a clear indication that learners are not prepared for the challenges of Grades 10-12. The results

of the 2015 TIMSS³ report indicates that the science performance of Grade 9 learners in South Africa was rated the lowest of 39 countries.

Given the above, and the fact that learning is a cumulative process built on prior knowledge, the Key Concepts in Science programme has been developed for natural sciences in Grades 8 and 9 to ensure success in physical sciences in Grades 10-12. The programme is underpinned by a social constructivist philosophy of teaching and learning.

1 During cohort research the performance of the same group of learners are tracked over an extended period of time e.g. cohort pass rate indicates the pass rate of those learners who enrolled in Grade 2 together, and went on to pass matric together.

2 Equal Education. 2017. Matric Results and South Africa's unemployment Crisis. Cape Town: South Africa. (<https://equaleducation.org.za/2017/01/09/matric-results-and-south-africas-youth-unemployment-crisis/>) Retrieved on 17 October 2018.

3 Reddy, V., Visser, M., Winnaar, L., Arends, F., Juan, A and Prinsloo, C.H., and Isdale, K. (2016). TIMSS 2015: Highlights of Mathematics and Science Achievement of Grade 9 South African Learners. Human Sciences Research Council.

PROJECT OUTREACH: TARGET GROUPS

JTG Grade 8 and 9 natural sciences teachers

A total number of 22 Grade 8 and 9 natural sciences teachers and one subject advisor from the John Taolo Gaetsewe District of the Northern Cape Province attended the Key Concepts in Science training sessions at the ICT Laboratory in the programme at the University of the Free State. The Grade 8 Natural Sciences curriculum was covered during 2019 and the Grade 8 curriculum during 2020.

Mthata Grade 8 and 9 natural sciences teachers

A total number of 27 Grade 8 and 9 natural sciences teachers and two subject advisors from the Mthatha District of the Eastern Cape Province attended the Key Concepts in Science training sessions at the ICT Laboratory in the programme at the University of the Free State. The Grade 8 natural sciences curriculum was covered during 2020.

Family Math and Family Science Project

Science for the Future (S4F) at the University of the Free State launched its Family Math and Family Science roll-out initiative in the Free State and the Northern Cape at the beginning of 2009, extending it to the Eastern Cape during 2012, Gauteng during 2016 and KwaZulu-Natal during 2018.

The project's mission is to demystify mathematics and science for learners in the early school years by raising their levels of understanding and changing their attitudes towards science and mathematics. This is done by exposing learners to Family Math and Family Science activities regularly in the classroom and integrating the activities into the curriculum. During the 'triangular' project strategy, teachers are trained at the University of the Free State. Apart from integrating the project activities into the curriculum, they are also tasked with conducting parent training sessions in the Family Math activities at their respective schools in the local community. This enables parents to become involved in their children's mathematics teaching and learning at school.

A total number of 33,111 project participants from predominately rural communities in the Free State, Gauteng, KwaZulu-Natal, Northern Cape and Eastern Cape were actively involved in SANRAL-funded Family Math and Family Science activities on a regular basis in the classroom during 2020 (562 teachers, 20,999 learners, 11,493 parents and 41 student educators). To achieve this, S4F trained 16 subject advisors to act as coordinators in their respective regions, with the responsibility of supporting local educators in the implementation of the programme. Key to the programme's success is that S4F also manufactures

sufficient training materials for participating educators, which can be utilised in the classroom and at parent training sessions. The latter was only possible because of the financial support of sponsors like SANRAL and other funding partners during 2020.

To be more efficient, S4F regularly consulted with Department of Basic Education (DBE) officials from the Free State, Gauteng, KwaZulu-Natal, Northern Cape and Eastern Cape about the Family Math and Family Science rollout programme during 2020.

FREE STATE FAMILY MATHS AND SCIENCE PROGRAMME STRATEGY

PROJECT OUTREACH: TARGET GROUPS

Free State Grade R Family Math roll-out triangular strategy 2020: Motheo 4

The Grade R training sessions were attended by 41 Grade R teachers from the Motheo region and eight DBE officials. A total of 920 learners and 552 parents from 12 schools were the project beneficiaries.

Free State Grade R Family Math exit strategy 2020: Motheo 3 region

A total of 29 Grade R teachers from 11 schools in the Motheo region were trained during 2019. Together with 1,018 learners and 611 parents, they were the project beneficiaries during 2020.

Free State Grade 3 Family Math roll-out triangular strategy 2020: Xhariep Group B

S4F was requested to implement a Family Math Programme in the Xhariep region of the Free State. At a meeting on 5 November 2019 in Bethulie, Pellissier Combined School principals, subject advisors and Grade 3 teachers from the local schools were briefed by S4F regarding the triangular teacher-parent-learner Family Math model in the region for 2020. At the end of the session, 24 teachers from 12 different schools enrolled in the programme.

Free State Grade 3 Family Math exit strategy 2020: Xhariep Group A

The 24 Grade 3 teachers from nine schools in the Xhariep region of the Free State who trained during 2019, as well as 935 learners and 504 parents, were the project beneficiaries during 2020.



NORTHERN CAPE FAMILY MATHS AND SCIENCE PROGRAMME STRATEGY

PROJECT OUTREACH: TARGET GROUPS

Northern Cape Grade R Family Math roll-out strategy

2020: Postmasburg

S4F was requested to implement a Family Math Programme in the Postmasburg region of the ZF Mgcawu District of the Northern Cape. At a meeting on 14 November 2019, Asmandia Primary School principals, subject advisors and Grade R teachers from the local schools were briefed by S4F regarding the triangular teacher-parent-learner Family Math model in the region for 2020. At the end of the session, 27 teachers from 13 different schools enrolled in the programme.

Northern Cape Grade 3 Family Math exit strategy 2020: Postmasburg

The 29 Grade 3 teachers from 10 schools in the Postmasburg region of the Northern Cape who were trained during 2019, as well as 1,184 learners and 616 parents, were the project beneficiaries during 2020.

Northern Cape Grade 4 Family Math exit strategy 2020: Postmasburg

The 163 Grade 4 teachers from 10 schools in the Postmasburg region of the Northern Cape who were trained during 2019, as well as 1,127 learners and 446 parents, were the project beneficiaries during 2020.

EASTERN CAPE FAMILY MATHS AND SCIENCE PROGRAMME STRATEGY

PROJECT OUTREACH: TARGET GROUPS

Eastern Cape Grade R Family Math roll-out strategy 2020: Libode and Mthatha

S4F was requested to implement a Family Math Programme in the Libode and Mthatha region of the Eastern Cape. At a meeting on 7 November 2019, principals from Transkei Primary School in Mthatha, subject advisors and Grade R teachers from the local schools were briefed by S4F regarding the triangular teacher-parent-learner Family Math model in the region for 2020. At the end of the session, 29 teachers from 23 different schools enrolled in the programme.

Eastern Cape Grade 4 Family Math exit strategy 2020: Libode and Mthatha

The 25 Grade 4 teachers from 22 schools in the Libode and Mthatha region of the Eastern Cape who were trained during 2019, as well as 1,544 learners and 745 parents, were the project beneficiaries during 2020.

GAUTENG FAMILY MATHS AND SCIENCE PROGRAMME STRATEGY

PROJECT OUTREACH: TARGET GROUPS

Gauteng Grade R Family Math roll out strategy 2020: Hammanskraal Group B

S4F was requested to implement a second Grade R Family Math Programme in the Hammanskraal region of the Tshwane North District in Gauteng. At a meeting on 25 November 2019, principals from Refitlhile Primary School in Hammanskraal, subject advisors and Grade R teachers from the local schools were briefed by S4F regarding the triangular teacher-parent-learner Family Math model in the region for 2020. At the end of the session, 28 teachers from 11 different schools enrolled in the programme.

Gauteng Grade 3 Family Math exit strategy 2020: Hammanskraal Group B

The 28 Grade 3 teachers from 11 schools in the Hammanskraal region of Gauteng who were trained during 2019, as well as 1,504 learners and 703 parents, were the project beneficiaries during 2020.

Gauteng Grade 4 Family Math roll-out strategy 2020: Hammanskraal Group B

S4F was requested to implement a second Grade 4 Family Math Programme in the Hammanskraal region of the Tshwane North District in Gauteng Province. At a meeting on 25 November 2019, principals at Refitlhile Primary School in Hammanskraal, subject advisors and Grade 4 teachers from the local schools were briefed by S4F regarding the triangular teacher-parent-learner Family Math model in the region for 2020. At the end of the session, 18 teachers from 11 different schools enrolled in the programme.

KWAZULU-NATAL FAMILY MATHS AND SCIENCE PROGRAMME STRATEGY

PROJECT OUTREACH: TARGET GROUP

KwaZulu-Natal Grade R Family Math roll-out strategy 2020: Lion's River region

S4F was requested to implement a Family Math Programme in the Lion's River region of the Umgungundlovu District of KwaZulu-Natal. At a meeting on 27 November 2019, principals at Curry's Post Primary School, subject advisors and Grade R teachers from the local schools were briefed by S4F regarding the triangular teacher-parent-learner Family Math model in the region for 2020. At the end of the session, 24 teachers from 19 different schools enrolled in the programme.

KwaZulu-Natal Grade 3 Family Math exit support 2020: Lion's River region

The 21 Grade 3 teachers from 20 schools in the Lion's River region of the Umgungundlovu District of KwaZulu-Natal who were trained during 2019, as well as 547 learners and 328 parents, were the project beneficiaries during 2020.

KwaZulu-Natal Grade 4 Family Math exit strategy 2020: Lion's River region

The 20 Grade 4 teachers from 18 schools in the Lion's River region of KwaZulu-Natal who were trained during 2019, as well as 544 learners and 288 parents, were the project beneficiaries during 2020.

UNIVERSITY COLLABORATION

(UFS appointed to establish and manage collaboration)

General overview

The challenges facing mathematics and science teaching and learning in South Africa are common knowledge. Teachers often lack the necessary content knowledge and teaching skills, and there are shortages of teaching resources at school and at home. There is also a lack of parental involvement, as well as significant language barriers, especially in rural areas, where the language of learning and teaching differs from the language at home.

To address the pedagogical issues at hand, S4F developed two in-service teacher professional development programmes and successfully implemented these in several provinces over the past decade. The Family Math and Key Concepts in Science programmes are underpinned by a social constructivist philosophy of teaching and learning, characterised by hands-on, minds-on activity sessions in a social context.

The immense growth in the number of project participants and increasing demand from different role players to be included in the project activities, were the catalysts for the expansion of the Family Math and Key Concepts in Science programmes to other South African universities during 2019-2020. The decision to scale the project activities to other universities was also informed by the increasing demand for higher institutions in South Africa to become involved in the development of 21st-century teaching and learning skills and scholarly service to communities.

In its quest for skills development and collaboration, S4F envisages promoting independent enterprise development at fellow institutions of higher learning through a phased approach.

2019: Phase I

Establish collaboration and capacitate facilitators from other universities regarding the UFS programmes

2020: Phase II

Roll out UFS programmes at collaborating universities

2021-2023: Phase III

Expand collaboration and independent enterprise development at collaborating universities

To extend the S4F programmes to other South African universities, seven milestones were identified to inform project implementation during 2019/20 and 2020/21.

Year 1: 2019/20

- Milestone 1: Establishment of collaboration with South African universities (collaborators)
- Milestone 2: Training of collaborating facilitators in the S4F programmes at the UFS
- Milestone 3: Training of local teachers by collaborating universities
- Milestone 4: Collaborating universities plan, organise and register teacher training for 2020

Year 2: 2020/21

- Milestone 5: Confirming of collaboration and project quality assurance at collaborating universities
- Milestone 6: Training of local teachers by collaborating universities
- Milestone 7: Collaborating universities plan, organise and register teacher training for 2021

YEAR 1: 2019/20

Milestone 1: Establishment of collaboration with SA Universities (Collaborators)

The S4F programme director and Family Math manager visited six South African universities from April to May 2019 to meet with the relevant role players to inform and invite them to participate in the collaboration initiative. During the information session, the following main topics were covered:

1. S4F background
2. Research fundamentals, rationale and project implementation strategy of Family Math as well as Key Concepts in Science programmes of S4F
3. Background, rationale and implementation strategy of the initiative
4. MoUs between the UFS and the participating universities to be facilitated by S4F in collaboration with the UFS Community Engagement Office



The information sessions concluded with a question-and-answer session and the institutions were invited to take part in the initiative and to identify a champion as well as facilitators for the respective programmes.

MoUs were sent to the respective champions and all six universities signed these. The University of Mpumalanga is the only university that does not yet offer senior-phase natural sciences and will therefore not take part in the Key Concepts in Science collaboration.

After liaising with the collaborators, dates were set aside for induction sessions with the facilitators from the collaborating universities.

Milestone 2: Training of collaborating facilitators in the S4F programmes at UFS

It was very important for S4F to keep the integrity of the Family Math and Key Concepts programmes intact. Therefore, the participating facilitators from the collaborating Universities were exposed to induction sessions. Two induction sessions were presented at the UFS during June and September 2019 and February 2020.

Milestone 3: Training of local teachers by collaborating universities

From July to October 2019, the facilitators from the different universities organised and conducted training sessions with local teachers at the respective universities. To allow the facilitators to get used to the training process and the accompanying logistics, which can be quite demanding and intimidating, a decision was made to begin with only a small number of teachers, learners and parents. S4F supplied the collaborating universities with all the training materials, including learner and parent workshop material. The implementation of Milestone 3 was completed.

Milestone 4: Collaborating universities plan, organise and register teacher training for 2020

In November and December 2019, the facilitators from the different universities had enrolment meetings with teachers from local schools to add to the number of current project participants for 2020. New teachers will be added to the programme until there is a total number of 20 project participants per programme.

YEAR 2: 2020/21

Milestone 5: Confirming of collaboration and project quality assurance at collaborating universities

In line with the requirements of milestone 5, the S4F programme director and Family Math manager liaised

during January 2020 with the six South African universities to confirm the collaboration and discuss the 2020 project implementation. During the discussion sessions, the following main topics were covered:

1. Confirmation of the different project teams as well as the role of the champion at the different institutions
2. Reflection on project implementation at the different institutions to date with Practice Note 2, which was sent on 12 November 2019, as a guideline (see APPENDIX I.)
3. Discussion on project feedback documents from champions to UFS
4. Discussion regarding the 2020 project implementation of Milestone 6
5. Discussion on documents and processes relating to the project tranche payments to the collaborating universities

Milestone 6: Training of local teachers by collaborating universities

First term 2020: Pre-national COVID-19 lockdown period

During 2020, the training of the expanded group of about 20 project participants per collaborating university took place, and the enrolment process, which commenced at the end of 2019, was concluded.

Since the Family Math facilitator induction sessions were concluded during 2019, the training of local teachers during the first term of 2020 commenced during the first term.

The Key Concepts in Science facilitators attended a third induction session on 6 and 7 February 2020 (see Milestone 3, Key Concepts in Science induction session 3, for details) and the training of local teachers at most of the institutions started only during the second term, since the COVID-19 lockdown ruled out any training during March and April 2020.

Post-level 4 national COVID-19 lockdown period 2020

With some of the learners returning to school in a staggered approach during level 3 of the national lockdown, an online Microsoft Teams meeting with the university collaboration partners was conducted on 26 August to discuss contingency plans for the implementation of the university collaboration.

The objectives of the information session were to:

1. Provide an update on the progress of the first-term activities, as well as the contingency plans for the rest of 2020.
2. Share details of the 2021–2023 proposal with the partners (project implementation, financials, etc.).
3. Determine the interest of the current university partners

in the next project period (Family Math as well as Key Concepts in Science) and obtain a mandate to continue discussions with the funder.

Contingency plan: Family Math Programme

Since the Grade 3's started to return to school on 24 August 2020, it was a priority for the universities collaboration initiative to support the Family Math project participants. Contact training sessions for the second and third terms were not possible due to the COVID-19 restrictions. Instead of physical training sessions, the collaborating universities provided the participating teachers with digital presentations, as well as all the necessary guides and activity material to assist them in the classroom implementation of project activities. Along with the Family Math material, teachers also received a memory stick with the term digital training sessions in the form of a PowerPoint presentation with videos embedded. A cover letter with instructions was issued along with the memory stick.

Contingency plan: Key Concepts in Science Programme

The situation for the Key Concepts in Science programme (Gr 8 content) was more complicated, since the Grade 8s returned to school only after 31 August for the first time since term one. This meant that most of the collaborating universities had to manage the implementation of the envisaged three training sessions and an optional fourth (because of the trimmed curriculum) during the remainder of 2020.

Since the Key Concepts in Science training session was of a practical nature, it was necessary for the implementing universities to conduct some form of face-to-face contact sessions. These sessions generally took place off-campus, due to restrictions at the different institutions.

Milestone 7: Collaborating Universities plan, organise and register teacher training for 2021

In preparation for the expansion of the universities collaboration initiative for the project period 2021-2023, the different institutions identified project participants and enrolled them for the 2021 project. Project strategy was discussed during an online meeting on 8 December 2020.

Mathematics education and science forum

Due to the COVID-19 pandemic, there was no Community of Practice forum during 2020.

NELSON MANDELA UNIVERSITY (NMU): STEM IN ACTION (SIA)

STEM in ACTION intervenes in physical science teaching and learning for Grades 8–12 in selected schools in the Nelson Mandela Bay Municipality.

The project aims to:

- Increase the number of learners choosing physical science as a subject.
- Increase the number of learners achieving grades that meet the requirements for study in science and engineering.
- Expose learners to careers in science and engineering.

The programme strategy is driven by the objective "to increase the pool of high-standard matriculants in mathematics and physical science".

Target groups and project purpose

- Selected Grade 10–12 learners from 12 ex-Model C schools achieving:
 - > 70% in physical science and mathematics at the end of Grade 9. These learners are to visit the ICT Laboratory and execute an experiment. Learners are exposed to ten sessions per annum. Some of these sessions are dedicated to career exploration.
- Most activities are curriculum-based experiments presented during a one-and-a-half-hour bi-weekly session to each grade. Experiments are performed using ICTs, after which results are analysed and concepts consolidated by the end of a laboratory session. In addition to the ICT sessions, the Grade 10 group are introduced to two activities promoting critical thinking and problem-solving skills.
- Selected schools from marginalised areas sent their physical science classes to visit the laboratory daily for four sessions from 8am to 1:30pm to conduct experiments. Schools are selected for this project according to school functionality, enthusiasm for physical science at the school and the whole-school buy-in promoted by the school management team. Learners are accompanied by their physical science educators to the STEM in ACTION facility, where they participate in CAPS-aligned hands-on experiments, using ICT data-logging equipment and acquiring laboratory techniques in the process. Physical science educators have a choice of at least eight CAPS-aligned experiments per grade. STEM in ACTION interacted with 22 schools during this intervention.

- As part of the Getting Ahead in Technology and Engineering (GATE) project, selected learners were targeted from marginalised schools. Eighty learners per grade, from Grade 10, 11 and 12, were selected to follow an intensified intervention. This included academic support in physical science, study skills and career exploration. The academic support included hands-on ICT experiments to assist with the understanding of concepts. These learners must achieve a minimum of 45% in mathematics and physical science at the end of Grade 9. The GATE project was piloted in 2015.
- STEM in ACTION collaborated with the Faculty of Education at the Nelson Mandela University to train PGCE and B.Ed students pursuing teaching careers in science. The Faculty of Education was presented with a one-year programme to develop science skills with these students – both personal experiential skills as well as classroom management and worksheet design skills.
- Career Exploration targeted all learners from the GATE and SLP groups. Career guidance strategies were put in place to determine interest profiles and expose learners to scientists' and engineers' work environments. In addition, all afternoon learners were taken on various excursions to introduce them to the work environment of scientists and engineers. Alternatively, experts were invited to the laboratory to have an interactive session with learners to empower them with knowledge about a specific career option. All schools participating in the programme, and parents of learners, were invited to attend the STEM Talks, presented once a term.
- Grade 9 learners from selected schools with the potential to excel in mathematics and science were identified with the assistance of the educators in these schools. They were presented with at least three practical physical science activities at the laboratories on the Missionvale Campus of NMU to create awareness of the GATE and Selected Schools programmes, and to stimulate interest in physical science as an elected subject in Grade 10.
- Grade 8 natural science educators from the Selected Schools Programme were empowered in the teaching and learning of the physical science component of natural science through workshops for the Key Concepts in Science programme. In collaboration with the Science for the Future Initiative of the University of the Free State, STEM in ACTION empowered a group of 28 Grade 8 natural science educators from nine schools with skills for the teaching and learning of Grade 8 science by presenting workshops and providing teaching and learning materials.



Educator and learner numbers for the Key Concepts in Science for Grade 8

School	Educators	Number of learners per educator	Number of Grade 8 learners per school
VM Kwinana Comprehensive School	1	0*	300
	2	100	
	2	200	
Moses Mabida Senior Secondary School	1	0	275
	2	275	
Betram Secondary School	1	85	217
	2	132	
	3	0	
Ithembehle Comprehensive School	1	117	232
	2	115	
St Colmcille Secondary School	1	135	298
	2	107	
	3	56	
Hoërskool Cilliers	1	164	231
	2	0	
	3	67	
	4	0	
Woolhope Senior Secondary School	1	148	232
	2	0	
	3	42	
	4	42	
Despatch Hoërskool	1	31	202
	2	98	
	3	73	
Mary Waters High School	1	115	250
	2	0	
	3	47	
	4	88	
Total number of learners and educators	2 265		



4.7 CONCESSIONAIRE SUPPORT FOR EDUCATION, HEALTH AND SOCIAL DEVELOPMENT

EDUCATION



TRAC

Bursaries

BTech student working on the Reducing Roadkill Project, Endangered Wildlife Trust (EWT)

Two high school learners through the Innibos Meridian Educational Trust Fund

Two students at the University of Pretoria 2019

One artisan electrician on learnership

E-learning Project

Through a partnership between TRAC and Ligbron E-Learning, TRAC provides for nine schools along the N4. We have equipped 23 maths and science classrooms, through which 828 matrics benefit, and 7,133 students have access to the system.

During the COVID-19 lockdown, TRAC funded the Ligbron e-learning cellphone application. This meant that the students in the nine schools in our TRAC e-learning project could continue to have access to quality educational material for maths and science via an interactive cellphone application.

TRAC funds the Penreach TRAC N4 Asifundze and Literacy and Courageous School Leadership Development Programme (PCLDP) in eight schools, aimed at the education of foundation phase children. During the period, a total of 2,185 children, 47 teachers and six communities benefited. The programme encompasses school leadership development with the PCLDP, community reading camps and reading corners, as well as a toy library and teacher development workshops.



N3TC

N3TC's Touching Lives programme is extensively reported on in the annual Touching Lives report, a copy of which can be found at www.n3tc.co.za. In 2020, the programme was refocused to place even greater emphasis on education. Despite the impact of the COVID-19 pandemic, all projects were able to adapt and implement innovative ways of overcoming hardships with the help of N3TC.

PROTEC PMB offers the full secondary school academic curriculum, from Grades 8 to 12, primarily to give students time to work on English literacy while consolidating senior-phase maths and natural science. PROTEC further extended its support to students that they deemed to be 'lost' to the system as a result of their isolation and proximity to schools and educational resources.

Midlands Community College continued supporting Grade 10, 11 and 12 learners at 70 KZN Midlands schools. The services of six laboratory technicians were retained to support Grade 12 educators with key practical elements of the science curriculum and assist in preparing learners for their final Grade 12 exams.

Reach Out to Read incorporated WhatsApp into its portfolio of tools to further the programme's literacy offering. It developed into a full-scale platform of teaching and learning across all education phases, and to deliver either video or voice note lessons in isiZulu via WhatsApp, covering a wide range of areas and offering social and emotional support for adults and children.



Bakwena

Functional schools projects to improve school management and learner career development and behaviour changes.

A total of 2,400 learners in Grades 8, 10 and 12 were reached in the first term. During COVID, the learners were supported remotely.

Edu-camp for 80 matric learners. School strategies planning with 30 teachers.





HEALTH



TRAC

Supporting health and welfare initiatives and awareness programmes within communities and providing the necessary training to healthcare workers to support their local communities.

KuPhila Clinic – Financial and administrative support of community clinic.



N3TC

Trucking Wellness educates and supports truck drivers at the Trucking Wellness centres along the N3 Toll Route.

Pevensey Place in Underberg caters for the emotional and physical wellbeing of adults with disabilities to ensure their safety and security.

N3TC continued its partnership with the Khanyisile Trust to care for more than 200 families in the Van Reenen and the Sand River areas.



Bakwena

Community first responder teams active in Hammanskraal, Bapong/ Majakaneng, Moinooi, Swartruggens, Groot Marico and Dinokana.

Groups received COVID-19 training and worked under the emblem of the South African Red Cross Society (SARCS) in various COVID-related activities at schools and public places in their communities.

Assisted the Department of Health with mass screening activities.

Assisted the Department of Social Development, SARCS, schools and businesses with handing out of food packages.

Teams also conducted home visits to teach the community about the washing and sanitising of hands, and the importance of social distancing and mask wearing.

In total, these teams engaged in 862 activities and reached 213,913 people through screening and awareness activities.

Teams also started community gardens in Moinooi, Swartruggens and Groot Marico.

Bakwena's Arise and Conquer NPO took part in various COVID-19 prevention and education activities, as well as HIV testing and TB and STIs screenings. The group screened more than 71,000 people for COVID-19 and reached a further 45,000 people through other activities in partnership with Tshwane and MSAMU (Multisectoral Aids Management and Response Unit).

SOCIAL DEVELOPMENT



TRAC

The sustainable relationship between Thanda Primary and TRAC continues to grow and resulted in the final handover of the new buildings: six new classrooms, an ablution block, a kitchen and seating area, and a foundation phase classroom. Ongoing support for the school has been vital, especially during COVID-19. The community impact has resulted in the growth and development of the people living in the area, with a focus on education, skills development and enterprise development. Additional projects at the school will include the continuation of the Penreach Literacy and Maths Programme, an early childhood development centre, e-learning installation, school and community sports development and adult education programmes.

TRAC offers major support to SMMEs in terms of routine road maintenance contracts valued at R13m per annum.

The N4 hawker enterprise development programme aims to support the development of sustainable and successful enterprises, and ultimately to stimulate local economic development in the area. This has been achieved through mentorship, support and accredited training of 12 identified hawkers.



N3TC

Mamello Support Group in Intabazwe provides essential services to the local community in the form of food parcels and after-care facilities. N3TC has contributed to the enhancement of the facilities, which house a bakery, the proceeds of which are used to sustain the after-care facilities.

iThemba Projects in Sweetwaters established food gardens in 400 households and continued to mentor families in permaculture skills, ensuring that the gardens will flourish long into the future, contributing to long-term sustainability and self-sufficiency.



Bakwena

Bakwena's Drama for Change NPO ran a COVID-19 poetry competition and conducted a successful outreach programme for the prevention of gender-based violence in Groot Marico.

This was done using forum theatre, an interactive method where the audience takes part in the drama and engages in dialogue. Four focus groups were run: with older men, younger men, older women and younger women. Seventy adult community members took part in the focus groups.

The team produced a gender-based violence video called 'We Men', as well as COVID-19-related documentaries.





5

SECTION 2 CAPITALS AND PERFORMANCE

5. NATURAL CAPITAL

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SANRAL joined Smarter Mobility Africa in October 2020 to continue to showcase and inspire incremental investment in and transition to smarter mobility.



5.1 THE CONSTRUCTION OF THE NATIONAL ROUTE 4 THROUGH PAMPOENNEK

Historical background and project description

The construction of the National Route 4, Section 12 (PWV3), from km 69.985 at the interchange with Road 980 to the interchange between the project road and Road P123-1 and to km 76.170, commenced in April 2017 and was completed in May 2020. The road crosses mountainous terrain in a north-westerly to south-easterly direction. This resulted in a vertical alignment with a sub-section in deep cut and other sub-sections on high fills. The project also included the construction of various in-situ culverts and a bridge structure (B0072B) at the interchange with Road P123-1.

Understanding the environmental impact

As with all greenfield projects, an Environmental Impact Assessment (EIA) was undertaken during the planning and design stages, culminating in a positive Environmental Authorisation (EA) in September 2010 and a Protected Tree Permit in April 2017 (closer to construction). Key environmental issues identified during the EIA included the following:

- **Biodiversity:** The area was dominated by common hook-thorn (*Acacia caffra*), but legally protected marula trees (*Sclerocarya birrea*), small mammals and three International Union for Conservation of Nature (IUCN) Red List fauna species were found – namely the South African rock python, the Schreiber's long-fingered bat and the Cape vulture – making this an important biodiversity area.
Note: In 2015, the area was declared a biosphere reserve by the United Nations Educational, Scientific and Cultural Organization (UNESCO).
- **Visual impacts** caused by the cuts and fills in the mountain area.
- **Heritage:** The area was found to be archaeologically sensitive as there were remains of defensive structures dating back to the South African War within the alignment of the road.

Mitigating the environmental impact

- **Design:** The horizontal alignment of the road was designed to cut through a section of the mountain that was already impacted by silica mining activities, thus reducing new environmental impacts. Additional design changes were implemented where the cutting through Pampoennek was reduced from 26m to 19m, making the cut slope flatter and the overall footprint smaller and easier to rehabilitate compared to the originally approved design.

An underpass was incorporated into the design of the road to facilitate the crossing of game from one side of the now protected area to the other.

- **Biodiversity:** The improved design had the benefit of reducing the number of marula trees to be destroyed to 194, down from the potential 308 covered by the Protected Trees Permit. In the end, these were replaced, and other indigenous trees and shrubs planted to soften the appearance of the cutting through the nek and to add to the species richness of the area.
- **Visual impact:** In addition to the trees and shrubs, a synthetic rock finish was applied to the retaining walls to blend in with the natural environment.
- **Heritage:** Demolition of the defensive block was supported for the structure, which would be directly affected by road construction, but only after specialist investigations and documentation, thus adding to the body of knowledge in this field. Other defensive blocks were left intact.





5.2 RECYCLING RESOURCES

The recycling of asphalt is now a well-established practice in South Africa and in SANRAL especially, having commenced in or around 2011. SANRAL continues to build on the work it started to implement the recycling of road-building material, and in line with Horizon 2030 the focus has been among others on the development of policies and guidelines to promote the sustainable use of non-renewable resources.

The newly updated Committee of Transport Officials (COTO) Standard Specifications for Bridge Road Works for example, provides for the use of the latest industry guidelines for reuse and recycling of road building materials, with the aim of maximising recycled content and improving longevity of the road. Relevant guidelines cover

primarily bitumen stabilised materials, asphalt, the use of reclaimed asphalt and bitumen rubber asphalt.

With bitumen and asphalt generally covered, SANRAL in collaboration with industry experts and academics has increased its focus on the development of a national guideline for the reclaiming of concrete pavement. Detailed plans have been developed during the reporting period for the N3 Corridor Upgrade project between Durban and Pietermaritzburg, which plans allow for significant sections of concrete pavement to be reclaimed for use in layer-works. The plans also allow for other objectives such as noise mitigation to be met through careful selection of the surfacing material and for the optimal use and balancing of material requirements across all construction packages.



5.3 SMARTER MOBILITY EXPERIENCE

SANRAL joined the Smarter Mobility Africa in October 2020 to continue to showcase and inspire incremental investment in and transition to smarter mobility. This supports the Green Transport Strategy 2018–2050 and our own Horizon 2030, which emphasises smart roads, mobility, technology and resource efficiency, among others. Unlike the inaugural event in 2019, this one was held virtually and did not have a road trip component due to COVID-19 restrictions. This made for a greener, smarter event and averted significant travel-related carbon emissions by the 500-plus participants. It was also more resource-efficient than the 'business as usual' scenario.

Our virtual exhibition leveraged technology and saved on time and the cost of setting up, while still reaching a wide audience.

SANRAL had three speakers at Smarter Mobility Africa 2020, including the Head of Strategy, who highlighted SANRAL's plans for the N3 as a smart corridor, which included installing additional electric vehicle charging stations.

Other technological innovations showcased further development of the SANRAL Mobility App and developing the ITIS Mobile App, which further promotes SANRAL's environmental sustainability through remote work and a transition to a paperless environment.



SANRAL Head of Strategy Thabiso Malahleha sharing his views at Smarter Mobility Africa.

5.4 SUSTAINABILITY RATING (SuRF) TOOL

The SuRF tool is currently being piloted in the Eastern Region N2 and N3 projects under construction, commencing with the Cato Ridge to Dardanelles package. A workshop was held in February 2021 with contractors, environmental control officers, engineers, SANRAL project managers and environmental practitioners on the use of the SuRF tool and other environmental management tools.

SANRAL also continued to contribute to and to exchange information with the South African Road Federation (SARF) Sustainability Forum on the N3 pilot.





5.5 ENVIRONMENTAL AUTHORISATIONS

EASTERN REGION

- N.003-020-2017/2 (Key Ridge to Hammarsdale) – Environmental Authorisation received on 24/2/2021
- N.003-030-2017/2 (Murray Road [Gladys Manzi Road] to New England Road) – Environmental Authorisation received on 16/11/2020
- Upgrade of the National Route 1 (N1), Section 18 between Heuningspruit and Koppies – Environmental Authorisation received: 3/3/2021
- N.003-020-2017/5 (Dardanelles to Lynnfield Park) – Protected Species Permit received on 17 June 2020
- Upgrade of R61 (Section 11 from the Mthamvuna River, km 0, to the Mbizana River, km 24, KwaZulu-Natal – Specific Environmental Management Programme Approval received on 29 October 2020

SOUTHERN REGION

- The upgrade of the National Route 2 (N2), Section 18 between Viedgesville (km 65.6) and Mthatha (km 85.0) within the King Sabata Dalindyebo Local Municipality in the Eastern Cape
- The rehabilitation of N2, Section 19, between Nqadu and Mzeke River, the mining of gravel on part of the remainder of farm 61, the remainder of farm 42 and the remainder of farm 62, District of Tsolo in the Eastern Cape
- The upgrading of the National Route R335, between Motherwell and Addo, within the Nelson Mandela Bay Municipality and the Sundays River Valley Municipality in the Eastern Cape (26 March 2020)



5.6 STATUTORY DEVELOPMENTS

The Department of Environment, Forestry and Fisheries (DEFF) proposed amendments to the Environmental Impact Assessment (EIA) Regulations in November 2020. The purpose of the amendments is to ensure alignment between the EIA Regulations and the Financial Provisioning Regulations for the rehabilitation and remediation of environmental damage caused by mining activities.



5.7 LIAISON WITH REGULATORY AUTHORITIES

On mining activities

SANRAL continued liaising with the DEFF and the Department of Minerals and Energy (DME) to address the misalignment between the National Environment Management Act (NEMA) and the Mineral and Petroleum Resources Development Act (MPRDA) and find practical solutions to the implementation of the two Acts, specifically where mining activities are concerned. The amendment to the EIA Regulations is, in part, due to SANRAL's efforts over the last few years.

On self-regulation

The Department of Water and Sanitation (DWS) conducted a National Governance Review on several SANRAL projects, requesting self-regulating reports in line with the General Authorisation or with the specific conditions of the various water-use permits. Although this process had not been finalised at the end of the financial year, SANRAL has identified a need for both entities to undertake joint site audits to share experiences and ensure consistency in interpreting conditions.

5.8 SEED COLLECTION PROJECT (P166)

As reported in 2019/20, SANRAL is undertaking a three-year project in collaboration with the South African National Botanical Institute, Mbombela Metropolitan Municipality, the Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs, and a specialist consultant to conduct relocation and propagation trials for *Aloe simii* species affected by the White River stretch of the proposed P166 road in Mbombela.

Seed collected from the White River sub-populations of the species in March 2020 was successfully germinated in September 2020. (PHOTO). The seedlings will be transferred from trays to pots during the 2021 winter before planting in the wild. It is proposed that these plants be monitored for six months to ensure that they take root.

Additional seeds from the White River populations will be collected again in April 2021 and lodged with the botanical gardens in Nelspruit.

DNA has been extracted for all but two specimens, in which it was too degraded. DNA coding of the different species is underway, and the results are not yet available. It is hoped that the populations are genetically similar to allow the out-planting of all the uplands seedlings in the White River trial sites and to support the use of the selected White River sites as out-planting areas for the plants that need to be transported out of the road reserve.





5.9 CONCESSIONAIRES' ENVIRONMENTAL INITIATIVES



Bakwena

Bakwena supported and sponsored the WESSA Eco Schools Project and Endangered Wildlife Trust (EWT) Guardians of the Future Project for environmental education and development of "green" practices among learners.

Due to lockdown restrictions EWT could not conduct teacher training and consultation workshops or implement boosters in schools.

Bakwena also supported the EWT (Endangered Wildlife Trust) Roadkill Project. Route patrollers continued to receive training and submit roadkill data to EWT which is analysed and inserted into a database. There were fewer animals killed during the lockdown due to reduced traffic, compared to previous years.

Carnivore conservation – placement of livestock guarding dogs to minimise the conflict between carnivores and livestock farmers in the Magaliesberg.





5.10 CONSERVATION ON MAJOR PROJECTS

The table below summarises some important conservation activities undertaken as part of construction projects during 2020/21. The prolonged drought in parts of the country spurred efforts by contractors to apply more resource-efficient construction methods.

Intervention	Benefits
Electronic Anti-theft Security Monitoring System incorporating a Lighting Management System (LMS) – pilot projects at Umgeni I/C and Umdloti to Tongaat Plaza	Energy saving of about 40% through LED light fittings and remote control of light intensity for one or more light fittings at 25%, 50%, 75% or 100%, or to be completely switched off.



Screenshot of the dashboard from the lighting management system

5.11 ENVIRONMENTAL IMPACT ASSESSMENTS

Maintenance and monitoring continued to ensure the health of the thousands of plants rescued from Mthentu and Msikaba bridge haul roads and construction sites, and on the baobabs of Musina Ring Road.

Project Name	Benefits
Various sections of the N2 and N3 upgrades	Environmental Authorisations for the road sections and permits for protected plant species and natural forests were issued.



Safeguarding threatened and protected species on the Wild Coast

In November 2016, the independent N2 Wild Coast Road (N2WCR) Environmental Monitoring Committee (EMC) and the Environmental Authorities Coordination Committee (EACC) were established to oversee the environmental aspects of the construction of the N2 Wild Coast Road (N2WCR).

The project also has an independent environmental project manager, two independent environmental control firms and an independent environmental auditor. These bodies and firms monitor compliance with the environmental authorisation conditions and provide necessary assurance to the public and stakeholders that the region's sensitive habitats are being properly protected.

As a result, more than 15,000 hectares of new protected areas have been created under the N2WCR project's biodiversity offset agreement to mitigate its environmental impact. The new protected areas will see the enlargement of two existing nature reserves (Silaka and Mkhambathi) and the creation of several new

protected areas in the Port St Johns, Ingquza Hill and Winnie Madikizela-Mandela local municipal areas.

The Eastern Cape Parks and Tourism Agency is the implementing agent for this 10-year, R372m project funded by SANRAL.

Search and rescue operations for threatened or protected species (TOPS) of endemic flora within the road reserve were carried out prior to the start of any construction, and holding facilities were established for rescued TOPS. To avoid stressing the plants by keeping them bagged for extended periods, the TOPS held at the Msikaba and Mtentu sites are to be planted out into identified no-go areas adjacent to the bridge sites at the start of the next rainy season (September 2021).

Breeding pairs of Cape vultures were also found in the Msikaba gorges. Blasting operations must be carried out without unduly disturbing the birds. Sustained and excessive noise can delay vulture mating and thus negatively affect breeding.







6

SECTION 2 CAPITALS AND PERFORMANCE

6. HUMAN CAPITAL

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SANRAL seeks to attract and retain talent through good working conditions and skilled human resources management. As our talent pool has grown, we have also made progress towards greater diversity and inclusion.

Appointments made during 2020/21 brought SANRAL's workforce closer to approximating the composition of the general South African population.

By the end of the year, 83% of employees were Black (African, Coloured and Indian). African employees comprised 63% of the staff complement. In addition, female employees outnumbered male employees.

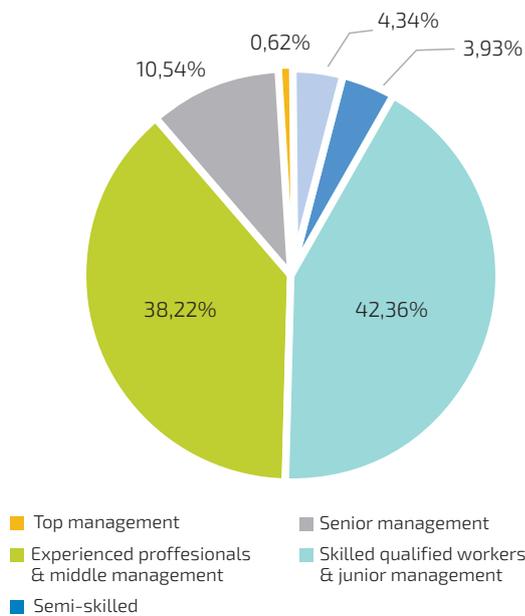
6. HUMAN CAPITAL

The bulk of SANRAL's work falls within the realm of planning, specialised contracting and project management, all of which are informed by professional knowledge of road systems management, road design and construction. Operational work is undertaken mainly by contracted engineering and construction companies.

This is reflected in the composition of the Agency's staff establishment, which features an unusually large number of senior managers and seasoned professionals. Senior managers, experienced professionals and middle managers account for 48.76% of the total number of employees.

6.1 EMPLOYEE PROFILE

Employees by occupational category



In the face of fierce competition for engineering skills, SANRAL seeks to attract and retain talent through good working conditions, skilled human resources management and growing its talent. It does the latter through a system of study grants at the school and university level and its Technical Excellence Academy (TEA) for young engineering graduates (see page 164).

This approach has yielded results. Not only does SANRAL have a staff turnover rate of just 4.5% a year, but it has also made progress towards diversity in a sector that was almost exclusively managed by white male engineering professionals just a decade or so ago.

The quality of SANRAL's human resources management is attested to its recognition as a top employer for the past 10 years running by the international Top Employers Institute and its certification across all 13 standards by the South African Board of People Practices.

Growth and diversity

The staff complement of SANRAL has increased substantially, with 8.88% growth in this reporting year compared to 4.26% in the previous year. The total number of employees as of 31 March 2021 was 484.

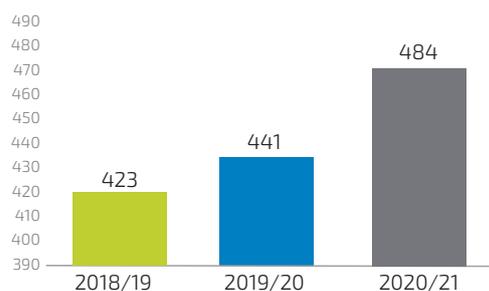
This growth has facilitated a rise in employee diversity. Overall, appointments made during 2020/21 brought SANRAL's workforce closer to the goal of approximating the composition of the general population.

- By the end of the year, 83% of employees were Black, with African staff members comprising 63% of the total establishment.
- Female employees outnumbered male employees.

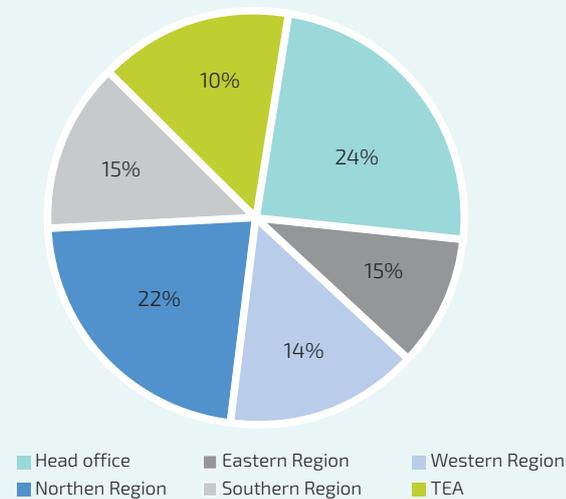
However, when the representation of women and Black employees is analysed by occupational category, the under-representation of both these groups is evident at the senior management level. Women have also not achieved parity in the experienced professional/middle management and skilled worker/junior management categories.

This situation is linked to the broader question of diversity among students in fields of study relevant to SANRAL and among professionals in the engineering and road transport sectors. Appropriate professional qualifications are non-negotiable for many positions within SANRAL and, therefore, the Agency seeks to promote the entry of women and Black students into these professions through its scholarship and bursary programmes. (See pages 164-167).

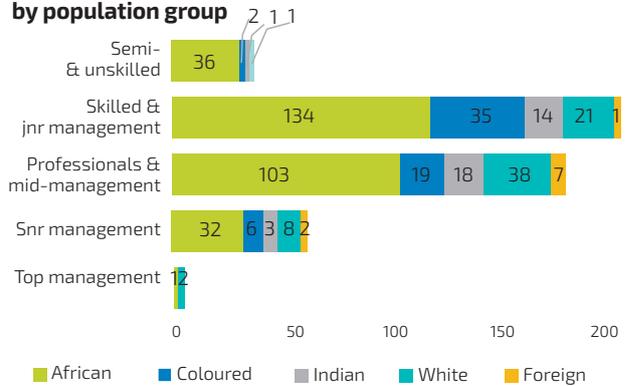
Growth in SANRAL staffing



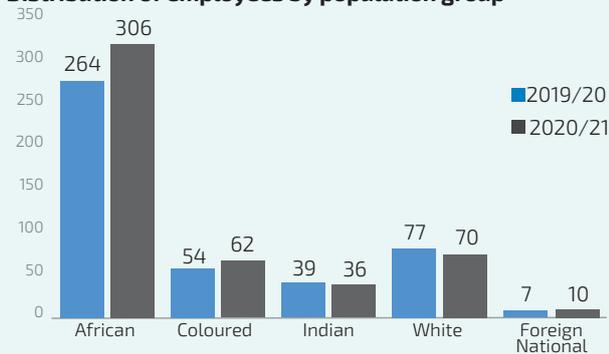
Distribution of employees across offices



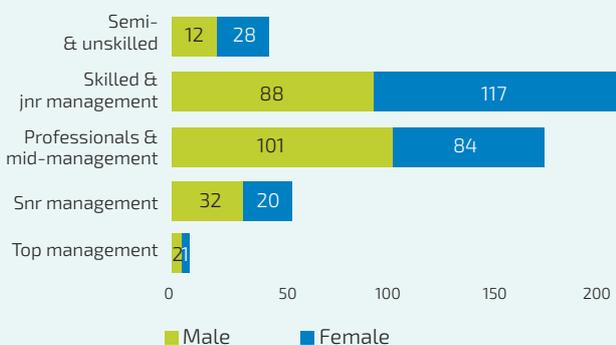
Breakdown of main occupational categories by population group



Distribution of employees by population group



Male-to-female ratio in main occupational categories



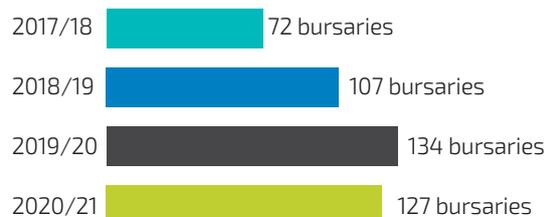
6.2 EMPLOYEE DEVELOPMENT

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

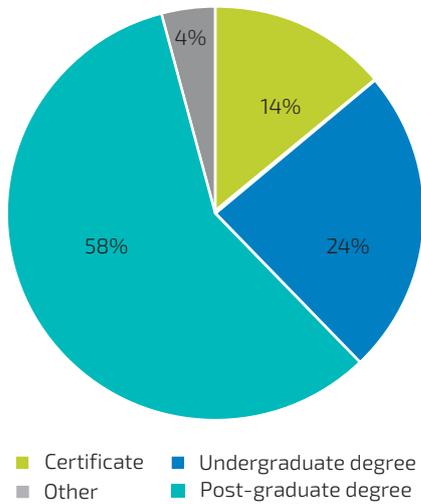
SANRAL made an investment of R2,635,617 towards the training of 127 employees during the year in areas of accounting, human resources management and engineering.

A total of 127 employees, including 28 new applicants, were awarded bursaries for tertiary studies during 2020/21. More than half the bursary recipients (58%) were engaged in postgraduate studies.

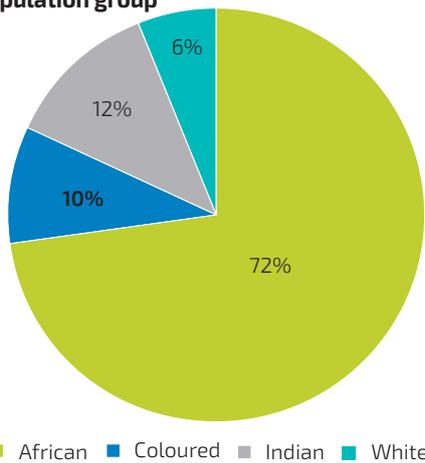
Growth in internal bursaries



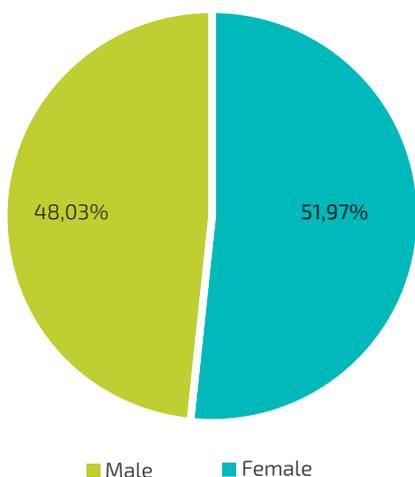
2020/21 Internal bursary recipients by course of study



2020/21 internal bursary recipients by population group



2020/21 internal bursary recipients by gender



The number of female employees applying for internal bursaries during the reporting period declined due to low application rates and the fact that many female students graduated and left the programme. The low application rate may be linked to the COVID-19 pandemic and uncertainties in the academic environment.

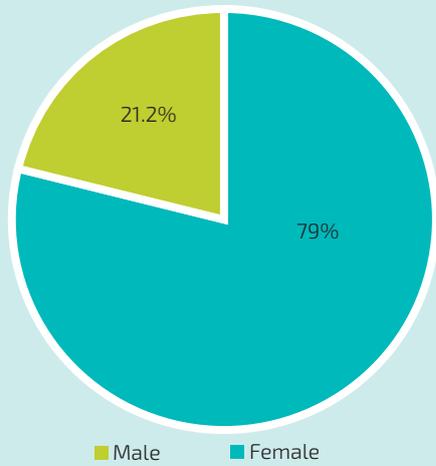
The SANRAL graduate development programme

The SANRAL graduate training academy model has recently been expanded to include graduates from a wider range of specialities. Initially launched as the Technical Excellence Academy (TEA), an innovative in-house programme offered by SANRAL to graduates for training in the field of engineering, it has now opened its doors to graduates from other sectors, including finance, supply chain management (SCM), information and communications technology (ICT), human resources (HR), labour relations and marketing.

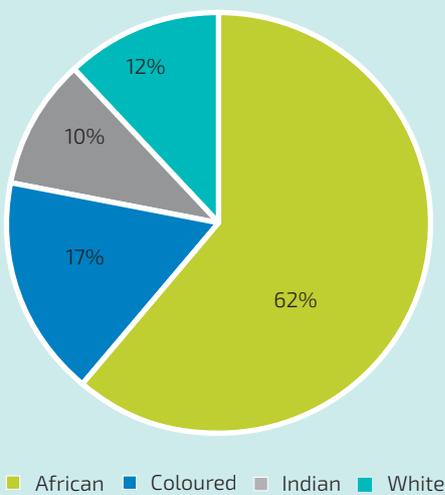
The TEA and the extended graduate training programme is a facility that assists graduates in fulfilling the practical experience and work integrated learning required by professional registration bodies aligned to their careers, such as the Engineering Council of South Africa (ECSA), the South African Board for People Practices (SABPP), the Chartered Institute of Procurement and Supply (CIPS) and the South African Council for the Quantity Surveying Profession (SACQSP). The sheer range of work exposure open to graduates – from specialised software to real-life assignments – makes the graduate training programme experience special. The aim is to enable new graduates to attain the valuable on-the-job experience needed to move forward in their careers.

In 2020, the TEA celebrated the milestone of having 100 candidate engineers and technologists undergo training since the commencement of the programme in 2013. This number includes graduates who had held SANRAL external bursaries for their university studies and recipients of Department of Transport bursaries.

Gender composition of 2020 candidate engineers at TEA



Composition of 2020 TEA candidate engineers by population group

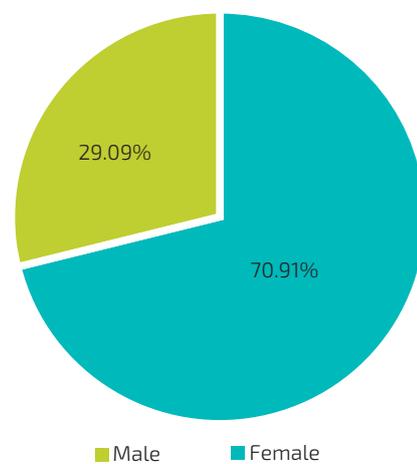


6.3 SCHOLARSHIPS AND EXTERNAL BURSARIES

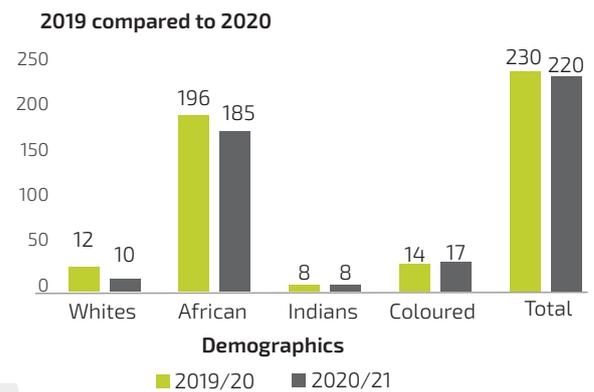
Scholarships

In 2020/21, scholarships were awarded to 220 learners, 70% of whom were female. The annual number of scholarships has varied only slightly in recent years, but the amount invested has increased, amounting to R7,055,715 in 2020/21.

Scholarships awarded in 2020/21 by gender



Scholarships awarded in 2019/20 in comparison to 2020/21 by population group





Enhancing SANRAL's transformation initiatives through policy changes

In line with Horizon 2030 and the Transformation Policy, SANRAL is gradually shifting its focus to areas of particular need in order to achieve a more inclusive and attractive scholarship programme. We are excited to announce an updated policy that was approved in January 2021, which will assist us in making a more considerable difference to communities.

The scholarship programme's main objective is to ensure that learners across South Africa are granted an opportunity to complete Grade 12 through financial assistance and psychosocial support in order to enter the tertiary environment successfully.

The scholarship programme now caters to learners from Grade 8 to 12 without any subject-specific qualifying criteria. The learners will be expected to obtain an overall average/aggregate of 60% to meet the minimum requirement. This means we can now reach a wider audience of well-deserving learners who are in dire financial need.

Scholarships per province

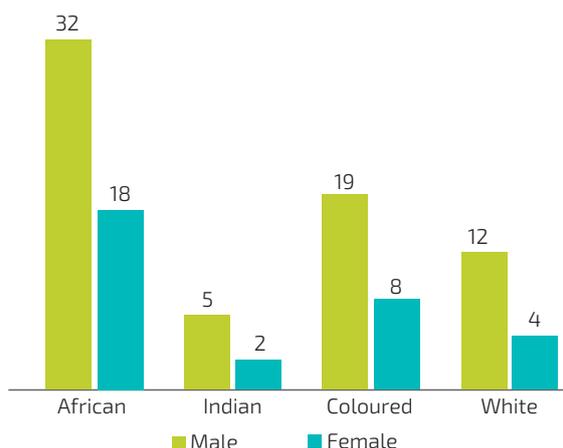
Provinces	No. of learners	No. of schools
Gauteng	15	15
Limpopo	7	4
KwaZulu-Natal	32	8
Western Cape	101	11
Northern Cape	0	0
Free State	15	7
North West	18	3
Eastern Cape	30	12
Mpumalanga	2	2
Total	220	62

External bursaries:

- SANRAL is committed to contributing to the development of the youth in South Africa through investment in tertiary education. The application is open to students at universities, universities of technology, and the technical and vocational education and training (TVET) colleges.

- SANRAL aims to support deserving qualifying students in the fields of transportation infrastructure, engineering and its related professions in the built environment, smart technologies, public sector infrastructure development and administration and other professions related to the core business of SANRAL.
- SANRAL, through investment in tertiary education, aims to support the ideals set out in the National Development Plan (2012) and the White Paper on Post-School Education and Training (2013) to advance access to equal education for South Africans at the tertiary level and to support higher throughput at tertiary level.

External bursaries awarded in 2020/2021

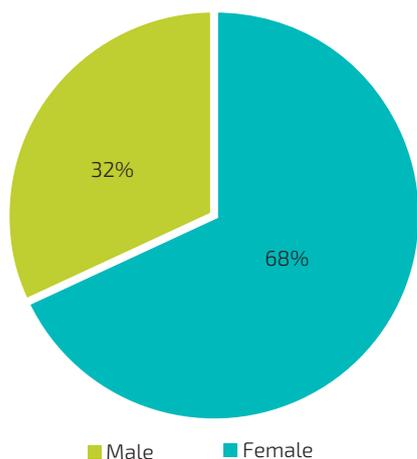


In the 2020/2021 financial year, SANRAL sponsored external bursaries for 100 students across different tertiary institutions in South Africa, with a total committed expenditure of approximately R8,985,924. The sponsored students comprised postgraduates and undergraduates in studies that included BEng, BSc, BEng Tech, BTech, MEng and other postgraduate diplomas.

One of the intake goals was to increase the number of candidates who met the targets set out in SANRAL's Employment Equity Plan in order to bring together a group of students reflective of the South African demographic. This is a strategic approach to make the industry more representative of the South African population.

External bursaries awarded in 2020/21 by gender

Recruitment for external bursaries aims to increase female representation through the bursary scheme. During the 2020/2021 intake, significant strides were made towards that target.



The selection and recruitment focused on reaching students from different backgrounds, especially those from rural areas and disadvantaged communities, in order to improve the educational footprint in South Africa.

During the 2020/21 financial year, students faced the challenges of the COVID-19 pandemic. These included adapting from contact sessions to online learning as well as interruptions to academic programmes and, in some cases, an extended academic year. SANRAL ensured that all allowances were paid and that students had access to a wellness programme with registered health professionals. Despite the challenges, the External Bursary Programme produced 23 graduates from different backgrounds who studied at various institutions across the country.

New bursary initiatives

The new bursary policy aims to develop students holistically to become individuals who actively contribute to the progress of the engineering industry and the country in general. It does this through:

- The wellness programme
- Tutoring services
- Learner's and driver's licences

The SANRAL bursary programme makes a tangible contribution towards closing South Africa's skills gap, particularly in the engineering and road management disciplines. The bursary scheme first aims to supply SANRAL with future engineers and staff through graduates who successfully apply for the Graduate Training Programme. Second, it is to support the built environment in South Africa through the sponsorship and support of students.

External bursaries: A growing investment

Year	Bursaries	Invested
2017/18	161	R12,498,115
2018/19	151	R15,476,805
2019/20	138	R16,420,537
2020/21	100	R8,985,924

Internships

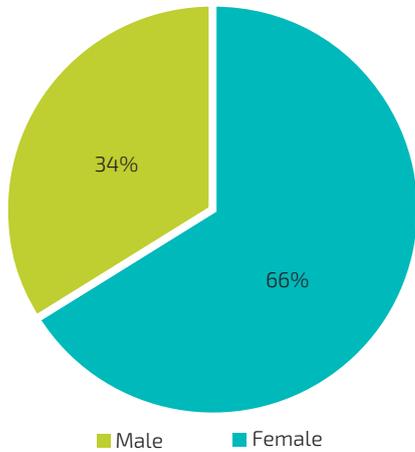
The regional offices facilitate student placement in Work Integrated Learning (WIL) programmes through road construction and maintenance contracts. The intern signs a WIL contract with the training provider (consultant), who provides the necessary training guided by the student's logbook as designed for their respective discipline. Work integrated Learning is open for all disciplines and runs for either 6, 12, or 18 months.

Internship numbers and demographics per region and HO

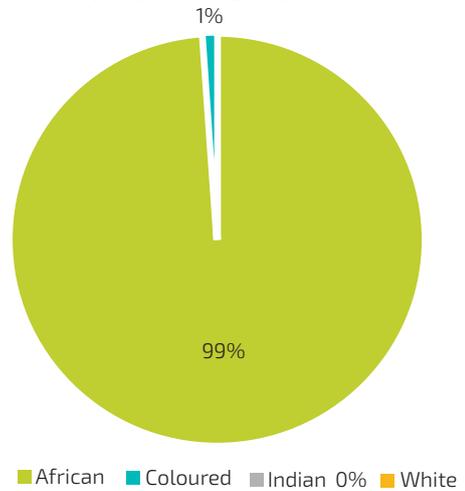
	African		Indian		Coloured		White		Total		
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Total
ER	10	10	0	0	0	0	0	0	10	10	20
NR	23	12	0	0	0	0	0	0	23	12	35
SR	34	11	0	0	0	0	0	0	34	11	45
WR	14	10	0	0	1	0	0	0	15	10	25
									82	43	125



Gender ratio of interns working on SANRAL contracts in 2020/21



Interns working on SANRAL contracts in 2020/21 by population group

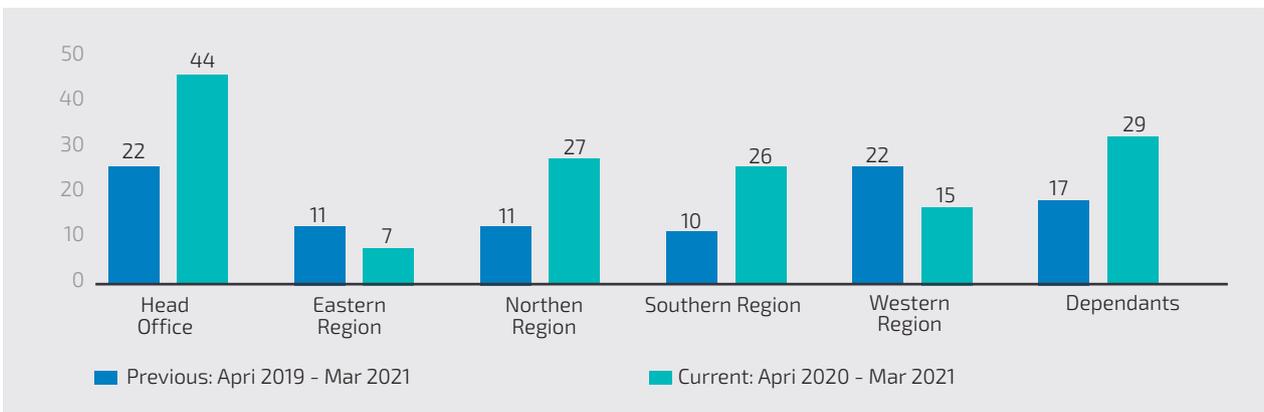


6.4 EMPLOYEE WELLNESS PROGRAMME

The Ekhaya Wellness Service is positively promoted in the company and the key engagement areas are explained below.

Engagement overview

During 2020/2021, 148 individual cases were opened and managed, up from 93 individual cases in the 2019/2020 period, with a 30.7% utilisation rate, above the sector average of 6.8%. In the same period, 20 participants attended group counselling, with a utilisation rate of 4.1%, above the ICAS average of 1.3%.



High-risk cases

One high-risk case was flagged in 2020/2021, a decrease from four cases in the 2019/2020 period.

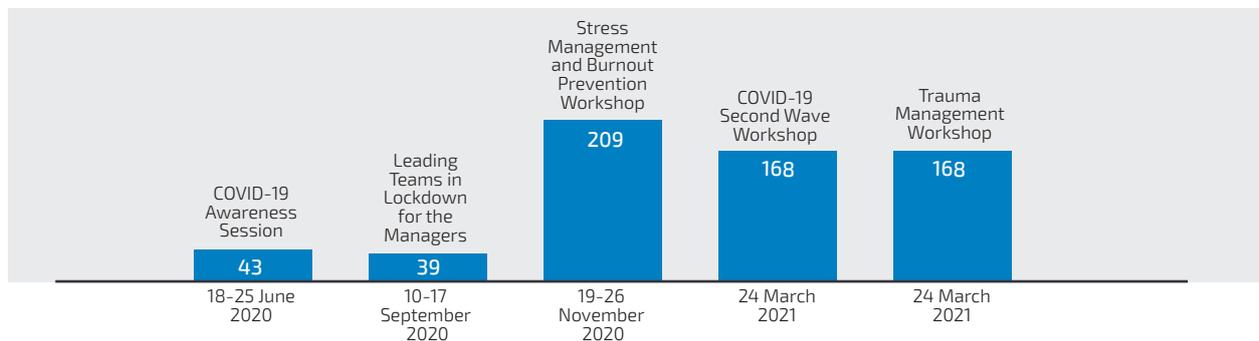
Managerial utilisation and referral services

Managers accounted for 16.9% (25 cases) of individual utilisation, a decrease from 18.3% (17 cases) in 2019/2020 and below the ICAS average of 18.1%. The managerial consultancy service was used three times by managers to address workplace challenges. One formal referral and four assisted referrals were made in this period.

Workshops

Workshop sessions for employees were conducted on topics that included grief, stress and burnout, as well as COVID-19 – the second wave – trauma management and mental health.

COVID-19 related workshops for 2020 – 2021 financial year



6.5 OCCUPATIONAL HEALTH AND SAFETY

SANRAL complies with occupational health and safety legislation in all respects and has trained safety offices in all of its offices. An occupational health and safety cluster convenes quarterly.

The Federation for Employers Mutual Assurance Company Ltd (FEMA) has been appointed to manage all injuries on duty. One injury was reported during 2020/21.

These included the following:

Ministerial events: These community outreach programmes saw the Transport Minister conducting site visits to SANRAL's flagship road infrastructure projects, as well as engaging with communities affected by such projects.

Information sessions: These sessions empowered stakeholders with information relating to SANRAL, its policies and its road infrastructure service delivery mandate.

Roundtable engagements: These engagements addressed stakeholder issues with the potential to impact the smooth delivery of SANRAL's road infrastructure projects, directly or indirectly. They were also used to forge strategic partnerships with key stakeholders across respective municipal jurisdictions, provincially and nationally.

WHOA! road safety activations: These engagements targeted road users to educate them on road safety and to encourage behaviour change in motorists and pedestrians, particularly during peak seasons for road incidents and fatalities.

Taking SANRAL to (TS2) the People: This highly effective initiative fosters stakeholder relations and social facilitation by means of hosted activities that aim to make the SANRAL brand more salient to communities.

6.6 MARKETING AND COMMUNICATION

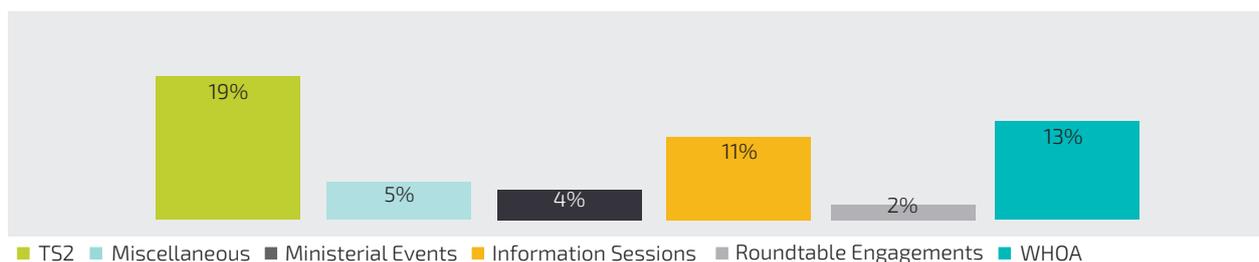
6.6.1 Stakeholder relations and social facilitation engagement

'Stakeholders' is one of SANRAL's four strategic pillars, tasked with the following:

- Regular stakeholder engagement to ensure smooth delivery of SANRAL's road infrastructure projects
- Familiarity with stakeholder needs in relation to road infrastructure projects
- Positive impact on communities in the areas where SANRAL operates

Across the four SANRAL regions, a combined total of 55 stakeholder engagement sessions, activations and events were held during the reporting period within the respective municipalities where road infrastructure projects are taking place.

2020/21 | Across 55 engagement sessions, activations and events





During the reporting period, stakeholder relations and social facilitation focused on contributing to SANRAL's Horizon 2030 long-term strategy and its ten strategic objectives. SANRAL's strategic objectives are aligned to three of South Africa's National Development Plan pillars, namely driving a strong and inclusive economy, building and strengthening the capabilities of South Africans and achieving a more capable state.

The strategic objective most relevant to the stakeholder relations and social facilitation function is Strategic Objective 5 (SO 5), which seeks to ensure relevance and grow the footprint and impact of SANRAL by:

- Positively impacting on communities where SANRAL operates.
- Building co-operative relationships with other road authorities and departments for effective delivery.
- Developing the capability and capacity of other roads authorities.
- Enhancing job creation.

In line with SANRAL's Strategic Plan 2020/25, stakeholder relations demonstrated the relevance of SANRAL to communities and enhanced the Community Development Programme.

Highlights

The challenging environment created by the COVID-19 pandemic and the commencement of the national hard lockdown following the declaration of a National State of Disaster in March 2020 presented an opportunity for a new approach to stakeholder relations.

Historically, physical contact has driven and dominated SANRAL's stakeholder interactions, but the arrival of COVID-19 meant this was no longer safe nor feasible. Migration to virtual platforms to avoid a lapse in engagement and interaction with stakeholders was well received and enabled increased activity without physical contact.

When restrictions eased and the country moved to lower lockdown levels that allowed for public gatherings, caution was taken to ensure the safety of our stakeholders and team through stringent adherence to COVID-19 safety protocols. This included limited numbers at meetings, social distancing in the event layout and securing secondary overflow venues for on-screen viewing to avoid congestion.

6.6.2 Internal stakeholders

SANRAL engaged effectively with its various stakeholders, including its own complement of valued staff members. The Agency was nimble and coherent in adjusting to the challenges of the COVID-19 pandemic, and this extended to internal communication efforts with staff.

Comprehensive internal communications were maintained throughout the reporting period, ensuring that all staff members were informed about SANRAL's various requirements and activities, especially regarding health, safety and administrative standard operating procedures, as well as safety advice around COVID-19. There was also communication around other SANRAL projects, such as SAP 5/4HANA and the OMR process.

Given the diminished physical engagement, effective internal communications became more critical than ever. In addition to being educational and instructional, such communication conveyed messages of support and self-care, as well as updates about the work of the COVID-19 Task Force and the support available through the wellness department.

Keeping staff informed on various plans, procedures and protocols, together with numerous COVID-19 support messages, helped to maintain morale and set minds at ease during this unprecedented time. Effective and timely communication also helped to build confidence in SANRAL's ability to seamlessly maintain operations and face all of the challenges related to the pandemic.

Our communications conveyed how we were learning together to shape the 'new normal', with extensive FAQs and guidelines, and advice and support relating to mental health. In addition, we ensured that our internal communications addressed issues of greatest concern to staff in a way that was clear and easy to understand.

The SANRAL COVID-19 'Care at Home' publication, a guide for easing the stress of COVID-19 challenges at home, and the COVID-19 Managers' Guide for supporting co-workers, assisted staff by providing readily accessible and vital information.

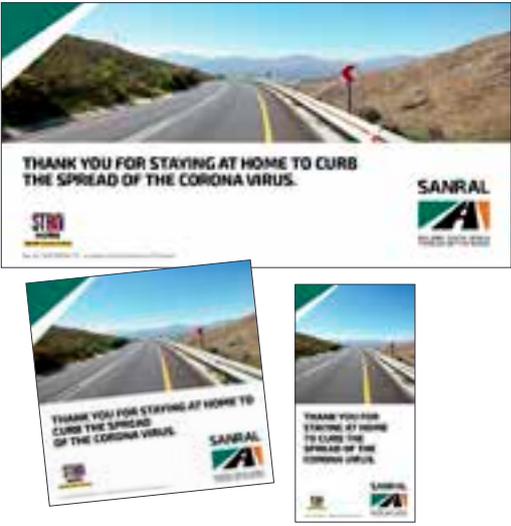
6.6.3 Advertising and Marketing

The role of advertising and marketing within SANRAL is to enhance public perception and help foster a positive brand reputation, ensuring road users and South Africans at large understand and appreciate the value that SANRAL delivers in connecting and building the nation.

In 2020/21, SANRAL flighted ten advertising campaigns addressing the key brand pillars: Roads, Mobility, Road Safety and Stakeholder Engagement. We communicate these messages via television, radio, print media, digital media, outdoor media, murals and even airtime vouchers. As with all aspects of the business, there was a strong emphasis on supporting local business and community media, for example, purchasing advertising airtime and space from community media partners. In 2020/2021, we spent 39% of the media budget on commercial media, 34% on community media and 26% on social media. The total spend on advertising and marketing amounted to approximately R53m in 2020/21 compared to R148m in the previous fiscal year; the reduction was the result of the global pandemic and the lockdown, which severely impacted advertising and marketing across all industries at a national and international level.

Summary of 2020/21 advertising campaigns

CORPORATE CAMPAIGN



COVID-19 Thank You

TV
Radio
Social media

In the early days of the pandemic and lockdown level 5, SANRAL thanked South Africans for staying home and not using our roads, promoting the importance of COVID-19 compliance and positioning SANRAL as a socially responsible and caring brand.

PROJECT CAMPAIGN



N2N3 Freeway Upgrade

TV
Radio
Print
Outdoor
Social media

The campaign promoted what was identified as an SIP 1 project by the government. It aimed show people in KZN SANRAL's engineering efforts to improve travel times and grow the economy by creating employment.



Summary of 2020/21 advertising campaign

VUL'INDELELA PROJECT CAMPAIGN

VUL'INDELELA FOR THE BEST OF THE EASTERN CAPE.

As a committed custodian of South Africa's national road infrastructure, we place particular focus on providing safety for the millions of people that use our roads every day, including those that are vulnerable to road accidents. The Eastern Cape Province and Transport Agency, in partnership with SANRAL, has implemented a road safety campaign to raise awareness of road safety and the benefits of road construction and development.

SANRAL
ROADS BETTER ROADS

VUL'INDELELA FOR FUTURE GENERATIONS.

The Eastern Cape Province and Transport Agency, in partnership with SANRAL, has implemented a road safety campaign to raise awareness of road safety and the benefits of road construction and development.

SANRAL
ROADS BETTER ROADS

N2 Wild Coast

TV
Radio
Print
Outdoor
Social media

This campaign rerun was developed to showcase SANRAL's work in the region, highlighting the community benefits of road construction and development. It demonstrated that SANRAL was not just about building roads but also about assisting communities.

SAFETY CAMPAIGN

**WHOA!
TAKE A BREAK AND STAY AWAKE.**

It's important to take a break from the wheel. It's about being alert on the road. It's important to take a break from the wheel. It's about being alert on the road.

SANRAL
ROADS BETTER ROADS

**WHOA!
SAVE YOUR LIFE.
USE THE PEDESTRIAN BRIDGE.**

South Africa has one of the highest road death tolls in the world. Every day there are millions of vehicles on the roads. It's important to take a break from the wheel. It's about being alert on the road.

SANRAL
ROADS BETTER ROADS

'Whoa' Road

TV
Radio
Print
Outdoor
Airtime vouchers

This campaign rerun addressed the Road Safety pillar by helping people to recognise their 'Whoa' moments – when they need to pause, reconsider and do the safe thing rather than get behind the wheel. It was developed for the Easter and festive periods.

PROJECT CAMPAIGN

HERE'S TO A SAFER MOLOTO ROAD. INDELELA AZIKHANYE.

As a committed custodian of South Africa's national road infrastructure, we place particular focus on providing safety for the millions of people that use our roads every day, including those that are vulnerable to road accidents. The Eastern Cape Province and Transport Agency, in partnership with SANRAL, has implemented a road safety campaign to raise awareness of road safety and the benefits of road construction and development.

SANRAL
ROADS BETTER ROADS

A SAFER MOLOTO ROAD IS NOW POSSIBLE. INDELELA AZIKHANYE.

As a committed custodian of South Africa's national road infrastructure, we place particular focus on providing safety for the millions of people that use our roads every day, including those that are vulnerable to road accidents. The Eastern Cape Province and Transport Agency, in partnership with SANRAL, has implemented a road safety campaign to raise awareness of road safety and the benefits of road construction and development.

SANRAL
ROADS BETTER ROADS

Moloto Road

Radio
Print
Outdoor
Social media

This campaign refresh served to sustain awareness of the upgrade and its benefits for locals, SMMEs and interlinked provincial economies. It also underscored the Road Safety pillar by highlighting the upgrade's safety benefits and promoting the need for safety.

ROAD SAFETY CAMPAIGN

KIDS LEARN EVERYTHING FROM YOU. SET A GOOD EXAMPLE.

Kids learn everything from parents. They copy the good and the bad. It's part of their learning process. They copy the good and the bad. It's part of their learning process.

SANRAL
ROADS BETTER ROADS

KIDS LEARN EVERYTHING FROM YOU. SET A GOOD EXAMPLE.

Kids learn everything from parents. They copy the good and the bad. It's part of their learning process. They copy the good and the bad. It's part of their learning process.

SANRAL
ROADS BETTER ROADS

365

Radio
Print
Outdoor
Social media

This campaign rerun encouraged safer road use by adults by appealing to their desire to be good role models for their children. It demonstrated that children learn from adults' actions and that if parents practiced good road safety behaviours, then their children would, too.

Summary of 2020/21 advertising campaign

PUBLIC SERVICE ANNOUNCEMENT (PSA)



Fraud Alert

Radio
Social media

This campaign served to distance SANRAL from scam adverts by a number of entities selling tender documents for projects, including the N2/N3 upgrade. The campaign clearly stated that SANRAL did not sell tender documents – they are available for free – and encouraged the public not to deposit funds into scammers' accounts.

TACTICAL CAMPAIGN



Transport Month

Radio
Social media

This campaign served to promote the #OTM2020 webinar series, stressing the importance of road infrastructure development for South Africa's economic recovery beyond COVID-19.

TACTICAL CAMPAIGN



Scholarship Bursary

Radio
Social media

This campaign focused on young people who had benefited from SANRAL's internship and bursary programme and highlighted the Agency's contribution to youth development.

TACTICAL CAMPAIGN 2021



Matric Congratulatory

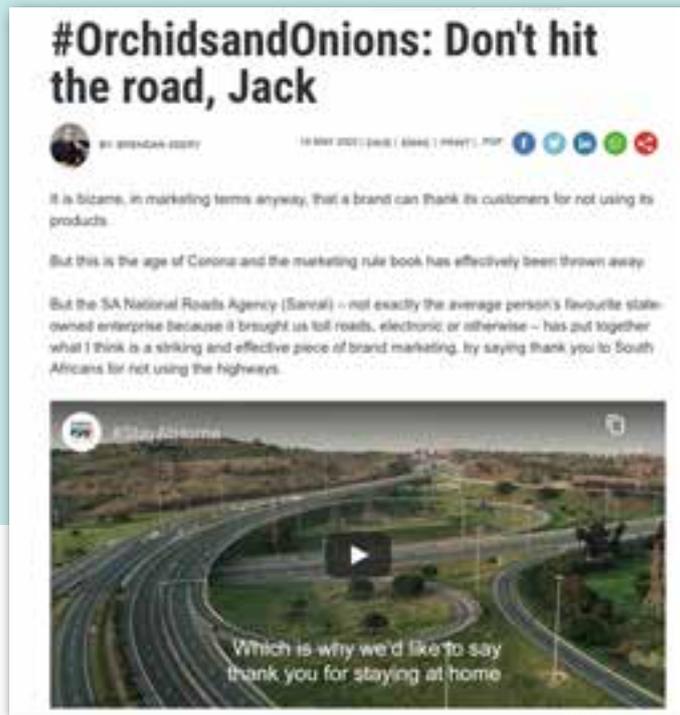
Print
Social media

This campaign focused on learners who have matriculated and highlighted the Agency's contribution to youth development.

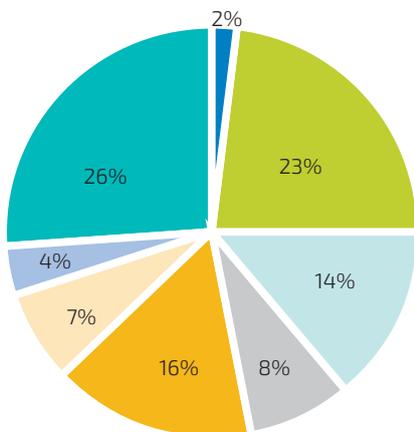


Advertising and marketing achievements

Over the past few years, advertising and marketing initiatives have worked well to change negative perceptions of SANRAL and improve the reputation of the brand. In 2018 and 2019, SANRAL commissioned advertising effectiveness research, the results of which were very encouraging: brand equity was at a new high and well above the norm. However, reduced budgets and communications in 2020 due to the pandemic put the annual research survey on hold. Despite this, SANRAL advertising continued to attract positive recognition in the media. The Agency won an Orchid Award from the *Citizen* and journalist Brendan Seery for its 'Thank you for staying home' COVID-19 campaign.



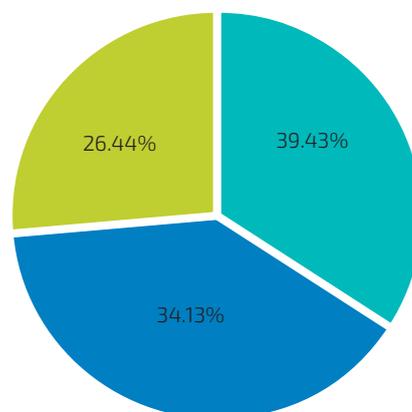
Media spend by media type



Spend by media type

- Commercial print
- Commercial radio
- Commercial TV
- Community print
- Community radio
- Community TV
- Outdoor
- Social media

Ratio of commercial to community to social media spend

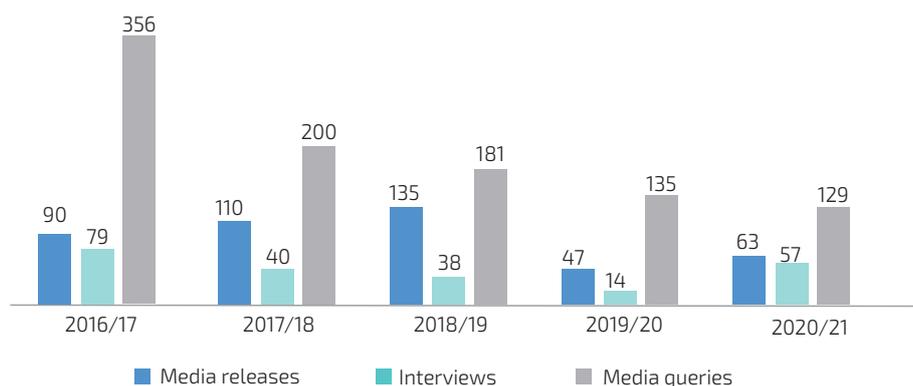


Budget breakdown

- Commercial media
- Community media
- Social media

Measures of media engagement

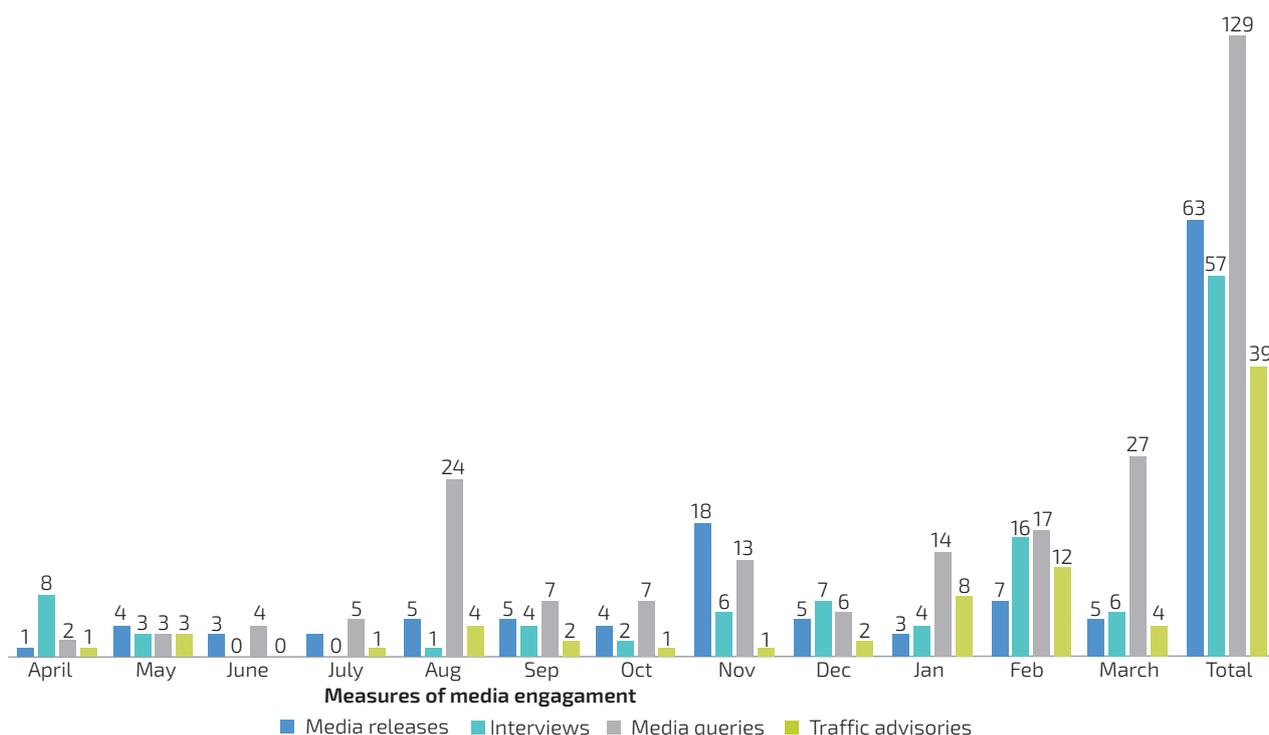
	2016/17	2017/18	2018/19	2019/20	2020/21
Media releases	90	110	135	47	63
Interviews	79	40	38	14	57
Media queries	356	200	181	135	129



Measures of media engagement over five years

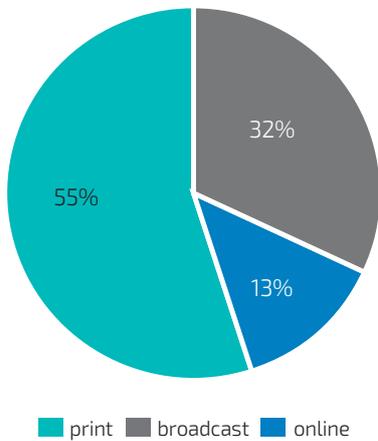
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	TOTAL
Media releases	1	4	3	3	5	5	4	18	5	3	7	5	63
Interviews	8	3	0	0	1	4	2	6	7	4	16	6	57
Media queries	2	3	4	5	24	7	7	13	6	14	17	27	129
Traffic advisories	1	3	0	1	4	2	1	1	2	8	12	4	39

Note: Media releases exclude traffic advisories, 39 of which were issued in 2020/21.



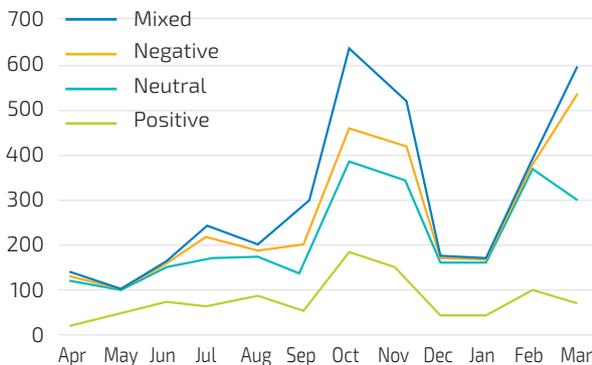
Measures of media engagement and editorial coverage

In 2020/2021, 3,543 clips were devoted to SANRAL:



The total value of this coverage amounted to R141m (R49.9m for print, R19.2m for broadcast and R72m for online) when measured at advertising value equivalence.

Sentiment of media articles about SANRAL in 2020/21



Sentiment of media articles about SANRAL in 2020/21

	Positive	Neutral	Negative	Mixed
Apr	16	98	4	6
May	31	64	9	10
Jun	59	88	2	11
Jul	56	117	49	20
Aug	83	87	13	25
Sep	54	95	61	90
Oct	177	196	89	162
Nov	147	199	91	76
Dec	33	124	10	9
Jan	33	124	10	9
Feb	101	264	17	23
Mar	70	226	234	64

In-house publications

6.6.4 Publications and content

SANRAL's publications and content strategy promotes the Agency's vision. The internal and external publications comprehensively communicate SANRAL's mandate, brand and projects to key stakeholders through consistent and aligned brand messaging that underscores the impact of key activities.

Because of the extensive range of publications, the content created for them is integrated across SANRAL's communication system. Whether a stakeholder reads an annual report, a billboard or a social media post, they will likely come into contact with content that is also communicated in one of SANRAL's other publications.

The impact of the publications and content strategy is three-pronged: it delivers brand building and awareness, stakeholder reach and engagement, and employee brand loyalty, which builds brand champions and advocates.

At least seven stakeholder groups use SANRAL publications. Internal communications have a much higher publication frequency and stakeholder reach, which includes leadership (Board, Exco, management) and all employees. External communications reach a much larger audience, including the government (DoT, COGTA, SALGA), media (community, regional and national), the public (commuters, drivers, pedestrians, passengers and specific groups such as women, youth, schools and parents), civil society (OUTA, unions, traditional leaders and interest groups) and service providers (engineers, entrepreneurs, SMMEs and investors).

SANRAL produces an extensive list of titles, with up to seven publications being released in a single month. There are currently 19 individual SANRAL titles, with over 131 digital and print publications developed during 2020/2021. The following is an overview of the publications produced in 2020/2021.

Publications provide input information on SANRAL projects, impact on communities and stakeholder engagement.

Internal publications range between 22 to 82 per year, including 12 issues of *InRoads*, four of *On the Road*, 130+ Communiqués (monthly to Exco, quarterly to the Board and weekly to staff).

Since the onset of COVID-19, SANRAL has kept staff informed on various plans, procedures and protocols, together with numerous COVID-19 support messages and special COVID-19 publications, including a *Travel Guide*, *Managers' Guide* and *Guide to Household Care*. All publications were only distributed on the digital platforms during 2020/21.

Details of SANRAL publications in 2020/21

NATIONAL EXTERNAL PUBLICATIONS

BY THE WAY



AUDIENCE	FREQUENCY
General public	Six/year

TOLL TARIFF BOOKLET

A summary of the annual toll tariff increases



AUDIENCE	FREQUENCY
General public	Annual

INTEGRATED REPORT



AUDIENCE	FREQUENCY
Key stakeholders	Annual

PEOPLE'S GUIDE



AUDIENCE	FREQUENCY
General public	Annual

INVESTING IN...series



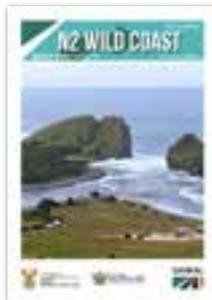
AUDIENCE	FREQUENCY
General public	Annual
Each edition focuses on a different pillar of delivery	



Details of SANRAL publications in 2020/21

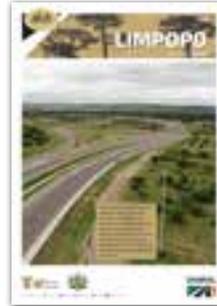
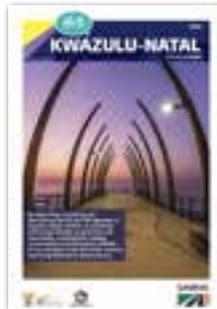
PROVINCIAL PUBLICATIONS

MOLOTO ROAD | N2 WILD COAST BOOKLETS



AUDIENCE	FREQUENCY
Communities in affected areas	Annual with translations
Geographical areas impacted by these strategic projects	

HELLO series



AUDIENCE	FREQUENCY
General public within province	Ten/year
Each edition focuses on information and projects in the respective province.	

Details of SANRAL publications in 2020/21

PUBLICATIONS FOR INTERNAL AND EXTERNAL STAKEHOLDERS

N-route



AUDIENCE	FREQUENCY
Stakeholders in government, finance and industry	Four/year
Infrastructure project updates for key external stakeholders	

ON THE ROAD



AUDIENCE	FREQUENCY
SANRAL employees	Four/year
Updates on current infrastructure, engineering and innovation thinking within the global and South African context	

ANNUAL PERFORMANCE PLAN AND REPORT



AUDIENCE	FREQUENCY
SANRAL stakeholders	Four/year
Identifying SANRAL's performance against key performance indicators	

ANNUAL PERFORMANCE PLAN AND REPORT



AUDIENCE	FREQUENCY
SANRAL stakeholders	Four/year
Identifying SANRAL's performance against key performance indicators	



6.6.5 Social media platforms

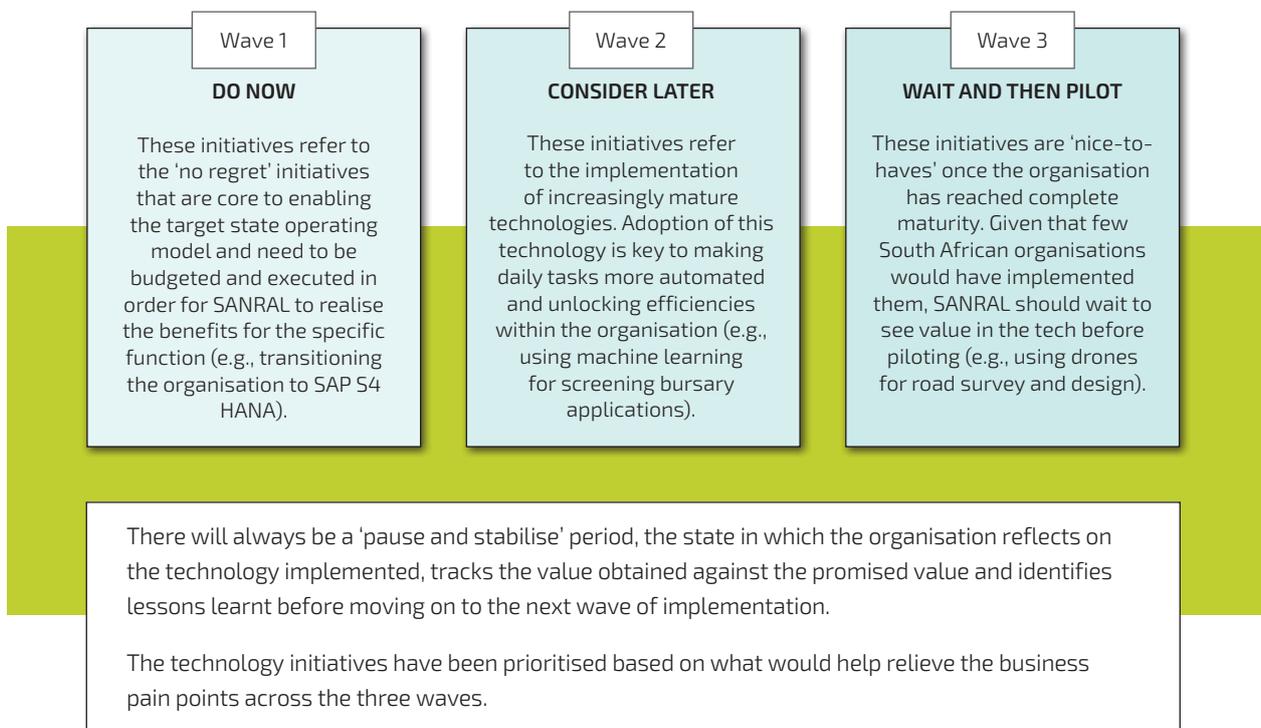
Social media is one of the most cost-efficient digital marketing methods used to syndicate content and increase SANRAL's visibility. Our social media strategy has greatly increased our brand recognition and engagement with a broad audience of consumers. There was increased interest in all SANRAL's social media properties and the agency strove to sustain this through a constant flow of fresh, relevant content. A consistent presence was maintained throughout the year.

	Total followers/ fans/subscribers 31 March 2020	Annual growth in followers/fans/ subscribers	SANRAL posts/tweets/ uploads	Engagement
 Facebook	233,069	241,049	536	1,741,797
 Twitter	48,741	55,822	827	75,606
 YouTube	198	972	17	3m
 Instagram	8730	10,819	454	29,493
 LinkedIn	18,286	55,822	476	84,882

6.7 INFORMATION TECHNOLOGY

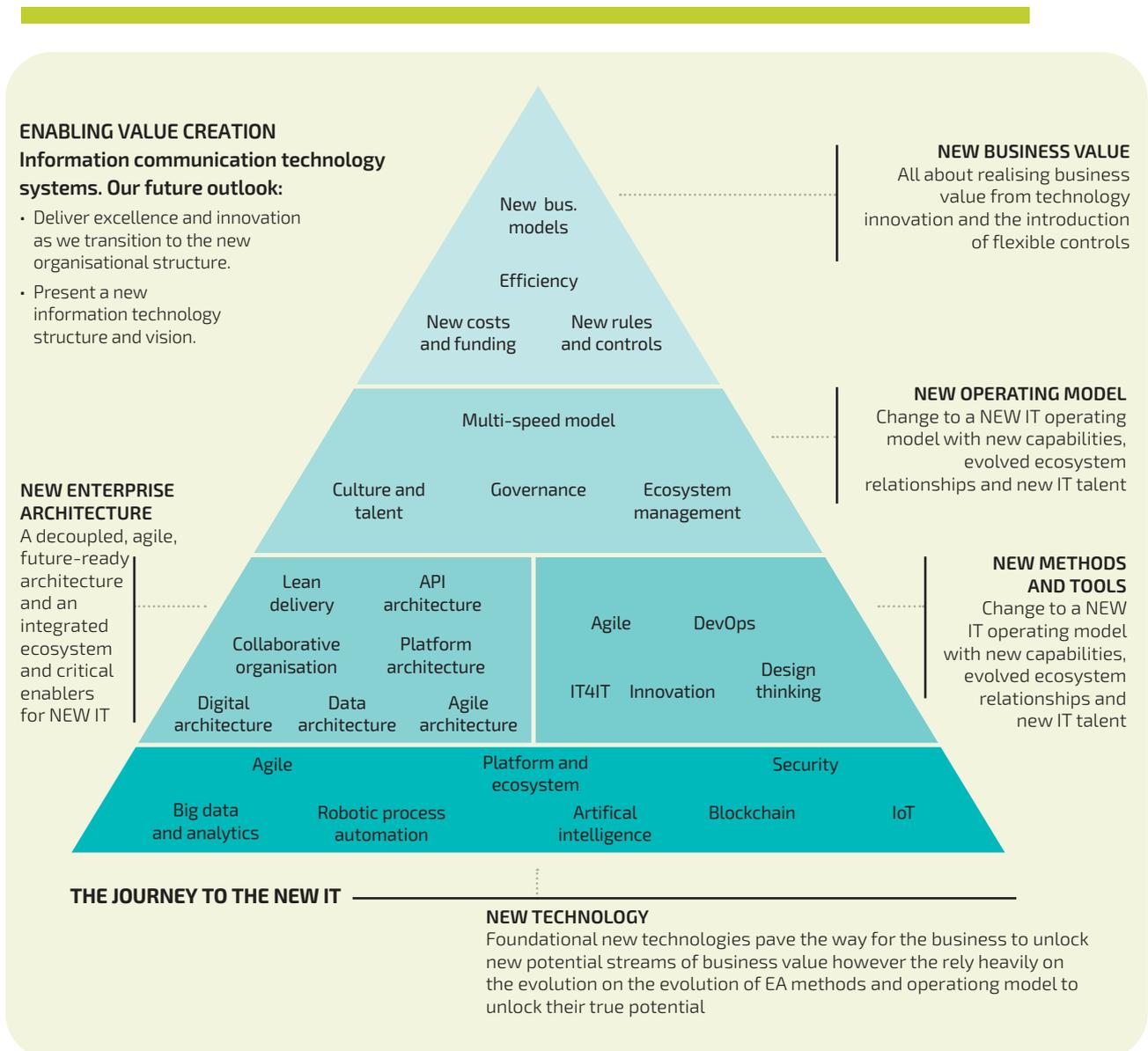
The year in review

Our focus and value delivery drivers during the year in review have been about understanding the technology enablement initiatives and requirements, which have been categorised into three waves.



We added value by:

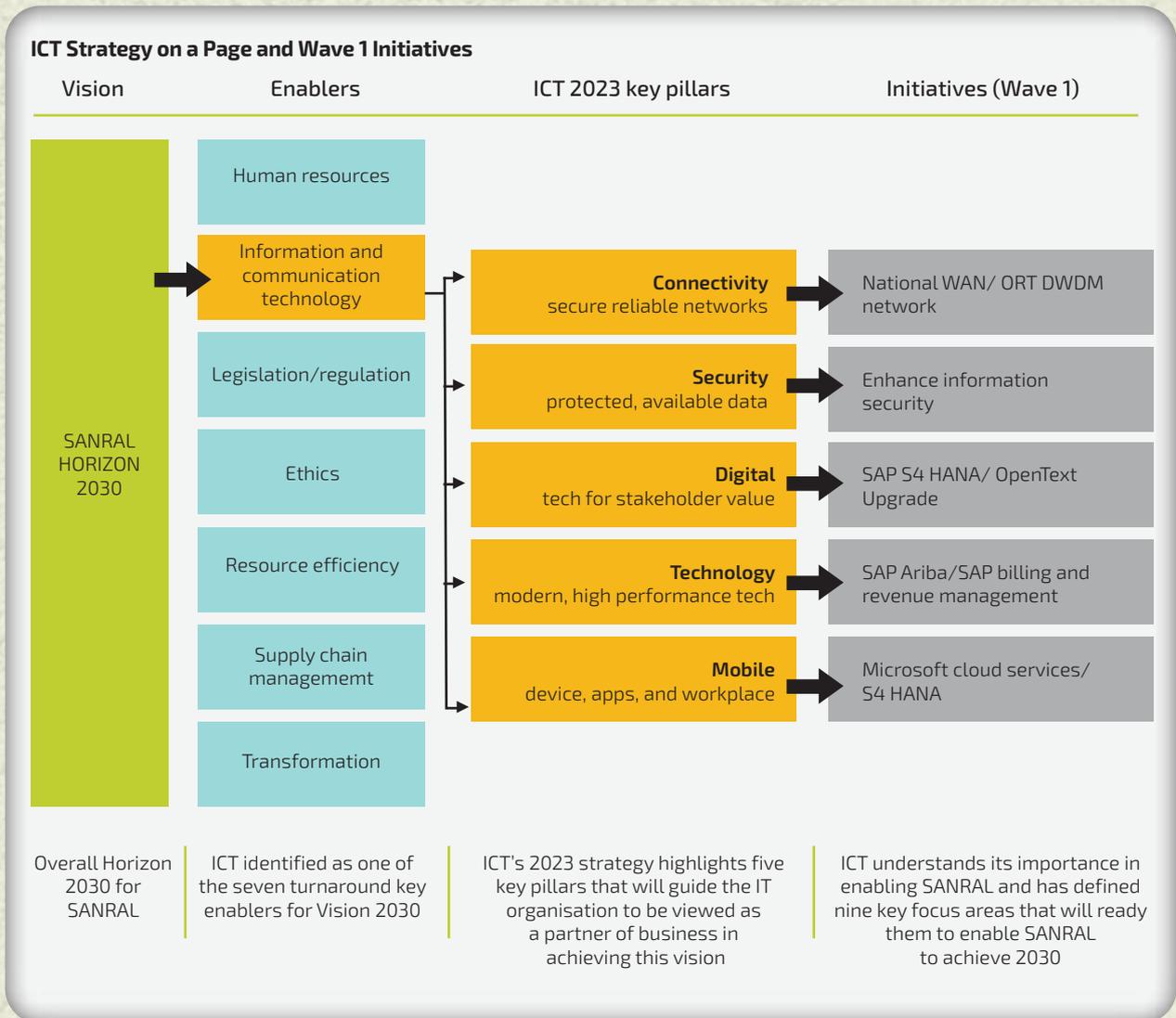
- **Enabling connectivity** through secure and reliable networks.
- **Managing and maintaining** a high-performing technology landscape that is resilient, secure and scalable as we navigate the new normal brought by the COVID-19 pandemic.
- **Providing digital platforms** that enable real-time engagement. The business can standardise and automate business processes through our S4 Hana deployment, Microsoft suite of applications, soon to be upgraded to an electronic document management solution for better compliance and mobility.
- **Establishing the relevant platforms and capabilities** to enable the transformation of SANRAL into a data-driven organisation.





Snapshot: Five-year ICT strategy 2023

The strategy has identified five key pillars to support the nine key focus areas in enabling SANRAL to realise its Horizon 2030 strategic objectives.



SANRAL's digital transformation journey

SANRAL is pioneering a world-class ERP solution deployment with a combination of SAP S/4HANA Cloud and on-premise ERP solution capabilities, one of the first of its kind worldwide. This represents a true transformational shift that sets SANRAL apart.

With SAP Ariba spend management solutions, we envisage to digitise and simplify all processes end-to-end on a single, integrated platform in the cloud.



SOURCE

Make better sourcing decisions with spend analysis insights.

Negotiate best-value agreements for sustainable savings on both direct and indirect materials.

Minimise risk and accelerate contract lifecycle with built-in contract management functionality.



PROCURE

Cut costs and risks and ensure compliance using the market's broadest set of e-procurement solution capabilities.

Lead employees to preferred suppliers with a simple, guided buying experience.

Transact with all suppliers easily and confidently over the Ariba Network.



PAY

Strengthen the SANRAL financial supply chain by transforming payables into strategic assets.

Automate accounts payable, from invoice capture through approval.

Give suppliers payment visibility.

Improve cash flow and working capital management to reduce supply chain cost and liquidity risks.



Human resources

SANRAL's new ERP solution will further digitise the human resources environment through the deployment and adoption of a cloud-based HR solution. The tool has been designed to improve business execution and get better results, leveraging standard integrated modules for SAP success factors.



Talent Management

- 
Recruiting
- 
Onboarding
- 
Learning
- 
Performance and goals
- 
Compensation
- 
Succession and development

Competencies | Skills | Best Practices

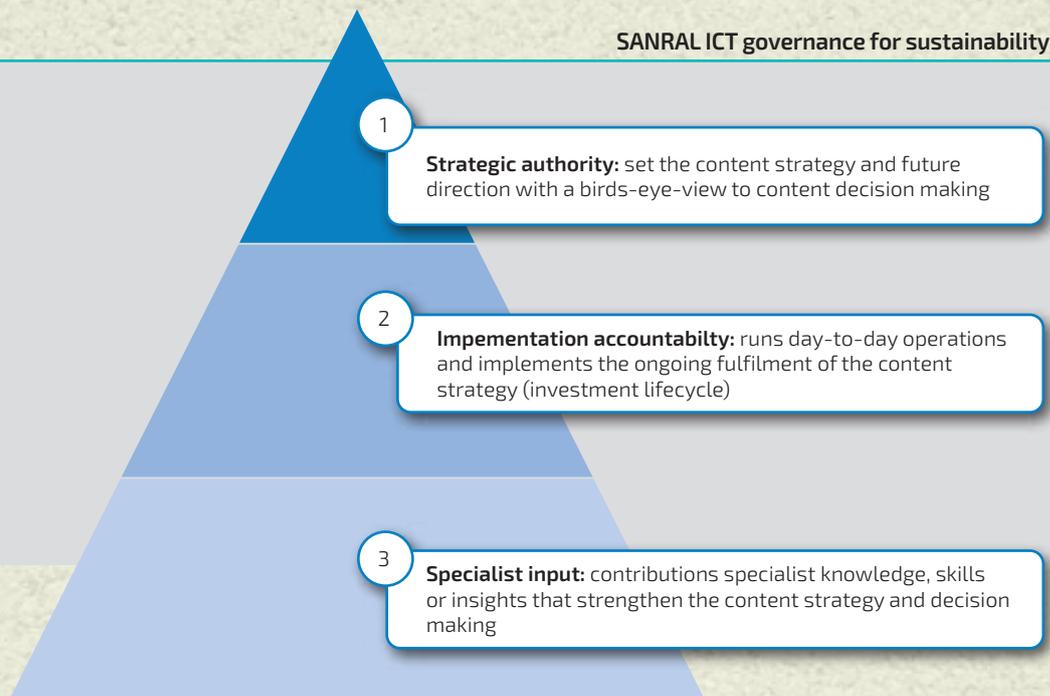
The digital journey using business insight through analytics:

- The digitisation journey embraces analytics capabilities available in one product. Users can do their jobs much more efficiently without needing to jump between multiple products.
- It is built natively on a cloud platform so that it can be easily and quickly extended in a scalable way to meet the needs of the organisation.
- Enables wrangling and blending of all types of data to enrich traditional analytics without requiring a separate specialised resource.



Governance for a sustainable business

Governance ensures that a culture of ethical conduct aimed at long-term value creation is underpinned by adopting values that promote ethical behaviour.



We believe that good corporate governance is not simply a matter of compliance. It is an organisation-wide set of principles, frameworks and risk management practices that ensure we make choices that align with our values and strategic objectives. It holds stakeholders, service providers and employees accountable for their actions and decisions. We regularly review our governance frameworks and practices to ensure they stay current for changing regulations and emerging risks.

Performance and governance

During 2020/21, the Information Technology Department continued to deliver high-performing systems and solutions to ensure business continuity. This was especially important given the impact of COVID-19 on the business. SANRAL seamlessly transitioned its operations from physical contact-based work to remote working arrangements. The ICT team ensured that the organisation could actively engage with stakeholders throughout this difficult time and to monitor the potential impact of the pandemic on the performance of our business. Steering the business through the many decisions that will need to be made over the coming months will now be a key focus.



New ways of working - COVID-19 context

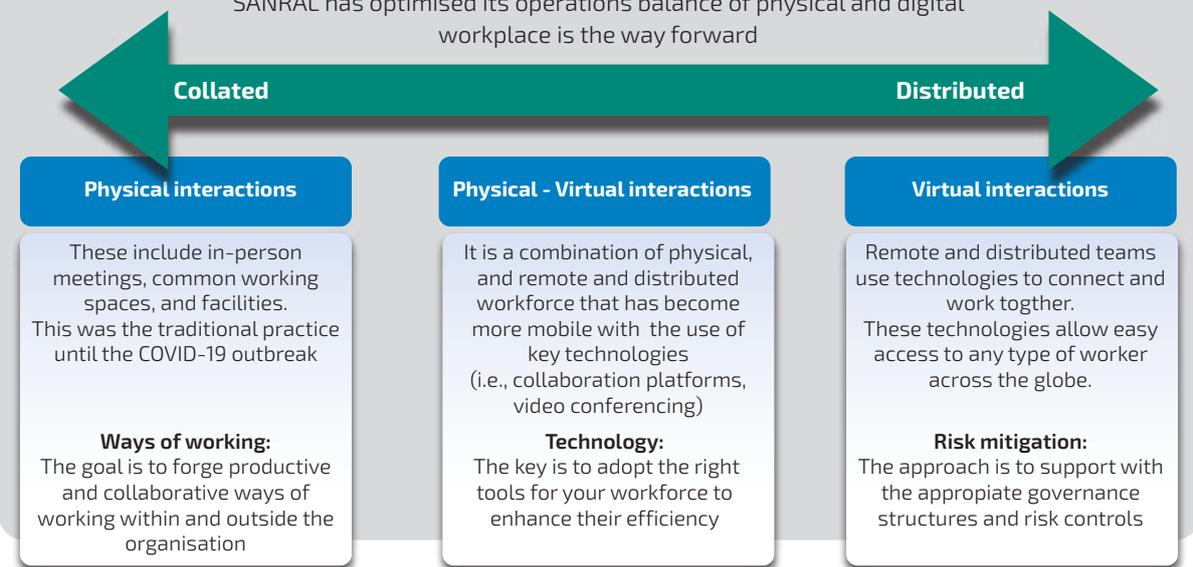


Work got executed through:

- Remote and distributed teams
- Key technologies enabled virtual working (i.e., cloud solutions, collaboration platforms, video conferencing)
- The technology strategy and deployments are flexible, secure and available across the technology stack for employee enablement

The workplace is to become digital as employees and stakeholders across the ecosystem have been communicating and collaborating in different and new ways. This trend will continue as SANRAL realises the benefits of a digital workplace.

SANRAL has optimised its operations balance of physical and digital workplace is the way forward



Strategy

The ICT strategy takes a holistic perspective rather than pursuing a series of separate tasks in a piecemeal manner. The following guiding principles, drawing on internal consultations, industry trends and optimal ICT practices, informed our choices. The SANRAL digital journey is based on three pillars: information, process and integration.

Digital transformation pillars



The following projects make up the most strategic initiatives to be rolled out by the ICT Department as set out in the ICT 2023 Strategy. These strategic projects are at various stages of rollout, with implementation periods ranging between one and two years coupled to an operations period of between five and eight years per project.

1. Monitoring and overseeing the delivery of our information technology strategy to ensure on-time and in-scope delivery is vital. Beyond 2020, we will track the progress of the key projects outlined in this report and the continued investment in new digital ways of working.
2. Monitoring progress on agreed plans to see the value delivered by the SAP digital transformation project and how this will revolutionise our ways of working is a key objective.
3. Monitoring key ICT risks relating to information and cybersecurity and continuity of business-critical systems will remain a key focus area.

Wave 1 initiatives



WIDE AREA NETWORK:

15%

Utilising SANRAL's telecommunications infrastructure to provide connectivity for the organisations corporate and enterprise technology solutions.



DIGITAL TRANSFORMATION (SAP/
OPENTEXT/ CENTRALISED TOLL SYSTEM:

40%

Reducing manual paper-based process with to derive the following benefits.

The digital transformation journey seeks to derive key benefits:

- A central information store for all our data
- The digitisation of our current paper documentation
- Streamlined and automated processes
- Timeous approvals with electronic signatures
- Quality, reliable data that is availbale when needed and can be easily shared
- Advanced analytical capabilities, dashboards and reporting

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
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	SOE	State-owned enterprise
IFRS	International Financial Reporting Standards	STEM	Science, technology, engineering and mathematics
km	kilometres	STIS	Short-term incentive scheme
KPI	Key Performance Indicators	SU	Stellenbosch University
m	million	TE	Targeted Enterprise
MoU	Memorandum of Understanding	TEA	Technical Excellence Academy
N3TC	N3 Toll Concessions (RF) Proprietary Limited	TIH	Technical Innovation Hub
NDB	New Development Bank	TMC	Traffic Management Centre
NMT	Non-motorised transport	TRAC	Trans African Concessions Pty Ltd
NMU	Nelson Mandela University	UCT	University of Cape Town
NT	National Treasury	UFS	University of the Free State
OCI	Overall condition index	UP	University of Pretoria
OHS	Occupational Health and Safety	VAT	Value Added Tax
ORS	On-road services	VMS	Variable message signs
PFMA	Public Finance Management Act	WAN	Wide area network
PIARC	World Road Association		
PPE	Property, plant and equipment		
PPP	Public-private partnerships		
PPPPFA	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		





THE SOUTH AFRICAN NATIONAL ROADS AGENCY
SOC LTD (SANRAL)

Head Office

48 Tambotie Avenue, Val de Grace, Pretoria
PO Box 415, Pretoria, 0001 South Africa

Tel: +27 (0) 12 844 8000

Fax: +27(0) 12 844 8200

www.sanral.co.za

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SANRAL

Tel: +27 (0) 12 844 8000

info@nra.co.za

Contact Details for SANRAL's Fraud Hotline/
Tip-Offs Anonymous

Toll-Free Phone No: 0800 204 558

Toll-Free Fax No: 0800 007 788

E-mail: sanral@tip-offs.com

Postal address:

Tip-Offs Anonymous,

Freepost DN 298,

Umhlanga Rocks

4320

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