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SOUTH AFRICAN NATIONAL ROADS AGENCY LIMITED ROAD INCIDENT MANAGEMENT SYSTEMS (RIMS)

OPERATIONS AND MAINTENANCE ON ROAD INCIDENT MANAGEMENT SYSTEMS WESTERN CAPE PROVINCE

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List of Abbreviations

| | |
|------------|---|
| ASOD | Average Speed Over Distance |
| CCC | Centralised Communication Centre |
| COTO / CTO | Committee of Transport Officials |
| DoA | Decade of Action |
| DRTMCC | District Road Traffic Management Coordinating Committee |
| EBAT | Evidentiary Breath Alcohol Testing |
| EMS | Emergency Medical Service |
| FMS | Freeway Management Systems |
| FPS | Forensic Pathology Service |
| GIS | Geographical Information System |
| ICASA | Independent Communications Authority of South Africa |
| ITIS | Integrated Transportation Information System |
| KSI | Killed and Seriously Injured |
| LCRC | Local Criminal Record Centre |
| MVkm | Million Vehicle Kilometers |
| NDoT | National Department of Transport |
| NTC | National Technical Committee |
| PCAC | Provincial Coordinating / Advisory Committee |
| PIA | Post Incident Assessment |
| PRTMCC | Provincial Road Traffic Management Coordinating Committee |
| RIMS | Road Incident Management System |
| SANRAL | South African National Roads Agency Limited |
| SAPS | South African Police Service |
| SC / SCM | Steering Committee Meeting |
| TDA | Transport Development Authority |
| ToR | Terms of Reference |

1. Introduction

The United Nations has declared the years 2021 to 2030 as the new Decade of Action (DoA) as part of their resolution 70 / 1 entitled “Transferring Our World: The 2030 Agenda for Sustainable Development. The first decade of action was proclaimed in March 2010, when road traffic crashes were reported as a major public health threat. As part of this strategy, five pillars of action were identified, one of the pillars being the improvement of post-crash care. A Road Incident Management System (RIMS) is the driving force to achieve this pillar.

RIMS is the process whereby a set of coordinated activities is initiated when an incident occurs on a road to minimize the direct and secondary effects of the incident and to restore normal capacity and safety as quickly as possible. To effectively achieve this, an operations system was developed to efficiently use resources in a coordinated and pre-planned manner to efficiently manage the incident.

Considering the above, the South African National Roads Agency Ltd (SANRAL) SOC is mandated by the National Department of Transport (NDoT) to ensure that incident management is implemented on all roads across South Africa.

This Provincial Summary Report is an annual report which summarizes and evaluates the current functioning of RIMS in the Western Cape. The report has been divided into two sections:

The first section examines and summarizes the operational functioning of RIMS in terms of safety, performance, communication, and challenges within the various systems in the province.

The second section relates to the analysis of crash statistics collected by the Route Managers of the various systems and uploaded onto SANRAL’s Integrated Transportation Information System (ITIS). The identification of possible high crash or hazardous locations, as well as the causes and frequency of these crashes, are investigated. These statistics are evaluated, summarized, and discussed per SANRAL route.

2. Provincial Overview

The Western Cape has an extensive and well-maintained road network with several national roads (N1, N2 and N7) running through the province. In addition to the national routes, there is also a network of surfaced provincial routes between towns. RIMS have incorporated the R27 into their network to include service members on IMS and Hazmat / Dangerous Goods workshops.

The RIMS of the Western Cape is divided into six areas (also referred to as Systems) namely: Cape Winelands, Central Karoo, Overberg, Garden Route, West Coast South, and West Coast North.

Cape Town Metro is excluded from this report as extensive work and reporting of incident management is done under the Freeway Management Systems (FMS) contract.

These systems are based on the district municipal boundaries and currently cover all National roads as well as specific Provincial routes within the system.

3. System Overview

The national routes are individually divided into sections varying in length. The N1 through the Western Cape is divided into nine sections which fall within the scope of the Western Cape RIMS. Refer to [TABLE 1](#) for a summary of the different sections which fall within the scope of the Western Cape RIMS.

| Route / Section | Section Start | Section Finish | Distance (km) |
|-----------------|--------------------|--------------------|---------------|
| N1/1 | Huguenot Tunnel | Du Toitskloof Pass | 6.7 |
| N1/2 | Du Toitskloof Pass | Worcester | 28.7 |
| N1/3 | Worcester | Touwsrivier | 74.2 |
| N1/4 | Touwsrivier | Laingsburg | 81.7 |
| N1/5 | Laingsburg | Prince Albert Weg | 84.4 |
| N1/6 | Prince Albert Weg | Leeu Gamka | 39.3 |
| N1/7 | Leeu Gamka | Beaufort West | 75.0 |
| N1/8 | Beaufort West | Three Sisters | 74.8 |
| N1/9 | Three Sisters | Skietkuil | 45.08 |
| TOTAL | | | 509.88 |

TABLE 1: N1 ROAD SECTIONS

The N2 through the Western Cape comprises of eight sections. Section 1 falls within the Metro district, while Sections 2 to 8 fall within the scope of the Western Cape RIMS. Approximately 14 kilometers of the N2/2, from Somerset West to the top of Sir Lowry's Pass, are excluded from the Western Cape RIMS. It should also be noted that the section between Wittebrug (N2/8 km 22.2) and Nekkie (N2/8 km 31.5) in the Knysna area is under the jurisdiction of the Western Cape Government. Refer to [TABLE 2](#) for a summary of the N2 sections.

| Route / Section | Section Start | Section Finish | Distance (km) |
|-----------------|------------------|------------------|---------------|
| N2/2 | Sir Lowry's Pass | Caledon | 53.9 |
| N2/3 | Caledon | Riviersonderend | 48.7 |
| N2/4 | Riviersonderend | Swellendam | 56.9 |
| N2/5 | Swellendam | Riversdale | 82 |
| N2/6 | Riversdale | Groot Brakrivier | 105.4 |
| N2/7 | Groot Brakrivier | Swartvlei | 54.3 |
| N2/8 | Swartvlei | Soutriver | 80.8 |
| TOTAL | | | 482.0 |

TABLE 2: N2 ROAD SECTIONS

The N7 comprises of seven road sections within the Western Cape which have been extended from Melkbosstrand to Noheep in the Northern Cape. Approximately 14 kilometers of Section 1 (south of the Melkbosstrand interchange) falls within the Metro district. Refer to [TABLE 3](#) for a summary of the sections.

| Route / Section | Section Start | Section Finish | Distance (km) |
|-----------------|---------------|----------------|---------------|
| N7/1 | Melkbosstrand | Malmesbury | 34.2 |
| N7/2 | Malmesbury | Moorreesburg | 33.9 |
| N7/3 | Moorreesburg | Clanwilliam | 127.2 |
| N7/4 | Clanwilliam | Van Rhynsdorp | 75.8 |
| N7/5 | Van Rhynsdorp | Bitterfontein | 82.5 |
| N7/6 | Bitterfontein | Garies | 30.0 |
| N7/7 | Hondeklipbaai | Noheep | 64.0 |
| TOTAL | | | 447.60 |

TABLE 3: N7 ROAD SECTIONS

Although SANRAL is the custodian of the National routes in the Western Cape some strategic Provincial Routes were included into the current system. [TABLE 4](#) lists the provincial route as well as the length of the road segment.

| Route/Section | Section Start | Section Finish | Distance (km) |
|---------------|---------------|----------------|---------------|
| R27 | Melkbosstrand | Veldrift | 116 |
| TOTAL | | | 116 |

TABLE 4: PROVINCIAL SECTIONS

3.1 Western Cape Provincial Map

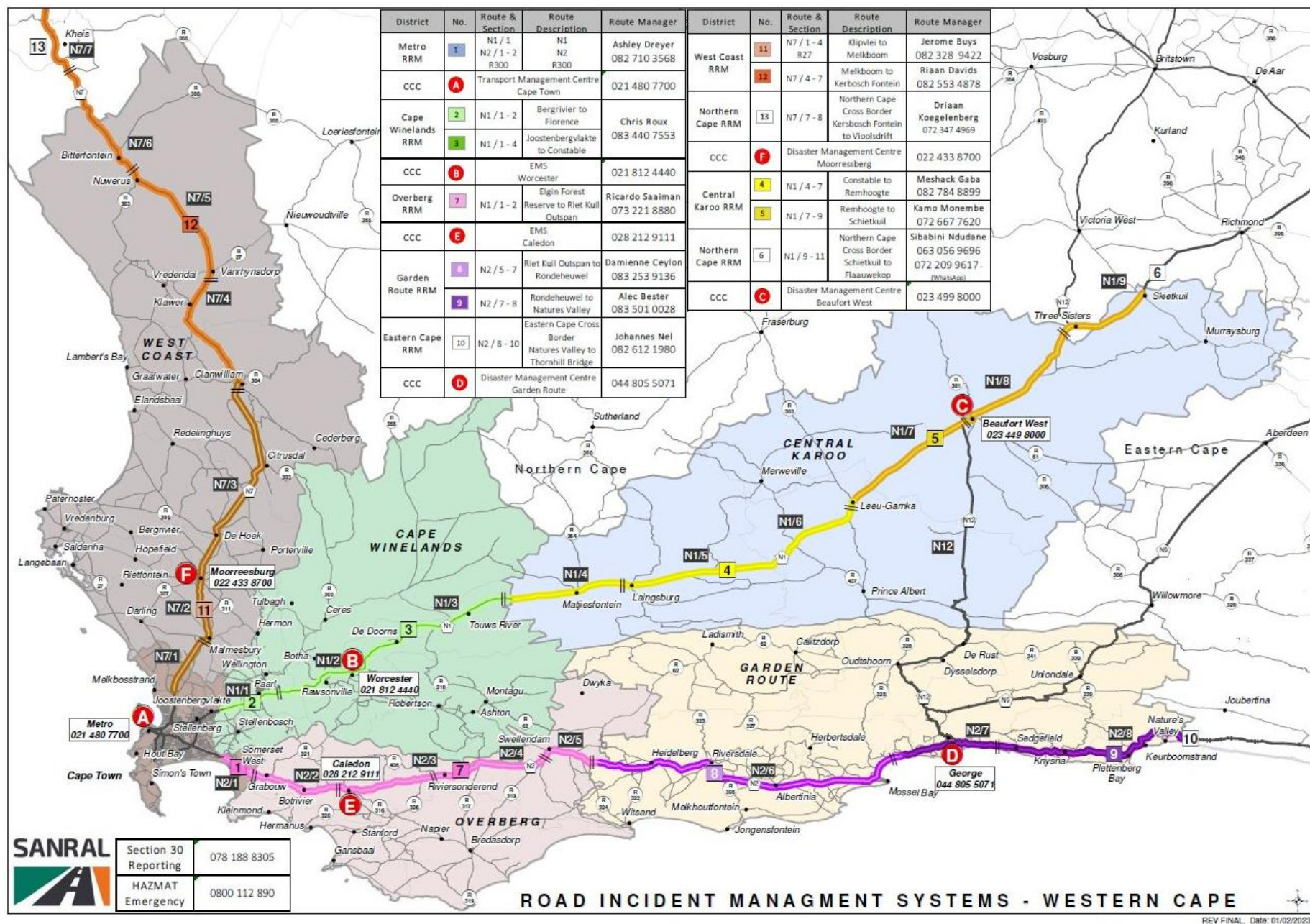


FIGURE 1: WESTERN CAPE NATIONAL ROADS

4. System Management

It is essential to continuously monitor all aspects of RIMS. There are five key areas, also referred to as pillars which were predetermined to monitor all aspects of RIMS. The illustration below in [FIGURE 2](#), the functioning and challenges currently experienced in the various component systems are summarized below.

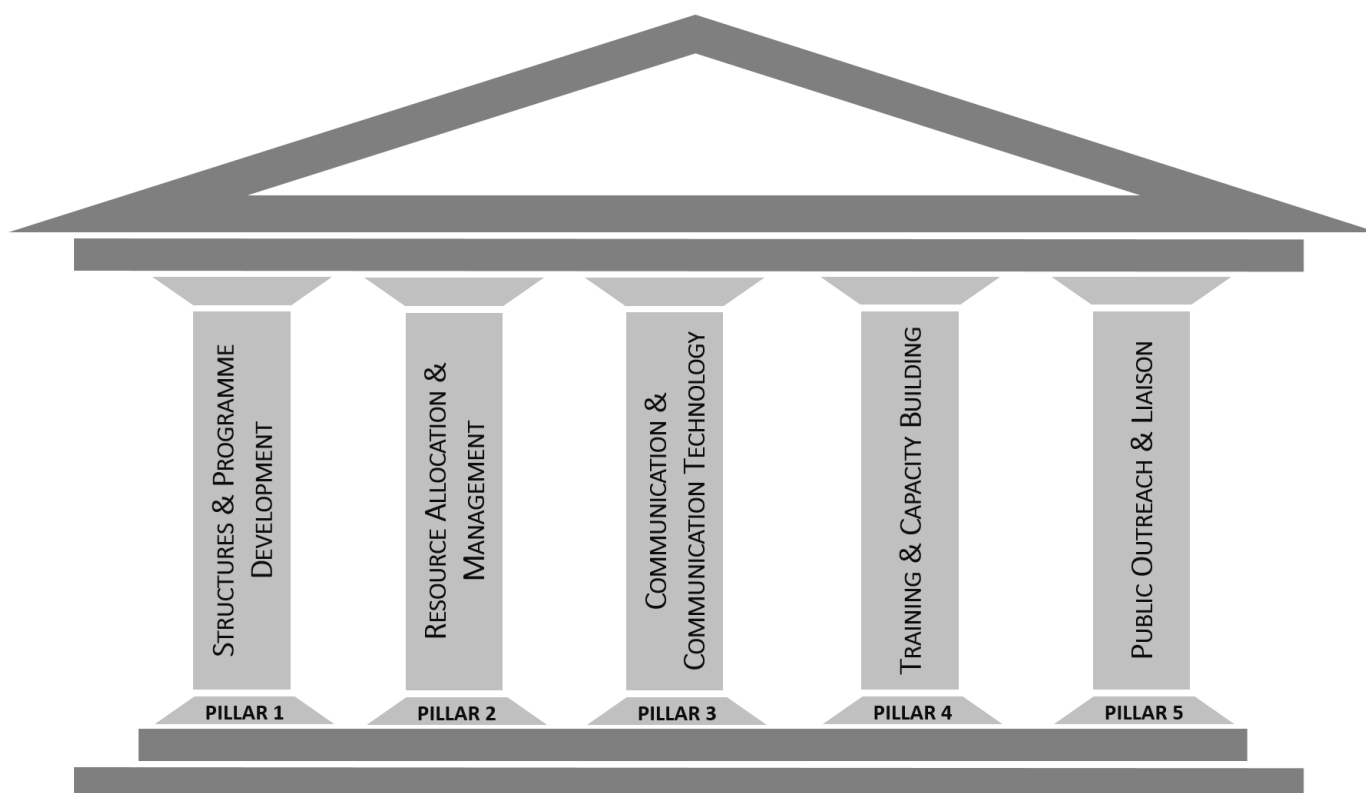


FIGURE 2: RIMS PILLARS

4.1 Structures & Program Development

Various programmes and structures were developed and implemented by the affected stakeholders and role-players to ensure that RIMS functions effectively throughout the country. The processes established to monitor the first pillar includes the National Technical Committee (NTC), Provincial Coordinating and Advisory Committee (PCAC) meetings as well as Steering Committees at system level where all role-players participate and provide input.

These committees have been established to cover operational and strategic levels and provide holistic feedback within the province. The NTC meets four times per annum while the PCAC and Steering Committee meetings are held three times per annum. Stakeholder engagements and task groups are arranged on an ad hoc basis.

4.1.2 Provincial Coordinating and Advisory Committee (PCAC)

The PCAC was established in March 2016 to deal with RIMS planning, coordination and implementation of RIMS in the Western Cape.

The PCAC is chaired by Mr Willie van der Merwe, who is the director of Road Safety and has been extensively involved in the development of RIMS in South Africa. Mr John Davids is the elected vice-chairperson of the PCAC. Mr Davids is currently also the chairperson of the Cape Winelands Steering Committee as well as the District Rescue Manager for Cape Winelands.

The PCAC is responsible for providing guidance and advice concerning road incident management. The PCAC reports quarterly to the National Technical Committee (NTC) on RIMS, a subcommittee of COTO. The following goals are listed in the Terms of Reference (ToR) of the committee:

- Implement and monitor RIMS systems in the province.
- Ensure harmonization of systems and optimal performance.
- Oversee provincial liaison and communication among stakeholders and coordination between services.
- Assist in managing resources and resource shortages in the systems.
- Assist in implementing RIMS training to all services attending road incidents.
- Ensure ongoing systems maintenance and performance monitoring.

During the final PCAC meeting, held on the 08th of November, persistent issues in the province were discussed, namely:

- Challenges of the increased heavy motor vehicle traffic
- Vandalism of public property
- Update on the TETA registration
- Alleged driver fatigue
- Hazardous locations within the various districts
- Festive season readiness plans were highlighted.

The strategic objectives for the 2022 calendar year can be seen in the scorecard in Section 4.5.4 of this report, while TABLE 5 below depicts a summary of the discussion points of the PCAC meetings held during 2022.

| RIMS – PROVINCIAL COORDINATING ADVISORY COMMITTEE MEETINGS SUMMARY 2022 | |
|---|---|
| Date | MAIN DISCUSSION TOPICS |
| 22 nd March | <ul style="list-style-type: none"> - Incident statistics and attendance breakdown to be included in Steering Committee Meeting presentations. Consolidated incident report to be included in PCAC presentations. - PIA's to be held as required. - RRM's to be engaged 2 weeks prior to Road Safety Appraisals RFQ's issued. - Necessity of District Road Engineers to attend SC and PCAC meetings. |
| 10 th August | <ul style="list-style-type: none"> - Importance of maintaining up to date contact lists for each District. - Issues experienced in Garden Route with tow operators creating havoc at scenes. - Lighting issues along N1, Leeu Gamka, whereby Prince Albert Municipality not willing to accept responsibility for the cost of the electricity and maintenance of the lights. - R27 Task Group to be created. Commence meetings and RIMS training workshops. - Update on TETA Accredited Training registration |
| 08 th November | <ul style="list-style-type: none"> - Refer to 4.1.2 |

TABLE 5: SUMMARY OF PCAC MEETINGS

4.1.3 District Based Steering Committees

The Western Cape has six district-based road incident management systems and a Cape Town Metro system which falls under the FMS contract, as indicated in [FIGURE 1](#). RIMS in the Cape Town Metro is facilitated through City of Cape Town transport division in conjunction with the Freeway Management System (FMS).

Each system has established Steering Committees that are currently functioning effectively. The West Coast is divided into two Steering Committees (North and South) to overcome the vast distances within the district.

The aim of these Steering Committees is to provide guidance at an operational level on the principles of RIMS in the various organizations. Through these structures, effective communication amongst all stakeholders is enhanced and the effective functioning of road incident management protocols and policies are evaluated.

The Steering Committee meetings are held three times per annum in the various systems.

Occasionally there is a need for a sub-steering committee to ensure the services of a particular area are incorporated in the functioning of the road incident management system. This was implemented on the R27 as a RIMS route and a sub-steering committee was established in Vredenburg. This sub-committee will report to the West Coast South steering committee, and will include all the services responding to the R27 from the Bergriver, Saldanha Bay and Swartland municipalities:

- Provincial and Municipal Traffic
- SAPS
- FPS
- EMS Rescue
- District and Municipal Fire
- Private ER services

The focus of the Steering Committee meetings was to discuss challenges on a system level and to identify resolutions which could be implemented for the region.

[TABLE 6](#) depicts a summary of the outcomes of the Steering Committee meetings that were held in 2022.

| RIMS - STEERING COMMITTEE MEETINGS 2022 | |
|---|---|
| SYSTEM | MAIN DISCUSSION TOPICS |
| Metro | <ul style="list-style-type: none">- Provincial Traffic has not moved back to the TMC post Covid.- Members suggested that TACO meters be reintroduced to assist officers in monitoring driver fatigue and speed management.- FMS has expanded beyond the Metro into the rural areas: Rawsonville, De Doorns, Sir Lowry's pass etc. If an image is required, the service member is to call the TMC shift operator on 021 8124442, state who they are, and the image (without personal information) will be sent via authorized channels.- Festive season readiness plans a collaborated effort amongst service members to have vehicles stationed at strategic points around the Metro.- There has been a 40% increase in Heavy Motor Vehicles on the N1 – Platteklouf measure point. |
| Cape Winelands | <ul style="list-style-type: none">- The importance of post-crash debriefings at the scene to assess R.I.C.A (Role players; Scene Information; Complaints, Compliments, Challenges, Counselling; |

| | |
|---------------------------|---|
| | <p>Acknowledgements).</p> <ul style="list-style-type: none"> - Reporting format M.E.T.H.A.N.E (My ID; Exact location; Type of Incident; Hazards; Alt Routes; Number of patients; Emergency Services required). - Junior officials require RIMS training to improve confidence of their role and responsibilities at incidents as well as that of others. - Jurisdiction issues persist where incidents occur along the borders between municipal and district services. Multiple SAPS stations are known to respond to an incident whereby their services are rendered ineffectively as the incident is outside their jurisdiction. |
| Central Karoo | <ul style="list-style-type: none"> - Lighting in the Leeu Gamka vicinity continues to be a long-standing issue. Prince Albert Municipality remained silent on maintaining the lights and sundries. - RIMS training to be a focal point in the system for 2023. - CCC's between Western Cape and Northern Cape do not communicate with each other leaving communications to the public or service members to mobilize cross border services. |
| Overberg District | <ul style="list-style-type: none"> - There is a lack of PIA's in the system. - Service members requested that RIMS training be a focus in 2023. - The CCC in Caledon has purchased new radio equipment to convert the CCC from analogue to digital which will assist with the radio communication issues. Building to commence in 2022 to store equipment. Worcester and Caledon CCC are linked to GSA, the public calls hunt between the 2 x CCC's. - Looting and bystander management at scenes continues to be a challenge. |
| Garden Route District | <ul style="list-style-type: none"> - Challenges persist with fighting amongst tow operators vying for the same business, as well as with them interfering with patients at scenes in the George area. - There is much vandalism and theft of national infrastructure. - Bystander management at incidents continues to be a challenge. - Mossel Bay Fire Station opened a call centre in mid-August whereby all services (except ambulance) including neighborhood watch & provincial members will have a seat – to service Mossel Bay zone only. |
| West Coast South District | <ul style="list-style-type: none"> - Mr. Franquin Petersen (DMC Manager, Moorreesburg) has organized funding for the 5 municipalities to receive the UNITI programme. This will improve communication of incidents around the West Coast District. He is working on organizing 1 contact number as opposed to the 5 various municipal DMC contact numbers. - There is a high number of HNV travelling from Northern Cape on the N7 to Cape Town. - Piekenierskloof Pass does not have a bypass route for SANRAL to use in the event a major incident closes the pass. - EMS donated Motorola radios to SANRAL's RRM's to use at incidents. The frequency is set for EMS. - There is much vandalism and theft of national infrastructure. - A task group has been created to deal with the R27 communication issues amongst service members, for example the confusion around jurisdictions between municipal and provincial traffic, abundant communication dead zones; as well as to incorporate |

| | |
|---------------------------|---|
| | RIMS protocols. There are 2 bypass routes between Melkbosstrand to Langebaan (an approximate 94km route) namely at Darling and at West Coast National Park. |
| West Coast North District | <p>There is much vandalism and theft of national infrastructure.</p> <p>Service members work well together.</p> |

TABLE 6: SUMMARY OF STEERING COMMITTEE MEETINGS

4.1.5 Terms of Reference, Nomination Forms and MOUs

Various formal agreements assist with the practical implementation of RIMS by defining the responsibilities and communication processes between services. These agreements create accountability among these service departments and range from nomination forms to Memorandums of Understanding (MOU). Examples of these MOU's include shared Hazmat / Dangerous Goods workshop facilitation agreements between Fire and Rescue and RIMS; shared cost on call taker and call centre space between EMS and Disaster Management; Provincial Traffic placing representatives in call centers - although this is constantly changing due to staff shortages etc.

All elected chairpersons of the various Steering Committees completed nomination forms. These nomination forms must be signed by the nominee as well as their superior. It is important that the elected chairperson of the Steering Committee is authorized to make decisions and fully understand the functioning and requirement of RIMS. It is imperative that each chairperson of a Steering Committee be authorized to travel to the PCAC meetings held in Cape Town.

The following Steering Committee chairpersons were elected during 2022:

- West Coast North district elected Mr. Curnell King from FPS, Vredendal, , and
- Mrs. Petro Swanepoel, Provincial Traffic, Beaufort West, Central Karoo replaced Mr. Neil Oerson who resigned from the Disaster Management Centre, Beaufort West.
- Cape Winelands district re-elected Mr. John Davids as chairperson for another term, while the newly nominated Vice-Chairperson Mr. J Pretorius will be encouraged to take over as Chair.

In the Metro district, longstanding Chair, Mr. Dale Hillebrand, will be retiring in mid-2023 and the Vice-Chair, Mr. Zunaid Davids, has been promoted to a position outside of the RIMS structures, therefore a new Chair and Vice-Chair will be elected in 2023.

All chairpersons are currently playing an active part in their respective systems.

The current Steering Committee chairpersons and their contact details are contained in [TABLE 7](#).

| RIMS - STEERING COMMITTEE CHAIRPERSON | | | |
|---|------------------------------------|--|--------------|
| SYSTEM | NAME | EMAIL | TELEPHONE |
| Metro | Dale Hillebrand (CoCT) | Dale.Hillebrand@capetown.gov.za | 084 222 1396 |
| Cape Winelands | John Davids (EMS) | John.Davids@westerncape.gov.za | 082 596 7979 |
| Central Karoo | Petro Swanepoel (Prov Traffic) | Petro.Swanepoel@westerncape.gov.za | 083 715 7444 |
| Overberg District | Andre Deon Arends | SwellendamSAPS@saps.gov.za | 063 878 8549 |
| Garden Route District | Quinton Williams (Prov Traffic) | Quinton.Williams@westerncape.gov.za | 078 275 5153 |
| West Coast South District | David Landon (SAPS) | Davidlandon1988@gmail.com | 083 460 1300 |
| West Coast North District | Curnell King (FPS) | Curnell.King@westerncape.gov.za | 071 873 5873 |
| RIMS – PROVINCIAL CO ORDINATION / ADVISORY COMMITTEE (PCAC) CHAIRPERSON | | | |
| Chairperson | Willie van der Merwe (Road Safety) | Willie.vandermerwe@westerncape.gov.za | 082 375 4644 |
| Vice - Chairperson | John Davids (EMS) | John.a.davids69@gmail.com | 066 554 5629 |

TABLE 7: COMMITTEE CHAIRPERSONS

4.1.6 Stakeholder Engagements

Stakeholder engagement or sector briefing meetings is implemented on an ad-hoc basis to inform specific services of the process and protocols of RIMS. It has been proven that there is an increase in attendance at Steering Committee and Post Incidents Assessment meetings once liaison with the respective management level was successful. During 2022 sector briefings were limited; however extensive work was done with the services responding to the Huguenot tunnel.

During the latter part of 2022, to ensure continuity from the previous RIMS consultant's commitments', effort was made to engage with services from both the Drakenstein and Stellenbosch Municipalities to include them into the Cape Winelands Steering Committee meetings. Stellenbosch Municipality has a dedicated crash response unit that responds to incidents within the municipal boundaries and it was members from this Vispol who contributed to the districts discussions as minute.

4.1.7 Task Group Meetings

Steering Committees can establish multi-disciplinary task groups to help with specific interventions where challenges are ongoing or further clarification is sought. These task groups can be once off or ongoing depending on the nature of the challenges.

Currently there are three active task groups that were created to deal with the specific challenges.

- The awareness workshops to introduce first responders to Hazmat / Dangerous Goods Incidents
- Redesign of RIMS brand for South Africa under the SANRAL umbrella
- RIMS training and management along the R27 regional road which is a busy holiday route with very few alternative roads therefore impacting on the N7 should a major incident occur closing the R27.

More information pertaining to the task groups is listed in [TABLE 8](#) below.

| RIMS – TASK GROUPS MEETINGS SUMMARY 2022 | |
|--|--|
| SYSTEM | MAIN DISCUSSION TOPICS |
| Metro | <ul style="list-style-type: none"> - Introduction to Responding to Hazmat / Dangerous Goods Incident awareness workshops. The RIMS office met with Provincial Disaster Management and Fire to discuss the scope of training workshops, a standardised presentation was created and a Case Study for the Fire Facilitators distributed. - During the roll out of the training, our facilitators realized that the presentation needed to incorporate an interactive learning base as the best method to use for facilitation. Role play should be enforced for best content retention. - A Standard Operating Procedure for Hazmat / Dangerous Goods training was created and a flowchart for Hazmat Response designed. - RIMS appointed a graphic designer to rebrand RIMS as a national unified brand. Standardised templates will be created which will be tabled at the first NTC in 2023 and finalized thereafter. |
| Cape Winelands | - No task groups |
| Central Karoo | - No task groups |
| Overberg District | - No task groups |
| Garden Route District | - No task groups |
| West Coast South District | <ul style="list-style-type: none"> - R27 subcommittee formation, stakeholders who participated were Saldanha Bay Municipal Traffic, Fire and Disaster Management; Vredenburg – and Saldanha Bay SAPS; RIMS training - RIMS workshops and Hazmat / Dangerous Goods workshops were the third highest attended in the Western Province – the members along this route were highly appreciative of the SANRAL initiative to include them into RIMS. |
| West Coast North District | - No task groups |

TABLE 8: TASK GROUP SUMMARY

4.1.8 Guideline Plans

The Western Cape has six systems with Guideline documents that require updated maps. The RIMS Guideline Plan is an operational document that contains details on the fundamental principles of RIMS as well as the agreed response protocols and accepted alternative routes. The guideline documents are in the process of

being updated and due to be distributed to the services during 2023.

Due to the cost associated with the printing, a decision was taken to distribute the Guideline Plans in an electronic format as well as to print a limited number of maps. This will enable operational staff to have the documents on their smart phones and allow each service to print their own documents if required.

GIS based alternative route maps have been carefully designed for the Guideline Documents. The GIS based mapping will illustrate the accepted landmarks and alternative routes used as part of RIMS.

The number of alternative route maps vary for each system as it is dependent on the size of the area as well as the available number of approved routes.

4.1.9 Trauma Counselling

During Post incident assessments it was discussed that an unofficial counsellor be present to assess any service members that may need effective emotional debriefing / trauma counselling after responding to major crash scenes. Although each service is responsible for its own members, the existing structures currently in place (i.e. ICAS's Employer Health and Wellness Programs) are not always efficient to deal with the type of trauma experienced by the members on scene. In addition, these programs are voluntary, leaving members afraid to be singled out or even ridiculed if they are "unable" to cope with the tasks at hand.

Emotional debriefing after a major crash scene is very important and should become a key output of each system.

SANRAL awarded a tender to Careworks for Counselling and Health Care services to RRM's and their contractors on the national roads. This has been well received by the RRM's.

Non-profit counsellors are required in each system to assist any service member that may be struggling mentally and emotionally. The RIMS office has identified such a counsellor for the Cape Winelands and West Coast systems with their relevant names and contact numbers added to the respective RIMS WhatsApp group admin section. However, non-profit counsellors for the remainder of the systems will need to be identified in 2023.

4.2 Resource Allocation and Management

Sufficient resources for road incidents are vital to clear the scene as quickly and effectively as possible. It is important that each system has sufficient dedicated resources available to ensure the successful implementation of RIMS. The resources should include sufficient manpower and appropriate equipment to fulfil the functions and responsibilities as stipulated in the RIMS Operational Policy.

During Steering Committee meetings resource challenges and resource changes for all the systems were noted. A summary of resource challenges in the province:

SAPS in general do not have adequate resources, especially at the smaller stations in the more rural areas. Smaller towns only have one vehicle with one officer on shift and do not have the necessary capacity to deal effectively with major incidents. This is especially relevant during shift changes. During major incidents, the Crash Response unit from Cape Town responds to do the crash investigation and mechanical analysis. Although they respond immediately there is some time delay due to the distance they need to cover from Cape Town. In the more rural areas, the crash response team has an agreement with the SAPS LCRC (Local Criminal Record Centre) to assist.

Fire and rescue services in most of the systems are resourced adequately with backup / secondary responders ready to assist in the case of a major incident. Concerns were raised in the Central Karoo regarding the quantity and quality of existing equipment. This was partially addressed through the Provincial Disaster Management and Fire Rescue Service which acquired a fire truck with 4000 litre capacity that was placed in Beaufort West. The Chief Fire Officer (Mr. Noel Williams) who oversees all the municipalities in the Central Karoo including the volunteer fire fighters of Prince Albert and Laingsburg, is the only personnel that is funded to tend to major incidents after hours. Beaufort West Municipality suspended their Fire Chief about a year

ago, while this position is yet to be filled, Mr. Williams assists where possible.

In the West Coast district, there are six different municipal fire stations that do not have sufficient capacity to deal with road incidents. The District Municipality is responsible for mountain / veld and chemical fires. They will, however, assist the municipalities in case of road crashes but will bill them for the services rendered.

Some of the municipalities have put agreements in place with the District Fire Service; however, Malmesbury and Moorreesburg will first deploy their officer to assess the scene before the District Fire Service is activated. This is of great concern due to the delay in response to the scene. West Coast Disaster Management is engaging with the relevant role- players to find a workable solution.

There is sufficient HAZMAT equipment located in the Cape Winelands (Worcester), Garden Route (George & Mossel bay), Metro (Cape Town) as well as in the West Coast South (Moorreesburg) districts, to deal with major incidents. SASOL provided HAZMAT equipment to the Overberg (Swellendam) and Central Karoo (Beaufort West). This SASOL equipment was put into earmarked HAZMAT vehicles by Provincial Disaster Management.

The EMS ambulances and rescue vehicles are sufficiently resourced and equipped throughout the province. EMS vehicles have state of the art communication and tracking equipment to assist the call centers with confirming the location and number of patients / casualties. Rescue 6 based in Cape Town is available through the correct protocols to lift heavy motor vehicles.

The Forensic Pathology Service (FPS) is properly staffed and equipped throughout the province. Although they do not have a 24-hour service, there are always personnel on standby in all areas. Due to the distances between the station and the crash scene, the Forensic Pathology Service has requested to be informed timeously. The FPS truck previously stationed at Beaufort West has been discontinued. FPS will respond with more vehicles from neighboring stations if the need to clear a larger number of bodies arises.

Provincial and Municipal Traffic has sufficient resources to assist in major incidents on the national roads. Throughout the Province there are good working relationships between the Municipal and the Provincial Traffic authorities. Provincial Traffic across the province operate 24/7. Officers operate in shifts from 06h00 to 18h00; and 18h00 to 06h00. Each shift-change durates 30minutes.

Vredendal Provincial Traffic covers the N7 up to Piketberg although they operate through a Citrusdal Satellite station in the vicinity of Piekenierskloof Pass. Ms. J Dirkse in consultation with DoT & PW acquired a state building in Citrusdal which was renovated and equipped in 2022, where it will be used as a satellite station.

There have been some changes in the personnel of Provincial Traffic due to the retirement of Mr. Kenny Africa as well as the passing of Mr. Mark Jansen (Director Road Safety). Mr. Farrel Payne was appointed as the acting Chief Director of Provincial Traffic in place of Mr. Kenny Africa in 2021 and continues to operate in this post. Mr. Willem van der Merwe has been appointed as the Director of Road Safety and he currently represents RIMS as the Provincial Chairperson.

SANRAL RRM emergency teams are well resourced and positioned along the national roads. All Route Managers are responsible for the route sections within the borders of the District Municipalities. The West Coast, Central Karoo and Garden Route have been divided into two sections, hence two Route managers in each area. This is discussed in more detail in [Section 4.4.3](#).

4.3 Communication & Communication Technology

4.3.1 Centralised Communication Centre (CCC)

The effective operation of every system is dependent on the relationship and interaction between the personnel of the various emergency services and the coordinated communication with the CCCs. The efficient functioning of each individual CCC of each system is fundamental to the overall success of RIMS in the Province. The duties of the CCC are to ensure that centralized communication takes place during incidents. These duties include detection, resource mobilization and scene management. Thorough communication

protocols between municipal and private control rooms and the CCC is of critical importance.

The CCC's are currently accommodated in existing EMS or Disaster Management control rooms, which operate 24 hours a day with designated personnel responsible for communicating with a wide range of services. These call centers have a digital (electronic) system which assists the call takers in capturing information, the dispatching of services, managing resources, recording facilities as well as record-keeping. The details of every CCC are tabled below.

The call centers are reliant on the overflow system that re-directs the caller to another call centre when the original call centre is experiencing high call volumes or is offline. Although this has reduced the challenge of high rate of abandoned calls in the province, it does mean operators may have limited knowledge of the area or have limited contact information to dispatch services outside of their jurisdiction.

| District | CCC | Manager | Emergency lines | Resources |
|--------------------------|---|---|--|---|
| Cape Winelands | Worcester EMS 023 346 6000 | Berenice Dees 023 346 6000 | 10 incoming lines, 1 emergency lines | 4 shifts with 3 members per shifts, 1 on standby Provincial Traffic Officer 24/7 |
| Central Karoo | Beaufort -West Disaster Management Centre 023 449 8000 | Quinton Pick 023 449 8211 | 3 emergency lines day shift; 2 lines night shift | 4 shifts with 2 members per 12hour shift Provincial Traffic Officer 24/7 |
| Overberg | Caledon EMS 028 212 9111 | R Mackenzie 028 212 9111 073 053 8705 | 2 incoming lines Radio Connection with EMS & Prov Traffic (excl Swellendam) | 4 shifts with 2 members per 12hour shift |
| Garden Route | Garden Route Disaster Management Centre 044 805 5071 | Tippie Boucher 083 941 0885 | Radio connection with Fire & Rescue, EMS | 4 per shift, 4 shift 1 standby Provincial Traffic Officer |
| West Coast South & North | Moorreesburg Disaster Management Centre 022 433 8700 | Amos Titus 022-433 8704 | 1 incoming and 4 outgoing | 3 per shifts, 3 shifts, 1 standby Provincial Traffic |

TABLE 9: CENTRALISED COMMUNICATION CENTRE INFORMATION PER SYSTEM

There are nonetheless some challenges with the Caledon CCC whereby various emergency responders outside EMS are not contacted satisfactorily. The CCC has purchased digital radio equipment which is due to be constructed in 2023. This will improve the radio network between the CCC and emergency services. CCC operator training should be scheduled in 2023 to familiarize the operators with the RIMS requirements.

4.3.2 RIMS WhatsApp groups

To have accurate and efficient RIMS communications, a Major Incident WhatsApp group for each of the six RIMS systems in the Western Cape was created. Every group comprises the Road Authority, Route Manager, RIMS Consultant, the Routine Road Maintenance (RRM) contractor, RIMS Project Manager, RRM Project Manager and various service members.

To standardize the format in which the RRM's report incidents on the groups, a template was created and posted onto the groups with an explanation on how to save it and report using the template. This format is to be used for notifications of incidents, progress - and final close out reports of the incidents. It is valuable to encourage the RRM's to use this format until such a time as they are familiar with using it as it allows the RIMS office to analyze the various incidents posted.

4.4 Training / Capacity Building

4.4.1 Training

The RIMS Operational Policy specifies that all officials involved in Road Incident Management should undergo training towards the RIMS Qualification, through an accredited training provider. RIMS training is currently divided into RIMS one day workshops and RIMS accredited training.

4.4.1.1 RIMS One Day Workshop

Generally, at least two RIMS workshops are completed annually in each of the systems. Central Karoo, Garden Route and the Metro received a minimum of two workshops, however the remaining districts only received one due to the delay in 2022 in launching our training sessions.

Our RIMS Refresher Training workshops were well received. There was good diversity in representation from the various services, however the SAPS attendance was very low.

As most of the participants were attending their first RIMS Workshop it was beneficial for them to understand how RIMS evolved; the Decade of Action; the Protocols of Scene Management and developing respect for each other's Roles and Responsibilities. The fun aspects introduced through Role Play and Group Discussions assisted with retention of information.

These workshops not only created a safe haven for the participants to learn interactively, but also for them to discuss challenges faced in the field with other key role players in the services. Its all about communication.

In going forward, we realized the importance of a practical RIMS presentation and the benefits of visual and other sensory aides in stimulating discussions and reinforcing learning.

Towards the end 2022 discussions ensued regarding online training and how this could be facilitated. It was agreed that in order to offer an online training option, a professional national platform would need to be developed to offer an interactive training option. Unfortunately, many of our services in the province do not have the capacity to participate on a virtual platform due to the lack of equipment, or access to a secure internet facility etc. Much information is retained through the questions participants ask and how they interact with one another. It is clear our RIMS workshops are not only a place of learning but a place to network and build relationships.

A record of the RIMS training conducted, and the number of delegates trained is summarized in [TABLE 10](#).

| District | Total | SAPS | Traffic | EMS | RRM | CCC | Disaster Man | Fire & Rescue Service | Other |
|----------------|------------|-----------|-----------|-----------|-----------|-----------|--------------|-----------------------|-----------|
| Cape Winelands | 41 | 8 | 8 | 8 | 11 | 3 | 1 | 0 | 2 |
| Central Karoo | 56 | 2 | 30 | 5 | 2 | 1 | 4 | 10 | 2 |
| Garden Route | 29 | 0 | 13 | 3 | 5 | 0 | 0 | 5 | 3 |
| Metro | 61 | 5 | 1 | 15 | 9 | 6 | 8 | 0 | 8 |
| Overberg | 32 | 0 | 4 | 8 | 3 | 1 | 0 | 0 | 16 |
| West Coast | 56 | 11 | 11 | 3 | 8 | 2 | 1 | 4 | 16 |
| Total | 275 | 26 | 76 | 42 | 38 | 13 | 14 | 19 | 47 |

TABLE 10: ONE DAY WORKSHOPS HELD DURING 2022

4.4.1.2 Accredited RIMS Training

Based on our Key Performance Indicators it is a requirement that Accredited RIMS training be completed in each of the systems annually. However, due to a lapse in SANRAL's registration with TETA, they have had to apply for new login credentials to request an extension to their registration to upload the competent learners for certification.

Once this is completed, SANRAL will be permitted to apply for their subsequent registration tenure and resume accredited training thereafter.

AfriCoast Consulting will be responsible for pre-assessing the POE's to ensure the learners have completed the sections before it is sent for formal assessment.

Learners with outstanding assignments and questionnaires will be contacted and requested to complete the outstanding items.

In the Western Province, 8.5% of learners were found competent.

A record of the RIMS Accredited Training competent learners to date is summarized in [TABLE 11](#).

| Province | Date | Total Learners Attended | No Total Learners Competent | % Total Learners Competent |
|---------------|-----------|-------------------------|-----------------------------|----------------------------|
| Western Cape | 2016-2020 | 189 | 16 | 8.5 |
| Northern Cape | 2016-2020 | 105 | 2 | 2.0 |
| Eastern Cape | 2016-2020 | 214 | - | - |
| Freestate | 2016-2020 | 480 | - | - |
| Kwazulu Natal | 2016-2020 | 46 | - | - |
| Northwest | 2016-2020 | - | - | - |
| Gauteng | 2016-2020 | - | - | - |
| Mpumalanga | 2016-2020 | 114 | - | - |
| Limpopo | 2016-2020 | 264 | 26 | 9.9 |
| Total | | 1 412 | 44 | 3.1 |

TABLE 11: RIMS ACCREDITED TRAINING STATUS

4.4.1.3 RIMS Introduction to Hazardous Material Awareness Training

As part of the ongoing need to train our first responders in RIMS it is important that they be knowledgeable when approaching a dangerous goods incident. The goal is to expose as many of the role-players attending road crash scenes with a framework to deal with dangerous goods. Previously hazardous material awareness workshops were arranged in the province in conjunction with Mr Johan van Wyk from SASOL. Unfortunately, Mr van Wyk left SASOL and was no longer available to conduct the training.

Therefore, the RIMS office partnered with Provincial Fire and Rescue to create a standardized presentation and a case study for each local fire department to use as an Introduction to Hazardous Materials Awareness training. Following from the first round of training facilitated in the last quarter of 2022, it was evident that the presentation and case study used by the services for the Intro to Hazardous Material Awareness training was too extensive for the service members and should be simplified before it can be rolled out again.

The RIMS office is due to meet with Provincial Disaster Management Fire and Rescue in early 2023 to brainstorm a new presentation as well as to use district case studies as opposed to a provincial one.

4.4.1.4 Expanding of RIMS Systems

During 2022, one regional route was incorporated into the RIMS system: the R27, West Coast district. The RIMS Coordinator engaged with the required role-players including the various SAPS stations and municipal representatives along this route. These role-players were also invited to the training workshops and Steering Committee meetings.

In establishing the R27 Task Group, it was decided to have a sub-steering committee in Vredenburg that will deal with the incidents on the R27, West Coast Road. The members required are already on board and have received RIMS and Hazmat / Dangerous Goods awareness training. The sub-committee will be able to deal with specific challenges in the area and give feedback to the West Coast South Steering Committee.

The buy-in and cooperation of the Department of Transport and Public Works (DoT & PW), more specifically the District Roads Engineers (DRE's), responsible for selected routes, is not yet fully achieved. The RIMS Coordinator has engaged with a few of members of the Western Cape Government: DoT&, namely, Jacqueline Gooch · Head of Department; Mr. Len Fourie, DRE Manager and Ms. Salome Petersen, Office Manager and we continue to motivate the DRE's to attend our RIMS functions. The RIMS Coordinator was advised to liaise with the respective DRE via email as to issues raised at SCM's and revert to members for comment. A lengthy process, however, the DRE's have stated they do not have the capacity to attend any of our meetings.

Mr. Stewart Bain is the DRE responsible for the Metro, Overberg, Cape Winelands, and West Coast districts.

Mr. Xander Smuts is the DRE responsible for the Metro, Garden Route, and Central Karoo districts.

A representative from the Saldanha Bay Municipality Infrastructure Planning department, Ms Toesie, attended the West Coast South meeting held in Moorreesburg on the 01st of November 2022, providing an opportunity for stakeholders to productively engage with each other on the developments proposed for the Saldanha Bay district.

4.4.2 Public Outreach and Education Interventions

The Western Cape government is actively campaigning road safety as part of the Safely Home Initiative based on the monthly Safely Home themes. These themes run throughout the year by making use of mainstream and social media. These various campaigns and videos can be viewed on the Safely Home Website (<https://safelyhome.westerncape.gov.za>). Safely Home offered to assist with RIMS-related content where needed, especially with distributing of information.

The standard blue marker pamphlets were distributed to RRM's and service members for roadblocks

conducted in the systems.

Each emergency service has a media liaison to feed information regarding incidents to the media. It must be reiterated at Steering Committees that the Incident Coordinator's role is to ensure the media liaison has the correct live information for the incident, while debriefings at scenes will assist with the relevant media information dissemination.

4.4.3 Monitoring and Evaluation

4.4.3.1 Post Incident Assessment

Post Incident Assessments (PIA) is multi-disciplinary facilitated meeting regarding the management of a particular incident. The aim is to discuss any challenges in a positive and constructive environment and to record lessons learned during an incident. PIA's are requested after every major incident. These include incidents involving hazardous chemicals, incidents with a high number of casualties, as well as incidents resulting in total road closures.

A PIA can be initiated by the Incident Coordinator or any other service member that is of the opinion that the incident was not handled correctly. The resultant discussion creates an opportunity to analyze the practical application of RIMS to improve incident management.

All the PIA's that were held in the Western Cape during 2022 are summarized in TABLE 12.

| SYSTEM | MAIN DISCUSSION TOPICS |
|--|---|
| <p>Metro</p> <p>PIA Date: 24.02.2022</p> | <ul style="list-style-type: none"> 19.02.2022 N1/02 North, Joostenbergvlakte area. Light motor vehicle lost control, broke through the median, and collided with 2 x oncoming vehicles travelling in southerly direction. Multiple injuries, 1 x Fatality, 1 x Entrapment. Radio issue amongst service members with Provincial traffic. Barriers to be considered for median. 27.01.2022 N2 Inbound before Spine Road. Pedestrian collision with light motor vehicle. SAPS and Traffic are not part of the EPIC system that the TMC use. TMC need to investigate running some processes in parallel to streamline mobilisation and getting the road cleared timeously. On-scene management was highly efficient. 18.01.2022 N1 / N7 off-ramp. Cash-in-transit heist occurred during the change in shift with services. Looters arrived on scene within 4 minutes of robbers departing, when SAPS arrived they assumed the looters were the robbers and opened fire. No fatalities, however, 5 patients were transferred to nearby public hospitals. |
| <p>Cape Winelands</p> <p>PIA Date: 13.12.2022</p> | <ul style="list-style-type: none"> 17.11.2022 N1/3 KM44-48, Hexpass. Driver of a heavy motor vehicle lost control and overturned tanker onto the embankment spilling Nitric Acid contents. Spilltech were the authorized clean up specialists by the owner Omnia Group. The road was closed for approximately 23hours, traffic was successfully diverted allowing the services to work well together to clear the scene. |
| <p>Central Karoo</p> <p>PIA Date: 22.07.2022</p> <p>PIA Date: 31.10.2022</p> | <ul style="list-style-type: none"> 15.04.2022 N1/7 KM3.4 between Cape Town and Fort Beaufort. A Toyota Quantum Taxi on route from Cape Town had a flat tyre and stopped in the yellow lane. At 04h05 a bus driver drove into the taxi killing 12- and seriously injuring 5 passengers. The incident endangered and traumatized many service members and it is recommended that a counsellor in an unofficial capacity be placed in such meetings to identify members who may need counselling. It was noted the lack of control SAPS had over the scene where multiple fatalities occurred. 19.10.2022 N1/7 KM57.3. Truck trailers x 2 caught alight with a cargo of magazines and paper. The control of the fire was a challenge as the cargo kept reigniting creating secondary incidents. Tow operators need to strap their loads down before removing vehicles. 10.11.2022 N1/9 KM9.2 between Three Sisters and Richmond. A truck carrying paper rolls and pamphlets caught alight. The fire spread to the veld. Due to the lack of diesel and after-hours personnel, District Fire services were unable to return to the site and extinguish the fire on the truck, leaving it to burn. Additionally, RRM's did not have any water tanks and farmers could not be contacted due to the early morning time. It is important to ensure that there are adequate resources and plans in place to handle emergencies effectively and promptly. The vehicle was removed by the tow operator without waiting for the debris on the trailer to cool down. As they drove, the hot debris was blown by the wind onto the |

| | | |
|--|---|---|
| | - | veld and caused multiple localized fires. It is imperative to dispose of debris safely and responsibly to avoid hazardous consequences like this. |
| Overberg District: PIA Date: 18.10.2022 | - | <p>07.10.2022 N2/5 KM22 Suurbraak area. A driver who was fatigued, overturned a truck carrying multiple loads including granular Sodium Carbonate. The TremCard was not visible at first, there were no placards on the exterior of the truck, there was no roadworthy certificate. The crash occurred as the Prov Traffic changed shifts.</p> <p>One lane was closed for approximately 7 hours.</p> <p>RRM kept CCC informed, however there were communication challenges between the CCC and relevant service members due to high caller volume and calls dropping.</p> |
| Garden Route District | - | No PIA's held |
| West Coast South District PIA Date: 10.10.2022 | - | <p>11.06.2022 N7/3 Moorreesburg crossing. 2 x light motor vehicle collision: BMW and bakkie 2 patients and a dog were horribly trapped in first vehicle.</p> <p>A total of 3 Blue-, 1 Red- and 4 x Orange patients. (An infant was amongst the fatal passengers).</p> <p>Trauma counselling is recommended for members struggling with this scene.</p> <p>Traffic was not controlled at onset which made the scene dangerous for members to work the entrapments.</p> <p>Many bystanders at the scene and SAPS only had 1 officer available to tend to the scene.</p> <p>24.09.2022 N7/3 Bosiesvlei. 3 motor vehicles involved in collision whereby each vehicle was approximately 30m apart: 1 in the veld which challenged the emergency services from reaching each vehicle, 1 in the road and another vehicle in the road reserve. There was a total of 8 injured people on the scene: 3 x Red and 5 x Orange patients.</p> <p>Traffic members controlled the traffic which helped clear scene and improved safety. Bystander management was an issue, SAPS and EMS had to assist.</p> <p>Lack of manpower was greatest challenge, however the members worked well together and know each other well.</p> |
| West Coast North District | - | No PIA's held |

TABLE 12: POST INCIDENT ASSESSMENT SUMMARY

4.4.3.2 Simulations

Simulation exercises form part of the broader monitoring and evaluation of RIMS to test if the RIMS procedures are practically applied. Simulations ensure continuous compliance and improvement in incident management. Unfortunately, no simulations were held during 2022 as they are a costly exercises to operate, however, there is scope to participate in joint exercises with other emergency services who have planned simulations and desk top exercises.

4.4.3.3 RRM Monitoring

The SANRAL Route Managers are responsible for the maintenance and continuous functioning of RIMS on the SANRAL routes in their sections. This includes data collection and the overall management of the scenes required for the functioning of the individual systems. The details of the SANRAL Route Managers for every section is listed in TABLE 13.

| WC - NATIONAL ROAD NETWORK | | | | |
|----------------------------|----------------|---|-------------------------------------|---|
| System | | SANRAL RRM Contracts Route and Section | Route Manager | Centralised Communication Centre (CCC) |
| 1 | Metro (N1) | N001-013-2016/1 N1, N2, R300 | Ashley Dreyer 082 710 3568 | Cape Town Traffic Management Centre 021 480 7700 |
| | | N002-012-2016/1 N1, N2, R300 | Renoir Maasdorp 076 781 8643 | |
| | | R300-010-2016/2 N1, N2, R300 | Ashley Dreyer 082 710 3568 | |
| 2 | Cape Winelands | N001-014-2019/1 N1, section 2 to 4 Bergriver – Constable | Chris Roux 083 440 7553 | Worcester Emergency Centre (EMS) 023 346 6000 |
| 3 | Central Karoo | N001-047-2019/1 N1, section 4 to 7 Constable – Riemhoogte | Meshack Gaba 082 784 8899 | Beaufort West Disaster Management Centre 023 449 8000 |
| | | N001-079-2019/1 N1, section 7 to 9 Riemhoogte – Skietkuil | Kamogelo Monembe 072 667 7620 | |
| 4 | Overberg | N002-025-2019/1 N2, section 2 to 5 Bot River to Riversdale | Ricardo Saaiman 073 221 8880 | Caledon Emergency Centre (EMS) 028 212 9111 |
| 5 | Garden Route | N002-057-2019/1 N2, section 5 to 7 Rietkuil Outspan - Rondeheuwel | Damienne Ceylon 083 253 9136 | Garden Route Disaster Management centre 044 805 5071 |
| | | N002-078-2019/1 N2, section 7 to 8 Rondeheuwel - Nature's Valley | Alec Bester 083 501 0028 | |
| 6 | | N007-014-2019/1 | Jerome Buys | |

| | | | | |
|---|------------------|--|----------------------------------|--|
| | West Coast South | N7, section 1 to 4 Klipvlei to Melkboom | 082 328 9422 | Moorreesburg Disaster Management Centre 022 433 8700 |
| 7 | West Coast North | N007-047-2019/1 N7, section 4 to7 Melkboom to Noheep | Riaan Davids 082 553 4878 | |

TABLE 13: ROUTE MANAGERS 2022

A few of the RRM contracts came to an end in November 2022, namely: Cape Winelands, Central Karoo and West Coast district; each have received a 4-month extension while SANRAL award the new tenders. The retention of the Route Managers is beneficial from a RIMS perspective to achieve continuity in expertise.

Both the N1 and N7 contracts contain sections of the national routes within the Northern Cape, this generates a challenge in mobilizing the cross-border emergency services when incidents occur as jurisdiction issues, resource issues and communication issues between cross border services and CCC's arise.

5. Key Performance Indicators 2022 / 2023

A scorecard with performance indicators was developed by the PCAC based on the national scorecard. The scorecard is used to monitor RIMS in the Province and to provide feedback to the PCAC and various Steering Committees. The monitoring of the actions will assist in identifying the areas where interventions are required. The scorecard is depicted in FIGURE 3.

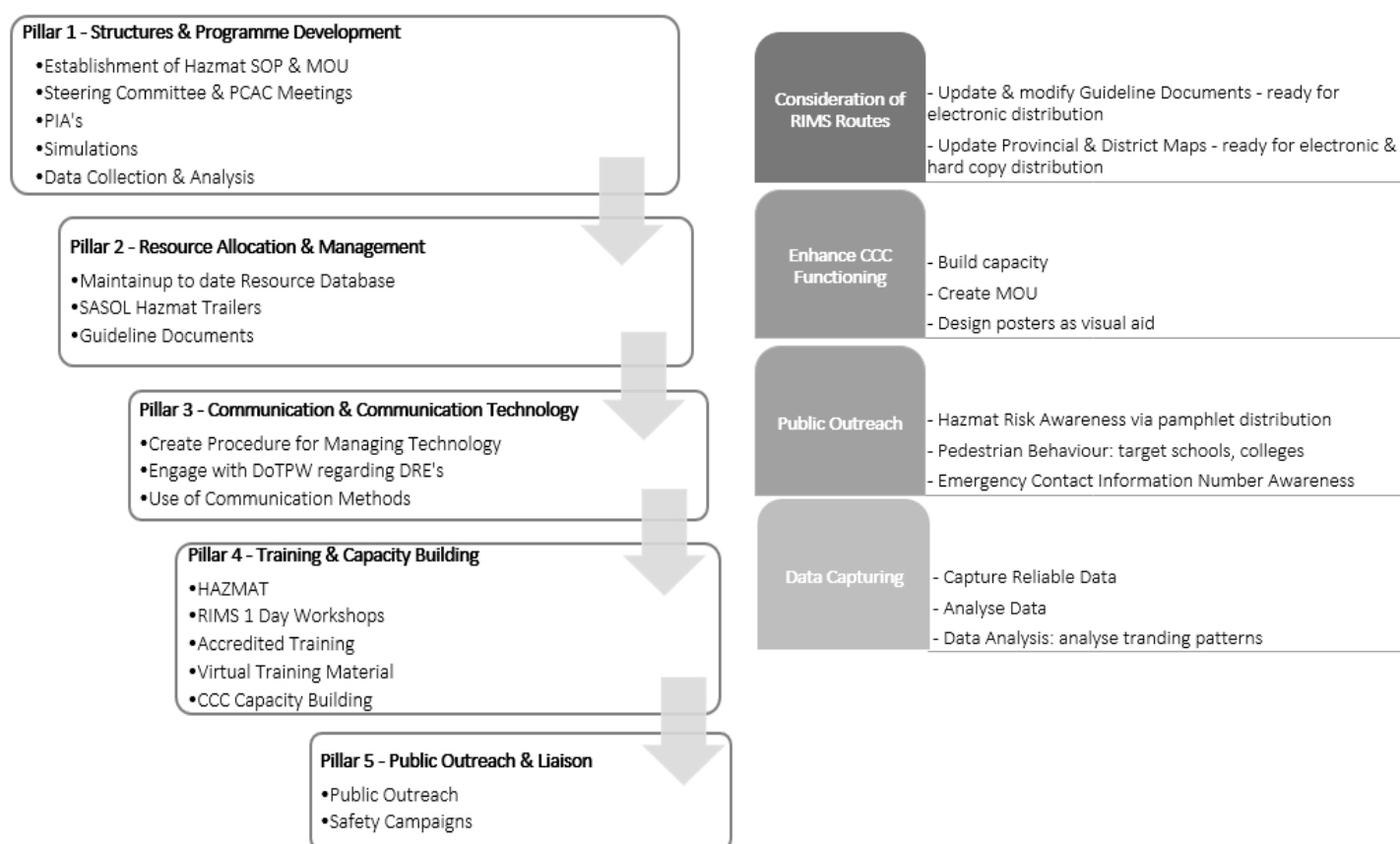


FIGURE 3: KPI SCORECARD

| KEY PERFORMANCE AREA | ACTIONS | KEY PERFORMANCE INDICATORS | ANNUAL TARGET | RESPONSIBILITY |
|---|---|--|--|---|
| Pillar 1 | | | | |
| Structures & Programme Development | NTC Meetings | Align provincial & district RIMS meetings with NTC's | 4 Per Annum | RIMS Consultants |
| | Steering committee & PCAC Meetings | Ensure operational challenges & concerns are effectively manage and resolved and reported in COTO reports | 3 Per Annum | RIMS Consultants |
| | Finalise Training SOP | Finalization | by March 23 | RIMS Consultants |
| | PIA's | Ensure resolutions of all challenges highlighted to not be repeated in future incidents | Within 14 days of incident, no later | RIMS Consultants |
| | Simulations | Development of desk top exercises to be done. Simulations done by other stakeholders to include RIMS support | 1 / 2 per province | RIMS Consultants to engage with other stakeholders and support. |
| Monitoring, Reporting & Evaluation | Annual Road Safety Appraisals Targets | 1. RSA identification and procurement 2. Hazloc audits to be completed 3. Audit findings to be tabled at Steering and PCAC level. 4. Hazloc excel register to be updated | 1. Identification of Audits by end July 23. 2. 3 RSA for 2023/24 per region | RIMS Consultants |
| | Improve data capturing and reporting on IT IS and ensure accurate statistics and analysis. System reports to be done annually. | 1. Ensure collection of data sources from various sources, emergency services in each district and use data to update incidents not captured on IT IS. E.g.: EMS, CCC, and FPS. 2. Collection of incomplete AR forms from RRM and ensure completion of content from other sources. 3. Comparison and analysis of data from all sources to ensure a more realistic summary of incidents captured on ITIS, in each province. | 1. Collection of monthly data from sources, to be in place by July 2023 2. Increase in data captured on IT IS and accuracy of content to be monitored. Head office report should show an increase in data capturing | RIMS Consultants |

| | | | | |
|---|---|--|------------------------------------|------------------|
| | | 4. Ensure monthly collection of data from other emergency sources, stakeholders and update ITIS on a monthly basis | | |
| | | | | |
| Pillar 2 | | | | |
| Resource Allocation & Management | Maintain and update Resource Database | By end Jan 23 and Aug 23 | 2 Per Annum | RIMS Consultants |
| | Guideline Documents | Updated and distributed by end of Feb 23. Electronic version to be circulated at SC meetings. | Updated and circulated by Feb 2023 | RIMS Consultants |
| | | | | |
| Pillar 3 | | | | |
| Communication & Communication Technology | Management of Communication resources at CCC's | Annual update | 1 per District | RIMS Consultants |
| | Ensure the attendance of District Road Engineers | 1. DRE's of Provincial roads (alternative routes) to attend SCM's and PCAC's. 2. Keep them informed of complaints or challenges received of those routes. | Feb-23 | RIMS Consultants |
| | Communication Methods | 1. WhatsApp 2. METHANE 3. RICA | | |
| | | | | |
| Pillar 4 | | | | |
| Training & Capacity Building | Intro to Responding to Hazmat / Dangerous Goods Incidents Awareness | 1. Each province to draft a Guideline of response protocols to Hazmat incidents 2. Training presentation to be practically aligned: more pics less text 3. Case Study to be district relevant 4. MOU's finalised with Fire services in each district to facilitate training per district in the province. | 2 per district / annum | RIMS Consultants |
| | RIMS 1 Day Workshops | 1. Facilitate RIMS training in each district 2. Rotate locations to maximise coverage. 3. RIMS marketing materials for each training session if possible. | 2-3 per district / annum | RIMS Facilitator |

| | | | | |
|--------------------------------------|---|--|--|------------------|
| | Accredited Training TETA Registration Renewal | 1. Login details required 2. Apply to extend Registration 3. Load Competent Learners onto TETA system 4. Organise TETA moderator / auditor to assess Competent Learner files 5. Apply for Registration Renewal | None in 2022 | RIMS KZN |
| | CCC Capacity Building | 1. District Maps to be developed 2. Strip Maps to be developed to improve and enhance the location identification by CCC's | Provincial & Strip Maps completed 2022 | RIMS Consultants |
| | | | | |
| Pillar 5 | | | | |
| Public Outreach & Liaison | Public Outreach | 1. HAZMAT Risk awareness (social media via head office) 2. Pedestrian Road Safety Awareness. 3. Emergency Contact Information Awareness (District CCC's & / Metro's TMC's – 10177 / 112 / 107) (Sasol Emergency Call Centre: 0800 112 890) 4. Blue Marker Board Pamphlets distribute at road blocks and SCM's | - 1 per annum per district | SANRAL |
| | Safety Campaigns | 1. Targeting Education Institutions (Schools; Colleges) 2. Social Media (Safely Home) Pamphlets | - 1 per annum / district - Distribution via SCM's | RIMS Consultants |

TABLE 14: KEY PERFORMANCE INDICATORS 2022 / 2023

6. Data Collection

The preferred data source mandated by SANRAL remains with ITIS. The current agreement with the RRM's is that they collect the AR forms from their local SAPS offices and then capture the information to the system either via the mobile or the desktop application.

Whilst the ITIS system allows for the capturing of the incidents, the previously reported issues such as incomplete AR forms or forms not being available continue to hinder the capturing efforts as well as additional network/ power related issues experienced.

As a work around, the RIMS office amended the existing RRM accumulative monthly reports to allow for a more comprehensive reporting of not only the incident counts but to include the hazardous locations, communication

dead zones and 3rd party claims.

The RIMS office, through relationships developed at Steering Committee Meetings, was granted access to other data sources such as Provincial Traffic, RTMC, EMS and the Huguenot Tunnel. The RIMS office also initiated stricter format for the RRMS to follow when reporting of incidents on the district WhatsApp groups to ensure that all information is supplied, on scene, which can then be used as a cross reference / alternative data source than the AR forms, however adoption has been gradual and the RIMS office will continue to both enforce reporting of incidents to the relevant group as well as educate members as to the importance of this.

The current setup of the ITIS downloadable reports available to the RIMS consultants does not allow for integration nor data interpretation thus the RIMS consultants remain reliant on the full system data dumps provided by SANRAL for in depth analytics.

7. System Challenges

The effective operation of each system is dependent on the relationship and interaction between the various role-players and coordinated communication with the CCCs. As RIMS is an ongoing process, the current challenges of the systems are discussed hereafter.

7.1 Metro

The following challenges were experienced in this area:

- Large parts of the Metro freeways are under the jurisdiction of the Provincial and Municipal authority and fall under the Incident Management of TDA.
- RIMS is currently only implemented on the freeways which are under camera surveillance.
- There are many criminal incidents on the national road network.
- Although there was extensive training done, more training for SAPS is required.

7.2 Cape Winelands

The following challenges were experienced in this area:

- Winelands CCC took over the dispatching of Drakenstein and Stellenbosch, these members have been incorporated into the RIMS Steering Committee Meetings.
- Service members work well together, however there appears to be tension between the CCC in Worcester and Municipal Fire Services who state the CCC do not contact them first.

7.3 Central Karoo

The following challenges were experienced in this area:

- Response times of all services are hindered by the large area they need to cover. The resources are even further under strain during the holiday season period when the traffic volume and incidents increase.
- The Fire Departments in the Central Karoo have resource shortages in terms of equipment and personnel. Beaufort West is the only municipality with permanent employees. Laingsburg and Prince Albert make use of volunteer fire fighters. Beaufort West District Hazmat trailer is approximately 50% equipped and there are severe limitations with personnel who are available to respond after hours due to a lack of funding.
- There is a high number of Heavy Motor Vehicles (HMV) on the N1 leading to increased criminal activity

in the Beaufort West vicinity who target the HMs.

- Light motor vehicle drivers are impatient when trying to overtake HMs on the single carriage ways, increasing the risk of crashes.
- The HMs travel 24/7 with little law enforcement after 18h00. A suggestion was made at the Metro Steering Committee meeting to reintroduce the TACO meters to assist law enforcement in examining the duration the HM has been on the road as well as average speed travelled.
- HMs compliance with placards, licenses, and permits continues to be a challenge for our traffic law enforcement especially when the HM is transporting multiple loads. This poses an increased risk in hazmat to public safety.

7.4 Overberg

The following challenges were experienced in this area:

- Due to the workload LCRC occasionally takes long to arrive at crash scenes, requiring the road to be closed for longer periods.
- Communication from the CCC remains a challenge. Caledon CCC are on analogue radio equipment. Although they have procured digital radio equipment, this will take a few months to complete construction.
- Service members have requested the RIMS office to design a standard “Questions to Ask” template to assist with streamlining communication.

7.5 Garden Route

The following challenges were experienced in this area:

- Continuous damage to fencing along the N2 remains problematic allowing livestock and pedestrians to enter the road reserve and cross the N2.
- There are numerous service delivery protests in the Knysna and Grabouw area creating extensive damage to the road. The RRM clean-up teams work closely with SAPS and Provincial Traffic.
- High number of heavy motor vehicles on the roads, limited weighbridge facilities and low compliance rate in HMs transporting dangerous goods pose an increased hazmat threat to public safety.

7.6 West Coast – South

The following challenges were experienced in this area:

- In the Moorreesburg area there is an increase in vandalism as well as the theft of fences in the road reserve. Similar challenges exist in the Malmesbury and Abbotsdale areas.
- The six municipal fire stations in the district do not have sufficient capacity to deal with road incidents. The District Fire Services are responsible for mountain / veld fires and chemical fires; however, they assist the municipalities in case of road crashes. Some of the municipalities have put agreements into place with the District Fire Service; however, Malmesbury and Moorreesburg will first deploy their officer to assess the scene before the District Municipality is activated. This is of great concern due to the delay in response to the scene.
- Service members are challenged by the long stretches of road without interchanges to turnaround between Philadelphia and Melkbosstrand on the N7. There is a heavy-duty cable in the median which prevents motorists from crossing over; and locks cannot be inserted as this will then compromise the strength of the safety barrier.

7.7 West Coast – North

The following challenges were experienced in this area:

- Persistent vandalism of public infrastructure whereby signage and poles are stolen within 4 weeks of construction. Painting of poles delays the theft by approximately a week.
- Hitchhikers along the national road have increased. RRM's are to be vigilant with the red painted lines which turn orange in the sun inhibiting law enforcement.

8. Summary

- The PCAC and Steering Committees are well established and are attended by the required role- players.
- With the inclusion of the R27 as a RIMS route it was decided that a sub steering committee was to be established in the Saldanha Bay municipal area. This sub-committee will report to the West Coast South steering committee but will include all the services responding to the R27.
- Provincial Traffic recruited 85 new traffic officers in December 2022 who were deployed across the province. Their visibility on our national roads has been an asset to the public.
- Road Safety and RIMS office will be working closely together with awareness campaigns.
- The various municipalities in the West Coast district have been updated with the UNITI system in their Disaster Management centers, this was set up to deal with the communication challenges in the district. There has been a notable improvement in communication and response times to incidents.
- Guideline documents have been updated for electronic distribution to all services in need of assistance. Details of weighbridges, major passes along our national roads, emergency contact numbers for hazardous spills, CCC's and RRM's updated and inserted. The maps will be printed for various members and handed out at meetings. It is recommended that the Guideline Documents be printed in book form for each CCC member. The Strip Maps with the location km markers and landmarks in each district will be highly beneficial for each agent.
- Debriefings after major incidents is advisable whereby service members ensure they cover R.I.C.A.:
 - o All Role players present at the debriefing,
 - o Information gathered about the incident is correct,
 - o Members compliment, complain, discuss challenges, and identify any members that require counselling,
 - o Members acknowledge each other and the role that they play in each incident.
- Trauma Counselling is important and has become a key output of each system. Careworks and the Wellness Champions in each district, were appointed by SANRAL to provide healthcare services (including trauma counselling) for our RRM's and their contractors. Careworks are well managed in each of the districts. Although each emergency service has their designated counsellors, the stigma associated with attending prevents many members from obtaining the necessary counselling. A trauma counsellor should be identified in each system and added to the information section of the relevant RIMS WhatsApp group.
- To have accurate and efficient RIMS communications, a Major Incident WhatsApp Group for each of the six RIMS systems in the Western Cape (excluding the Metro), was established. The WhatsApp groups assist with bridging the communication gap between RIMS and the Route Managers on reporting of incidents. The style of reporting is a work in progress as RRM's find the format tedious to use whilst at incidents. Once they are accustomed to the reporting format, we hope this will be streamlined.
- Single one day RIMS refresher training sessions were held throughout the Western Cape in the latter part of 2022. Metro, Central Karoo and Garden Route each received two sessions of RIMS training while the remaining districts received one session each. There was a major focus on interaction amongst the attendees especially during the various Role Plays that was incorporated successfully. Virtual training

sessions are not effective as they do not promote interactive learning. For this to be successful a formal online training platform will need to be created, however the accessibility to this platform will continue to be a challenge as many members do not have online capacity.

- RIMS Accredited training is a work in progress and will take a few months to resolve. Intervention at a senior level is required to get the desired registration extension before the competent learners can be loaded for certification.
- The RIMS office partnered with the Provincial Fire & Rescue Services to develop a standardized presentation and case study that was used across the province. However, the training presentation used by the services for Dangerous Goods / Hazmat awareness training is currently too extensive and should be simplified. A practical, interactive training session using the ERG application and role play is to be focused upon using local, district case studies.
- IT IS, an engineering software programme, persists as a challenge to be deemed an incident analytical tool. Issues reported include:
 - o RRM's not able to capture information for certain fixed categories therefore the information is left uncaptured;
 - o RRM contracts deleted from IT IS when they expire or are extended.

SECTION B: CRASH DATA EVALUATION

1. CRASH STATISTICS

Effective data analysis is dependent on the accuracy of the data. The data used in this report is based on the crash data uploaded on the ITIS database. Currently the Route Managers are responsible for collecting all crash data from the accident report forms completed by the various South African Police Service stations in the area. The Route Manager's Data Capturer uploads the data to the ITIS database.

The scope of this report, although referred to as the Western Cape Provincial Summary Report, excludes crashes on provincial roads in the Western Cape, as well as the National Roads in the metropolitan area of Cape Town. The goal of this analysis is to evaluate the data and to draw a comparison between the various national roads and establish high crash locations and trends for the Western Cape Province.

The data received from the ITIS database analyzed as part of this report is for the monitoring period of January 2022 up to 13 December 2022. Although the full dataset of 2022 is not available there has been a dramatic drop in the number of crashes recorded in 2022 from that recorded in 2021. This can directly be contributed to a decrease in traffic on the national roads post the COVID-19 lock down period. Traffic volumes have been found to be at 76% compared to pre-lockdown.

2. PROVINCIAL OVERVIEW

2.1 Traffic Volumes

With the onset of the COVID-19 pandemic, major changes in traffic patterns took place in the entire country with a reduction in travel demand from 27 March 2020 when the lockdown level 5 was implemented. A significant drop in volumes was experienced on all roads. The 2019 CTO data was the last full year of data under normal demand conditions. The lower volumes were significant in 2020, but increased in 2021, as the levels of lockdown were lower. 2022 was only affected by Level 1 lockdown regulations and traffic recovered further.

The following table shows what level of lockdown was effective in each of the time periods.

Time periods affected by Covid Lockdown in South Africa 2020 to 2021

| Start | End | Normal | Lockdown level | | | | | Weeks | % of the year |
|-----------|-----------|----------|----------------|---------------|---------------|------|-------|-------|---------------|
| | | | 1 | 2 | 3 | 4 | 5 | | |
| 01-Jan-20 | 25-Mar-20 | 12 weeks | | | | | | 12 | 23 |
| 26-Mar-20 | 30-Apr-20 | | | | | | XXXXX | 5 | 10 |
| 01-May-20 | 30-May-20 | | | | | XXXX | | 4 | 8 |
| 01-Jun-20 | 17-Aug-20 | | | | XXXXXXXXXXXXX | | | 14 | 27 |
| 18-Aug-20 | 20-Sep-20 | | | XXXXX | | | | 5 | 10 |
| 21-Sep-20 | 28-Dec-20 | | XXXXXXXXXX | | | | | 12 | 23 |
| 01-Jan-21 | 28-Feb-21 | | | | XXXXXXX | | | 8 | 15 |
| 01-Mar-21 | 31-May-21 | | | XXXXXXXXXXXXX | | | | 13 | 25 |
| 01-Jun-21 | 15-Jun-21 | | | XX | | | | 2 | 4 |
| 16-Jun-21 | 30-Jun-21 | | | | XX | | | 2 | 4 |
| 01-Jul-21 | 25-Jul-21 | | | | | XXXX | | 4 | 8 |
| 26-Jul-21 | 12-Sep-21 | | | | XXXXXXX | | | 8 | 15 |
| 13-Sep-21 | 30-Sep-21 | | | XX | | | | 2 | 4 |
| 01-Oct-21 | 31-Dec-21 | | XXXXXXXXXXXXX | | | | | 13 | 25 |
| 01-Jan-22 | 05-Apr-22 | | XXXXXXXXXXXXX | | | | | 13 | 25 |
| 06-Apr-22 | 31-Dec-22 | 39 weeks | | | | | | 39 | 75 |

Note 1: Each X represents approximately one week.

Note 2: Information obtained from various sources, including newspaper articles, which are not quoted specifically. The dates are public information.

Note 3: The actual implementation dates may differ by a day from the dates shown.

TABLE B1: LOCKDOWN PERIODS THAT AFFECTED TRAFFIC FLOW 2020 TO 2022

Unfortunately, the 2022 CTO data was not available for accurate comparisons of the traffic volumes on all the

routes due to a gap in the operations of the CTO system caused by procurement issues. The CTO counts on toll roads were not affected by the procurement issue. In the absence of CTO counts over the entire network, the traffic volumes through the Huguenot tunnel were used as a base to determine the annual volumes for the crash rates.

Traffic volumes recovered as the restrictions were eased. The traffic patterns in 2022 recovered to almost pre-lockdown numbers in middle December. The total annual volume through the tunnel was 4 839 900 vehicles in 2019 (from AADT recorded at CTO stations 2 324 and 2 325 at the tunnel portal west) and 4 691 793 vehicles in 2022 from the Tunnel statistics), 96 percent of the 2019 volume. This factor was used over the entire network to assess the crash rates.

The monthly variation in traffic volumes in 2022 in the Huguenot tunnel can be seen in [FIGURE 1](#).

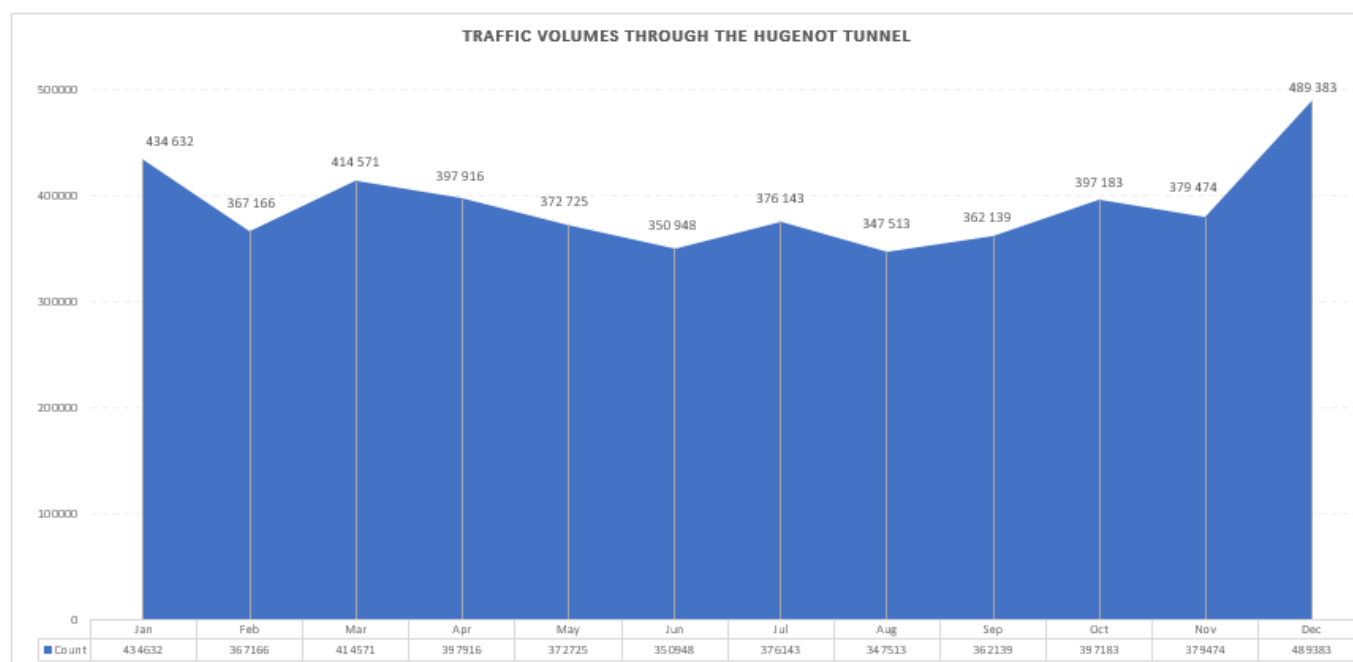


FIGURE 1: TRAFFIC VOLUMES THROUGH THE HUGUENOT TUNNEL (1 JAN 2022 TO 31 DEC 2022)

2.2 Number of crashes

Crashes in general are random events and need to be looked at over a period for sound conclusions. The period under review, 2019 to 2022, was affected by the Covid Lockdown as shown in Table B1 under traffic volumes. The period is thus not normal and there has not been sufficient research done to explain some of the patterns that come from the crash data. The higher number of crashes in 2020 and 2021 cannot be explained from the provincial data only, and a national research project is required to determine the effects of the Covid Lockdown.

[FIGURE 2](#) shows that the number of crashes throughout the province per annum for the period 2019 - 2022 varied between a peak of 1 910 in 2020 and a low of 724 in 2022. The number of crashes for 2020 (1 910) is higher than that of 2019 (1 225), which is an anomaly, as traffic volumes were lower in 2020 due to Covid lockdown regulations. The data shows a significant drop in crashes from 2019 to 2022.

By 2022, the traffic returned to 96% of the 2019 volume, so these two periods can be compared. The drop in crashes from 1 225 to 724 (41%) is significant. The cause of the reduction is not apparent.

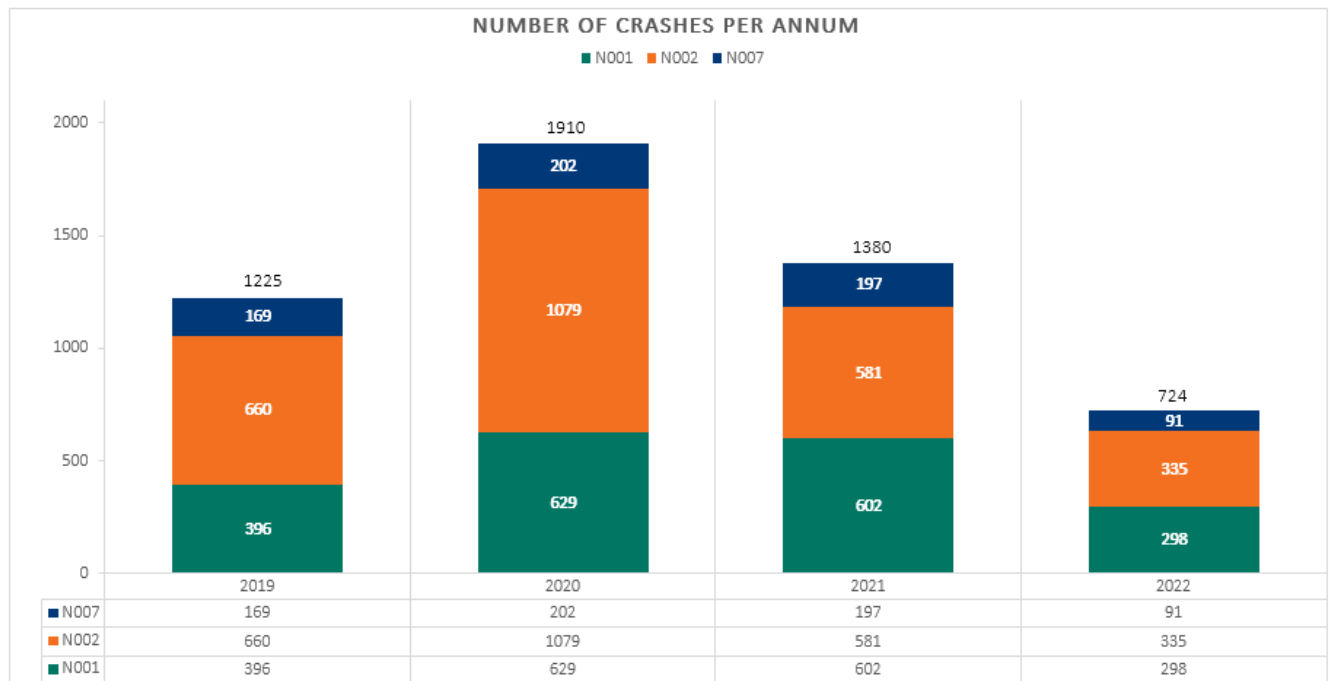


FIGURE 2: NUMBER OF CRASHES PER ANNUM (1 JAN 2022 TO 13 DEC 2022)

The data, as shown in [TABLE B2](#) and [FIGURE 3](#), show the number of crashes on the N1, N2 and N7 per year. The data of 2020 will be excluded from the following discussion, as the high number of crashes when the traffic was affected by the Covid regulations cannot be explained and is considered abnormal.

In 2019, 53 percent of the crashes on the Western Cape National roads occurred on the N2, although it is of similar length to the N1 that had 32 percent of the crashes and 13 percent on the N7.

In 2021, the proportion of crashes on the N2 decreased to 42 percent, N1 increased to 44 percent and N7 to 14 percent.

In 2022, these percentages were 46, 41 and 13 percent. The number of crashes on the N2 and N1 is now of the same magnitude, but the percentage of fatalities is higher on the N1. This may be attributed to higher speeds and longer open road sections compared to the N2.

When adding all four years' crashes, the N1 has 37%, N2 - 51%, and N7 - 13% of the total number of crashes.

| NUMBER OF CRASHES PER ROUTE | | | |
|-----------------------------|-------------|-------------|------------|
| | N1 | N2 | N7 |
| 2019 | 396 | 660 | 169 |
| 2020 | 629 | 1079 | 202 |
| 2021 | 602 | 581 | 197 |
| 2022 | 298 | 335 | 91 |
| | <u>1925</u> | <u>2655</u> | <u>659</u> |

TABLE B2: NUMBER OF CRASHES PER ROUTE

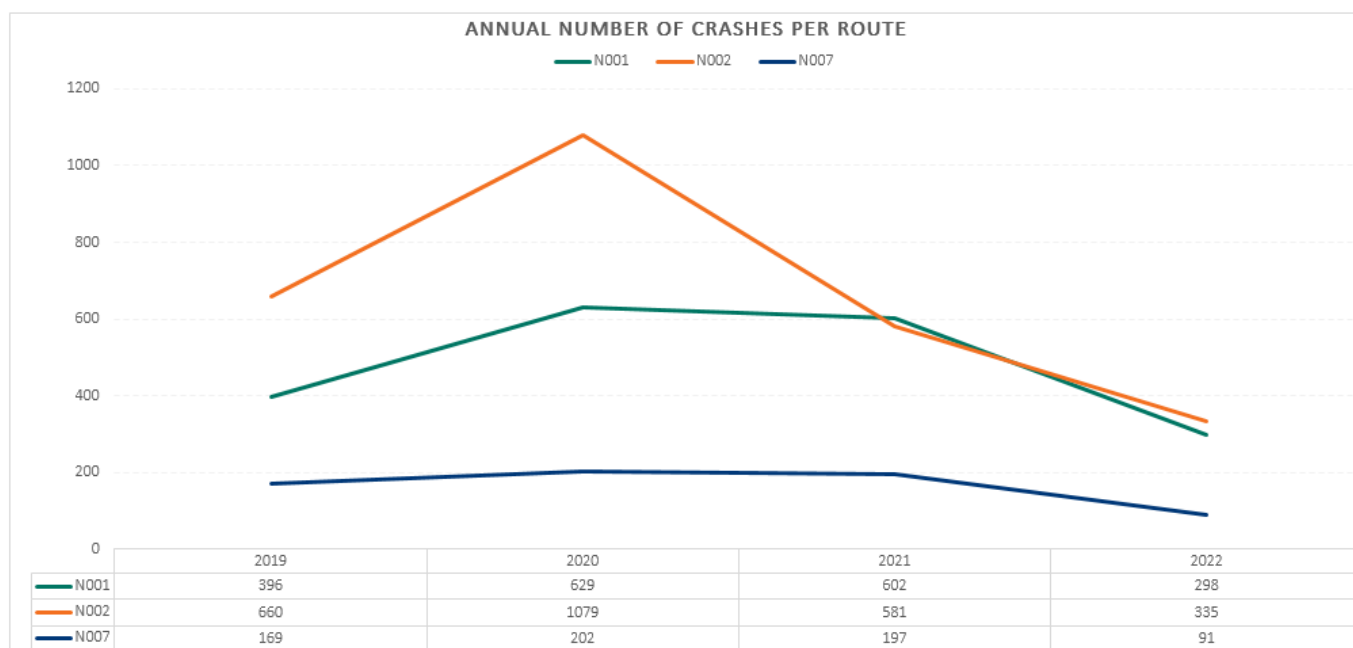


FIGURE 3: SPLIT OF CRASHES BY NATIONAL ROAD PER ANNUM (1 Jan 2019 TO 13 Dec 2022)

The number of crashes per month along the three national routes in the Western Cape Province is shown in [FIGURE 4](#) below. Several anomalies can be identified and contributed to problems with reporting of crashes.

The December 2022 figures do not cover the full month. The N2 (green line) has a low number of crashes in December 2019 and a very high number in January 2020. It can be assumed that many crashes in December 2019 was reported in January 2020.

The August 2021 N2 low number of crashes also seems to be a reporting problem. The number of crashes on the N1 (blue line) in 2019 was relatively stable with a sharp peak during December. The 2020 to 2022 monthly data varies more than 2019. December and Easter holiday periods indicate higher numbers of crashes. The number of crashes per month along the N7 (orange line) was relatively stable over the period under review, and lower in 2022 when compared to the other years.

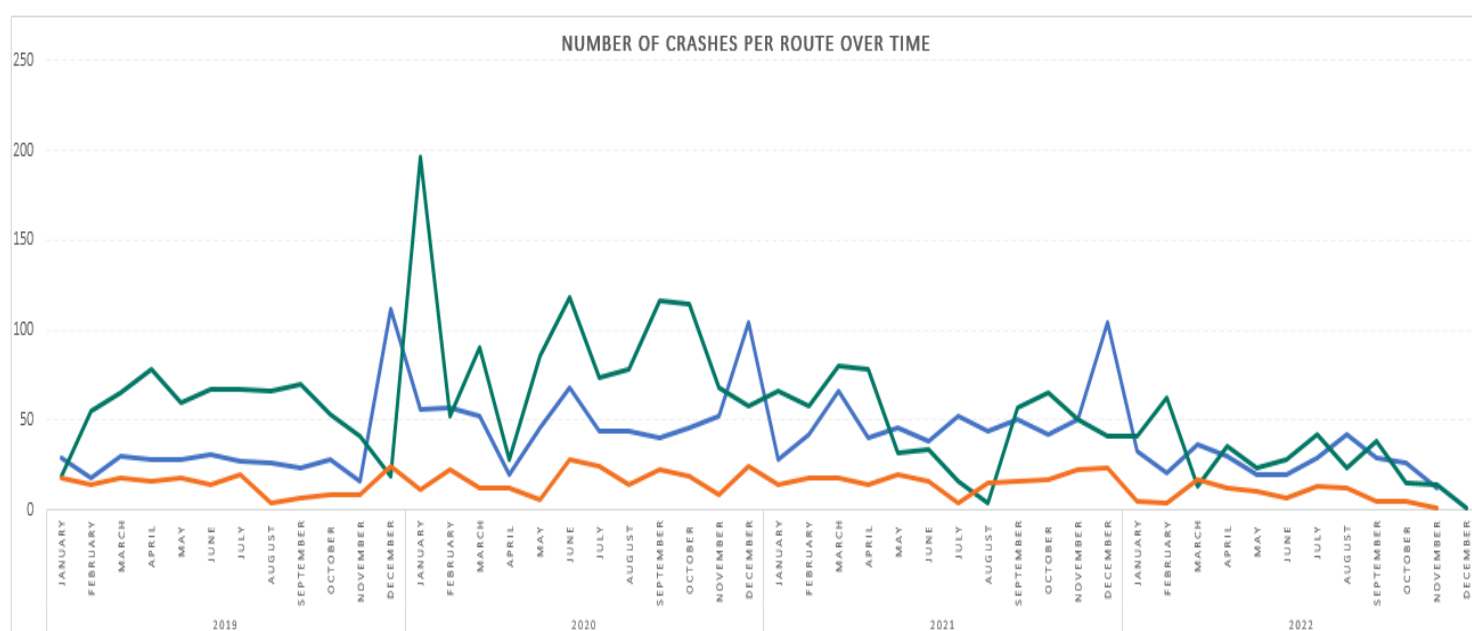


FIGURE 4: NUMBER OF CRASHES PER ROUTE OVER TIME (N1=BLUE, N2=GREEN, N7 ORANGE)

2.3 Number of Fatalities

The number of fatalities recorded per route per year is illustrated in [TABLE B3](#) and [FIGURE 5](#). In 2019 the total number of fatalities was 69 and reduced to 52 in 2022. The peaks of 108 and 110 in 2020 and 2021, respectively, cannot be explained from traffic flows, as these years were affected by Covid lockdowns and lower traffic volumes. Over the four years of analysis, the N1 had 171-, the N2 had 99- and the N7 had 69 fatalities, a total of 339- or an average of 85 fatalities per year. When comparing 2019 to 2022, there is a reduction in the fatalities of 25%.

[FIGURE 5](#) shows the distribution of fatalities for 2019 to 2022 per national road in the Western Cape. Most fatalities occur on the N1 (171) followed by the N2 (99) and N7 (69). See [TABLE B3](#).

When adding the four years' fatalities per route, the N1 has 50% of the fatalities, the N2 - 30% and N7 - 20%.

FATALITIES PER ROUTE FOR 2019 TO 2022

| | N1 | N2 | N7 |
|-------------|------------|-----------|-----------|
| 2019 | 27 | 27 | 15 |
| 2020 | 54 | 36 | 18 |
| 2021 | 56 | 29 | 25 |
| 2022 | 34 | 7 | 11 |
| | 171 | 99 | 69 |

TABLE B3: FATALITIES PER ROUTE FOR 2019 TO 2022

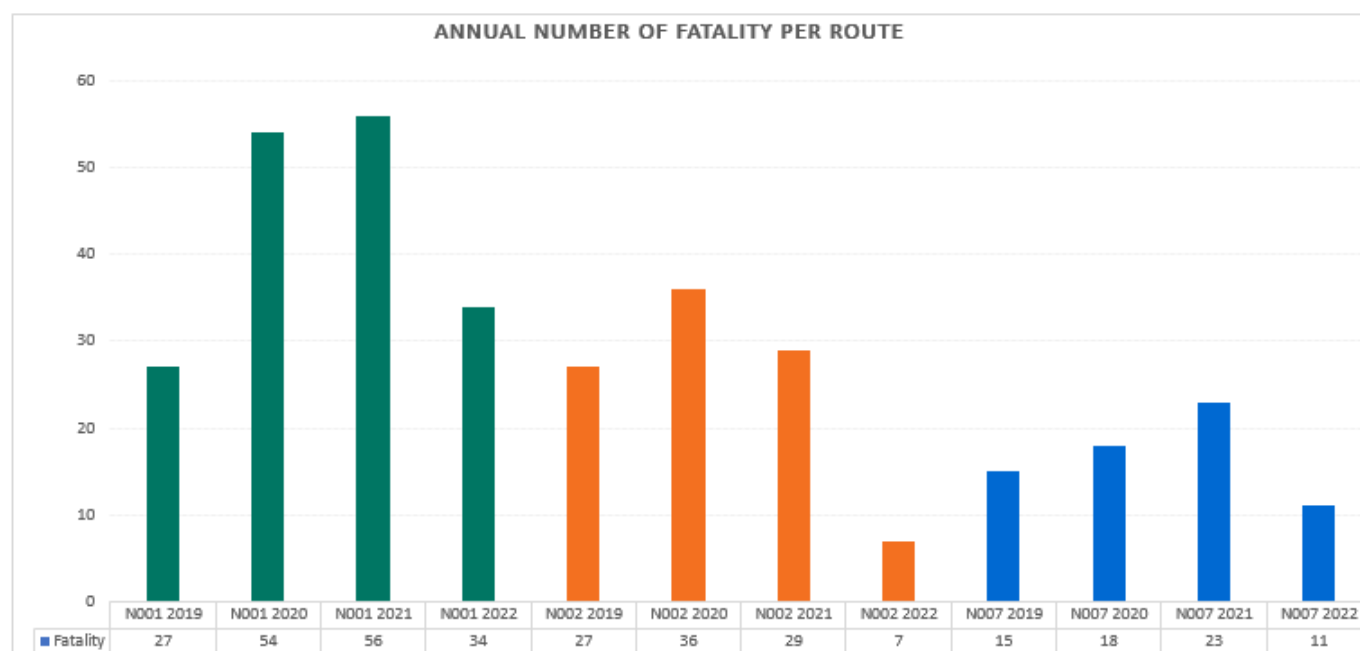


FIGURE 5: NUMBER OF FATALITIES PER NATIONAL ROAD PER ANNUM (UP TO 13 DECEMBER 2022)

The numbers of crashes ([TABLE B2](#)) and fatalities ([TABLE B3](#)) were used to calculate a fatality rate (percentage of crashes that involved a fatality). See [TABLE B4](#). The rates indicate that the N1 (overall 8.88%) and N7 (overall 10.47%) have a high risk of fatalities per crash, which may be explained by the similar high speed long open road sections that result in more severe injuries and longer distances between towns that result in longer emergency medical reaction times.

The percentage of fatalities on the N2 is much lower at 3.73%, which may be explained by the road

environment that is more pleasing and keeps drivers more alert, and numerous small towns along the route where emergency medical care is available.

RATE OF FATALITIES PER CRASH

| | N1 | N2 | N7 |
|-------------|--------------|--------------|---------------|
| 2019 | 6.82% | 4.09% | 8.88% |
| 2020 | 8.59% | 3.34% | 8.91% |
| 2021 | 9.30% | 4.99% | 12.69% |
| 2022 | 11.41% | 2.09% | 12.09% |
| | 8.88% | 3.73% | 10.47% |

TABLE B4: RATES OF FATALITIES PER CRASH (PERCENTAGE OF CRASHES WITH A FATALITY) PER ROUTE 2019 TO 2022

2.4 Crash Cause

The crash causes were grouped into four categories:

- human error,
- mechanical error,
- outside interference as well as the
- unknowns.

Drivers that were drunk, fell asleep, lost control, acted negligently or had a medical condition were all classified under human error.

Lost loads, mechanical failure and tire bursts were classified as mechanical errors.

When a driver collided with an object, animal or pedestrian or alternatively was affected by wind, it was categorized as an outside interference.

Data was reviewed for each route to illustrate the number of crashes by cause in each section. There was no significant trend in the data. The crash causes are displayed in [FIGURE 6](#) below.

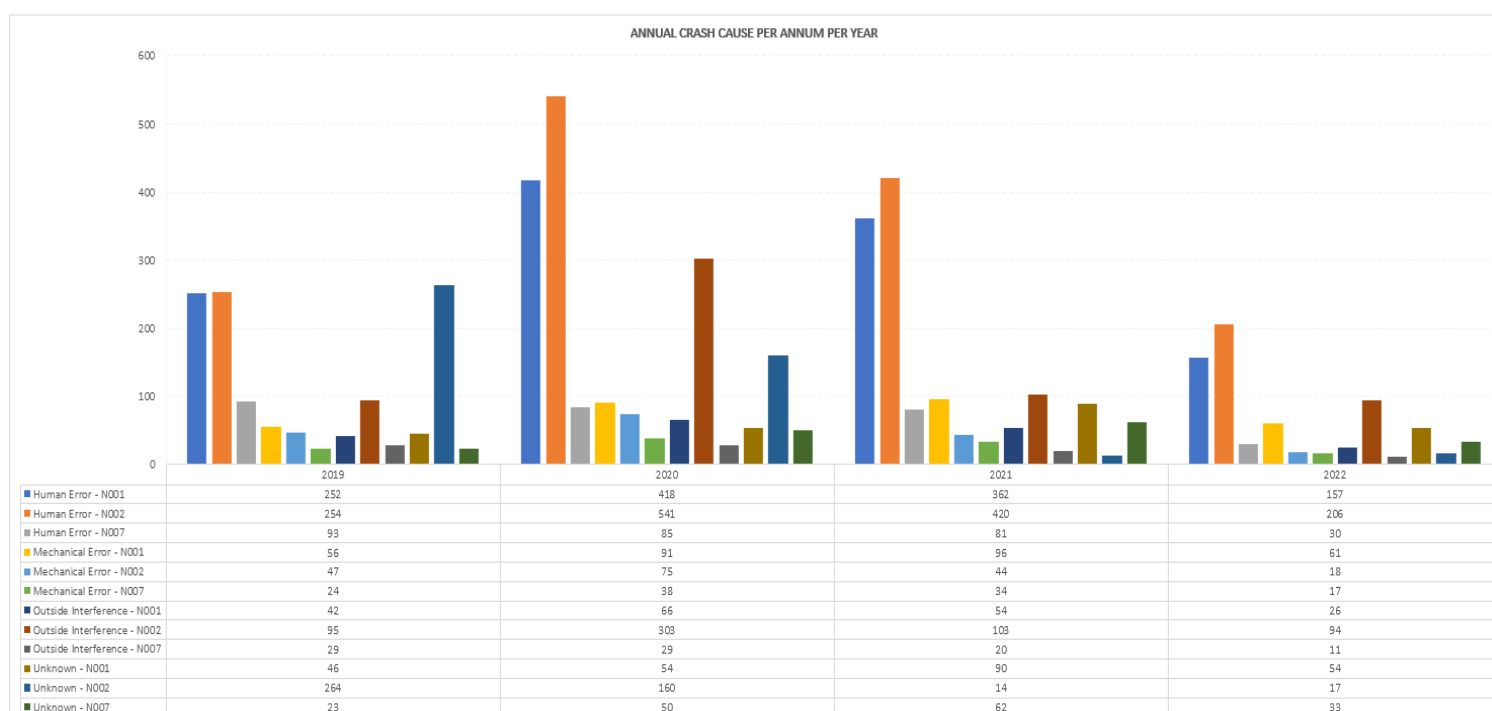


FIGURE 6: PERCENTAGE OF CRASH CAUSE PER ANNUM PER ROUTE

There is a high proportion of unknown crashes, of which proportionally the N7 is the highest. This is concerning and highlights the lack of accurate crash statistics. Between 50 and 60 percent of all crashes are due to human error or driver behavior. Drivers that lost control made up the bulk of these crashes.

3. N1: CAPE WINELANDS / CENTRAL KAROO

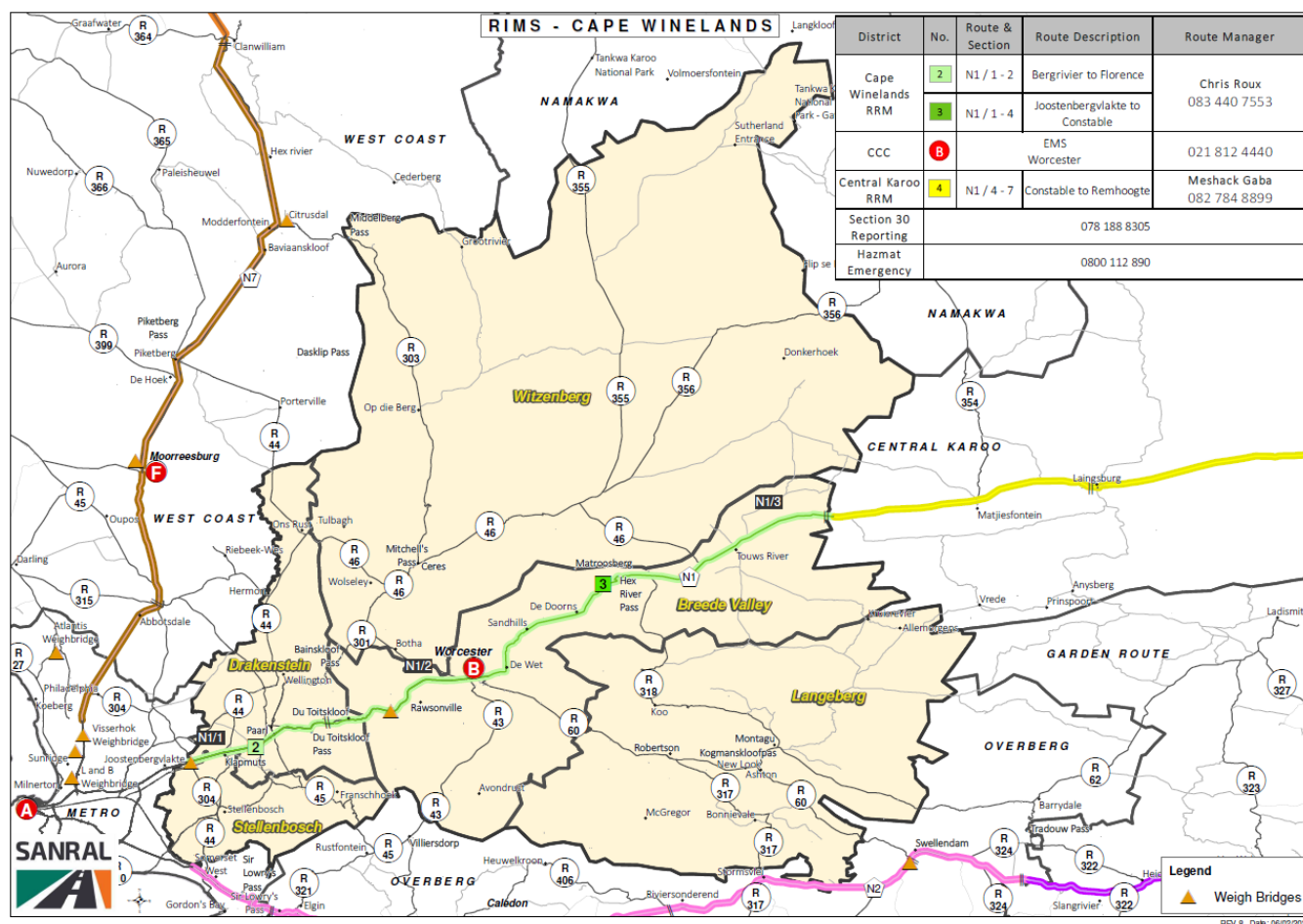


FIGURE 7: N1 GREEN LINE

The scope of this paragraph is the N1 (Refer Figure 7 above), from the western side of the Huguenot tunnel (N1-1 km 66.0) all the way to the Western Cape / Northern Cape Border at Three Sisters (N1-8 km 74.8). The route is divided into 12 sections. N1-2 and N1-6 are roughly half of the length of the other sections which average 75 kilometers per section.

3.1 Total number of crashes per section

The number of crashes recorded on the N1 for the period January 2019 to December 2022 is shown in [FIGURE 8 A and B](#) below. The number of crashes varies between 34 crashes on N1-2 to 89 crashes on N1-3. The number of crashes along N1-3 to N1-5 remains high compared to the other sections.

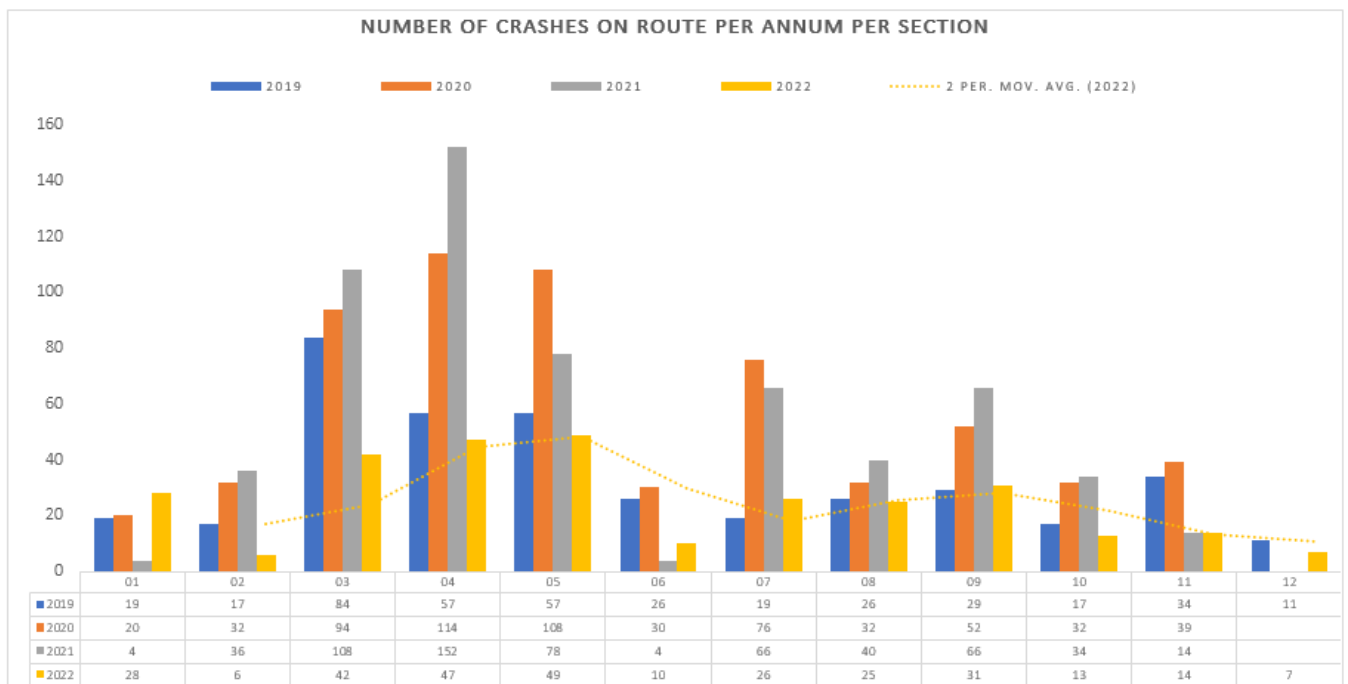


FIGURE 8A: N1 SECTION 1-12: NUMBER OF CRASHES PER SECTION (JANUARY 2019 TO 13 DECEMBER 2022)

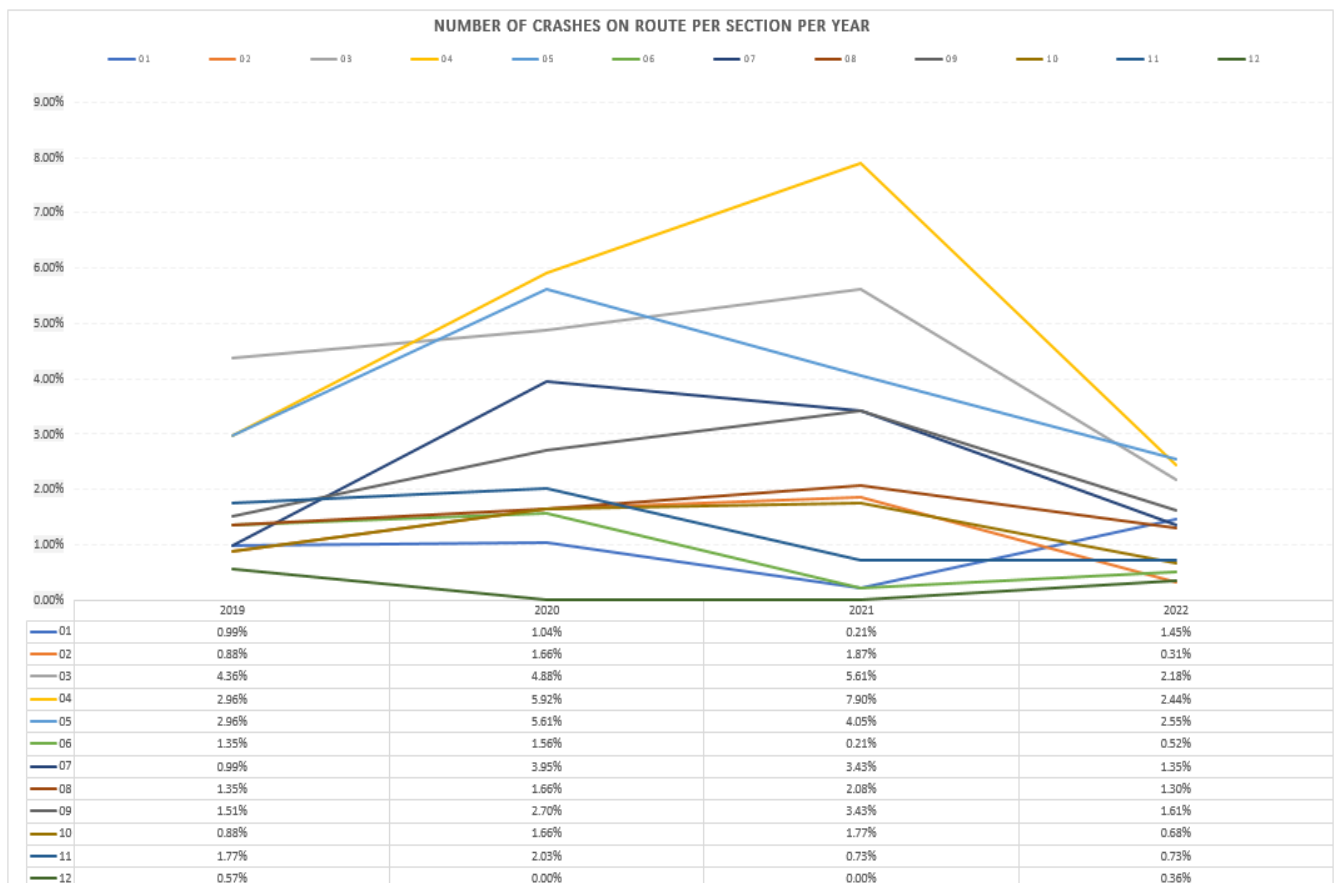


FIGURE 8B: N1 SECTION 1-12: NUMBER OF CRASHES (JANUARY 2019 TO 13 DECEMBER 2022) PER SECTION

The N1-3 to N1-5 sections have repeatedly shown to have high numbers of crashes. On N1-3 this can be contributed to higher traffic volumes and the route traversing intensive farming land up to the Hex River valley.

On N1-4 and 1-5 the high-speed open road with restricted passing opportunities may contribute to the crashes.

3.2 Crashes over time

In comparison to 2019, the number of crashes on the N1 in the Western Cape reduced by 25%, but the fatalities increased by 26%. The increase in fatalities (from 27 to 34) is from a low base and may indicate a change in cause of crashes: it can be misleading as the difference of 7 could have resulted from a single public transport crash. Refer [Table B5](#) below.

N1 FATALITIES, CRASHES AND RATES 2019 TO 2022

| Year | 2019 | 2020 | 2021 | 2022 | Total |
|------------|-------|-------|-------|--------|-------|
| Fatalities | 27 | 54 | 56 | 34 | 171 |
| Crashes | 396 | 629 | 602 | 298 | 1925 |
| Rate | 6.82% | 8.59% | 9.30% | 11.41% | 8.88% |

TABLE B5: N1 FATALITIES, CRASHES AND RATES 2019 TO 2022

The analysis of the number of crashes per month (Refer [Figure 9](#) below) to determine which months are riskier to drive, shows in Figure 14 that for 2019 and 2022 the patterns are reasonably similar with small peaks in holiday periods. The 2020 and 2021 patterns show higher numbers and wider variability, confirming that these periods cannot be regarded as not normal.

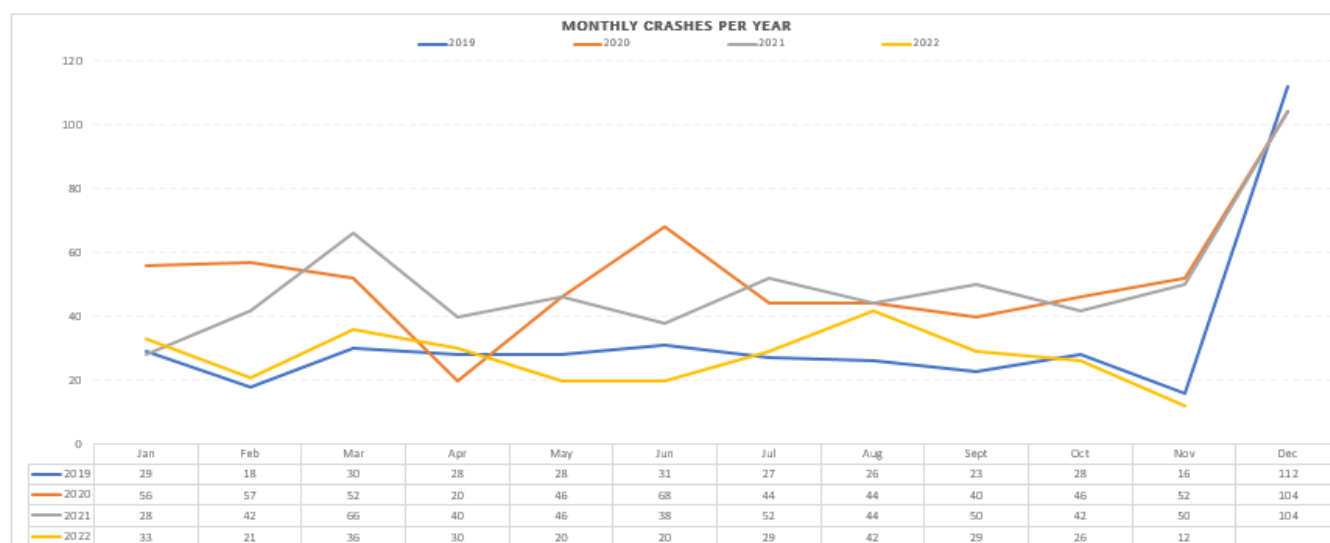


FIGURE 9: N1 – NUMBER OF CRASHES PER MONTH ON THE N1 FOR 2019 TO 2022

3.3 Severity of injuries

The recorded injury severities are shown in [FIGURE 10](#) for each year. Accident report forms completed for minor crashes at police stations typically do not reflect injuries. Any vehicle crashes that result in injuries are required by law to be investigated by either SAPS or Traffic on scene and are usually more reliable.

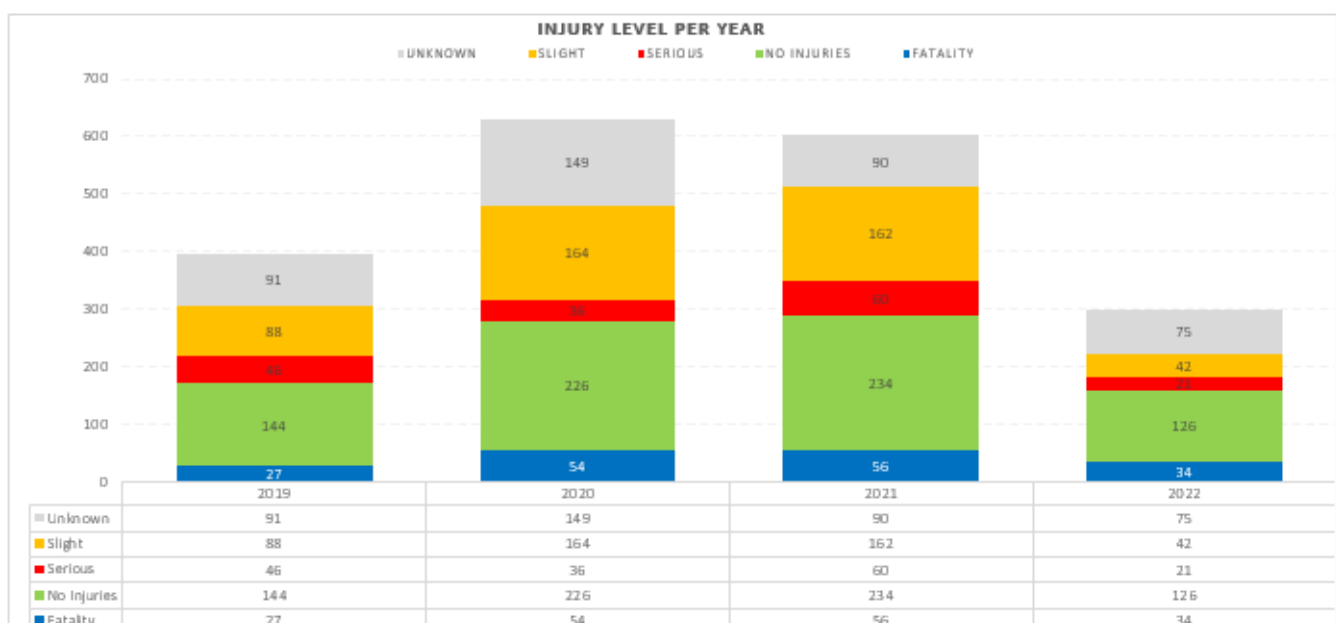


FIGURE 10: N1: SEVERITY OF INJURY TYPE (NUMBER OF CRASHES)

The analysis for severity of injuries is restricted to 2019 and 2022. See Table B6. As previously indicated the low number of fatalities (27 and 34) and the effect of one mini-bus taxi crash on these numbers, does not lead to making significant deductions from the increase, where the rate of fatalities to all crashes per year increased from 6.8% to 11.4%. This is also true for the decrease in serious injuries from a rate of 11.6% to 7.05%. No injuries had a rate of 36.4% in 2019 and increased to 52.3% in 2022. During 2022, 25% of “unknown” injuries were recorded for all the routes covered in this report, up from 22% in 2019. Overall, nearly 40% of crashes required medical assistance as some form of injury was reported. This indicates the need for crash management on the route.

N1 INJURY SEVERITY PERCENTAGES 2019 TO 2022

| N1 | 2019 | % | 2020 | % |
|-------------|------|---------|------|--------|
| Fatal | 27 | 6.82% | 34 | 11.41% |
| Serious | 46 | 11.62% | 21 | 7.05% |
| Slight | 88 | 22.22% | 42 | 14.09% |
| No injuries | 144 | 36.36% | 126 | 42.28% |
| Unknown | 91 | 22.98% | 75 | 25.17% |
| Total | 396 | 100.00% | 298 | 100% |

TABLE B6: INJURY SEVERITY PERCENTAGES 2019 TO 2022

4. N2: OVERBERG / GARDEN ROUTE

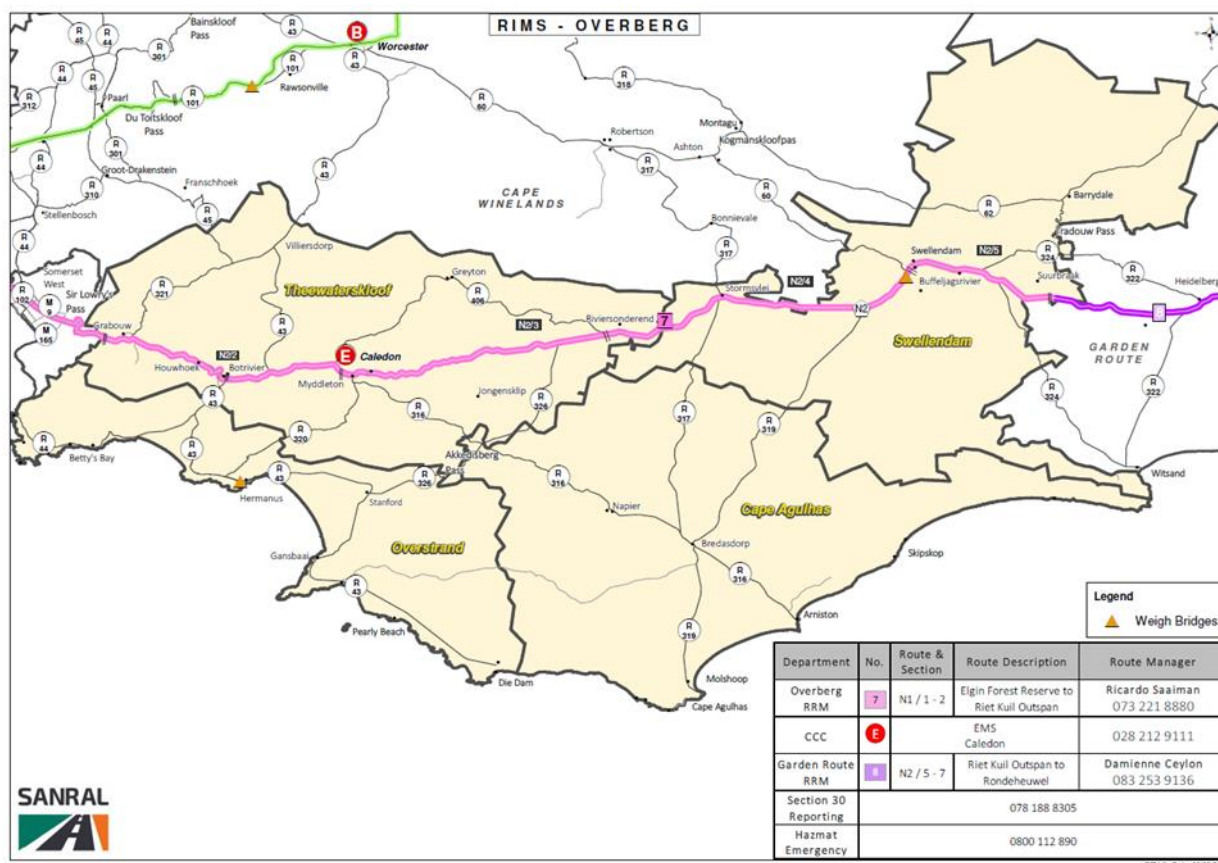


FIGURE 11: N2 PINK LINE

The crash data for the N2, from Sir Lowry's Pass (N2-2 km 9.0) in the west to Soutriver (N2-8 km 80.8) on the eastern side of Plettenberg Bay, is analyzed. (Refer to Figure 11 above)

4.1 Total number of crashes per section

The number of crashes per section (8 sections) recorded on the N2 for the period of January 2019 to December 2022 is shown in FIGURE 12 below. The number of crashes on the N2-2 and N2-8 is much higher when compared with the other five sections, N2-3 to N2-7. The higher number of crashes can partly be attributed to the higher-than-average traffic volumes, mountain passes and informal settlements at Grabouw on N2-2 whilst N2-8 is longer than the other sections (apart from N2-6) and includes urban areas such as Knysna and Plettenberg Bay.

The increases in number of crashes on all the sections except Section 2 from 2019 to 2020, the year most affected by Covid lockdown and reduced traffic volumes, cannot be explained and more research on all SANRAL roads are required.

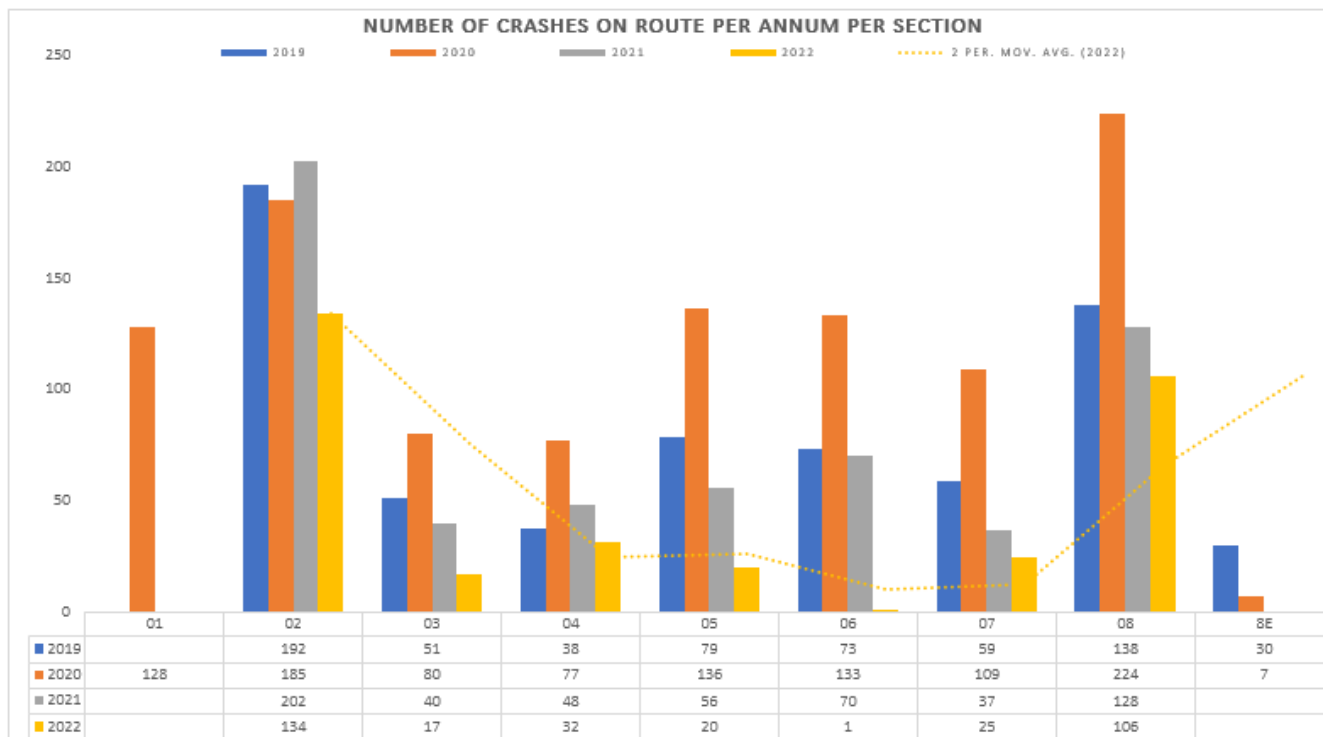


FIGURE 12: N2 SECTIONS 2 TO 8: NUMBER OF CRASHES PER SECTION

4.2 Crashes over time

The number of crashes in 2022 along the N2 is noticeably lower when compared to the average from 2019 to 2022. The crashes per month during 2022 (as shown in [FIGURE 13](#)) show expected numbers of crashes in January and February and the number of crashes for the rest of 2022 remaining relatively low. The number of crashes in March 2022 was particularly low.

In general, the N2 carries a high percentage of seasonal / holiday traffic.

The high numbers of crashes in 2020 cannot be explained. The number of crashes in the middle of 2021 is on the other hand unexpectedly low. As such, the crash numbers for 2020 and 2021 are excluded from analysis.

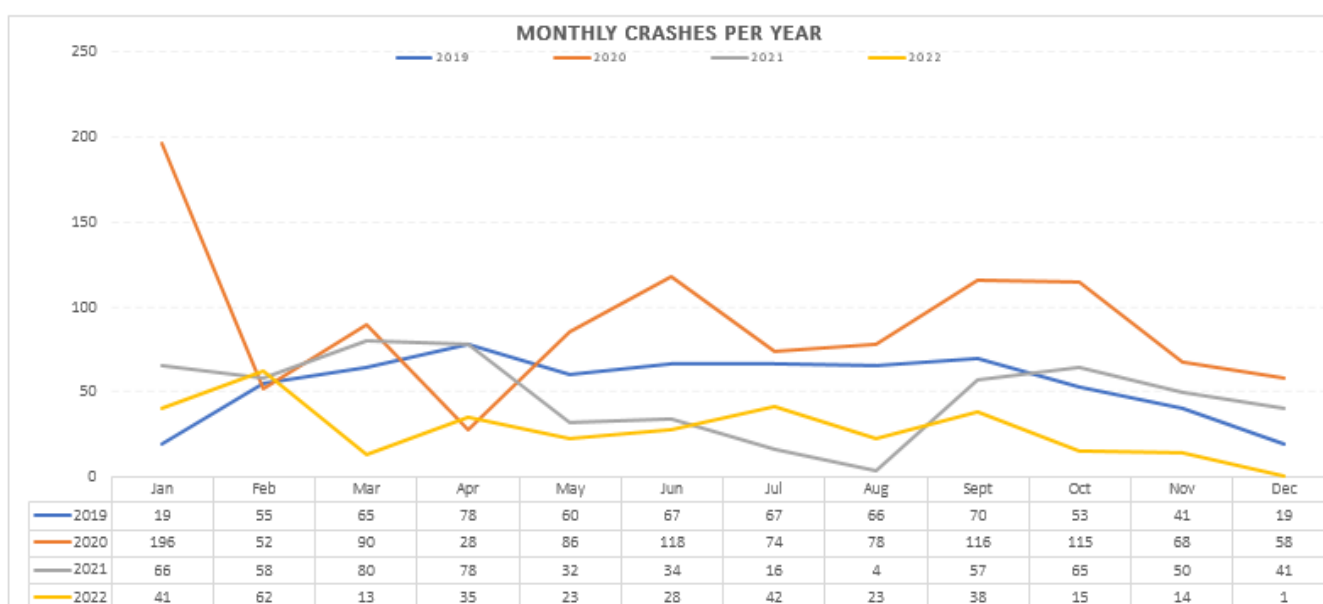


FIGURE 13: N2 – NUMBER OF CRASHES PER MONTH

4.3 Severity of injuries

The injury severity levels are shown in [FIGURE 14](#). Similar to the N1 and N7, a large percentage of “unknowns” were recorded during 2017. From the table and graph it is evident that crashes were lower during 2022. The number of fatal crashes dropped from approximately four percent to two percent during 2022. The other levels of injury are of similar patterns between 2019 and 2022.

N2 INJURY SEVERITY PERCENTAGES 2019 TO 2022

| N2 | 2019 | % | 2020 | % |
|-------------|------|---------|------|---------|
| Fatal | 27 | 4.09% | 7 | 2.09% |
| Serious | 49 | 7.42% | 22 | 6.57% |
| Slight | 124 | 18.79% | 52 | 15.52% |
| No injuries | 336 | 50.91% | 179 | 53.43% |
| Unknown | 124 | 18.79% | 75 | 22.39% |
| Total | 660 | 100.00% | 335 | 100.00% |

TABLE B7: INJURY SEVERITY PERCENTAGES 2019 TO 2022

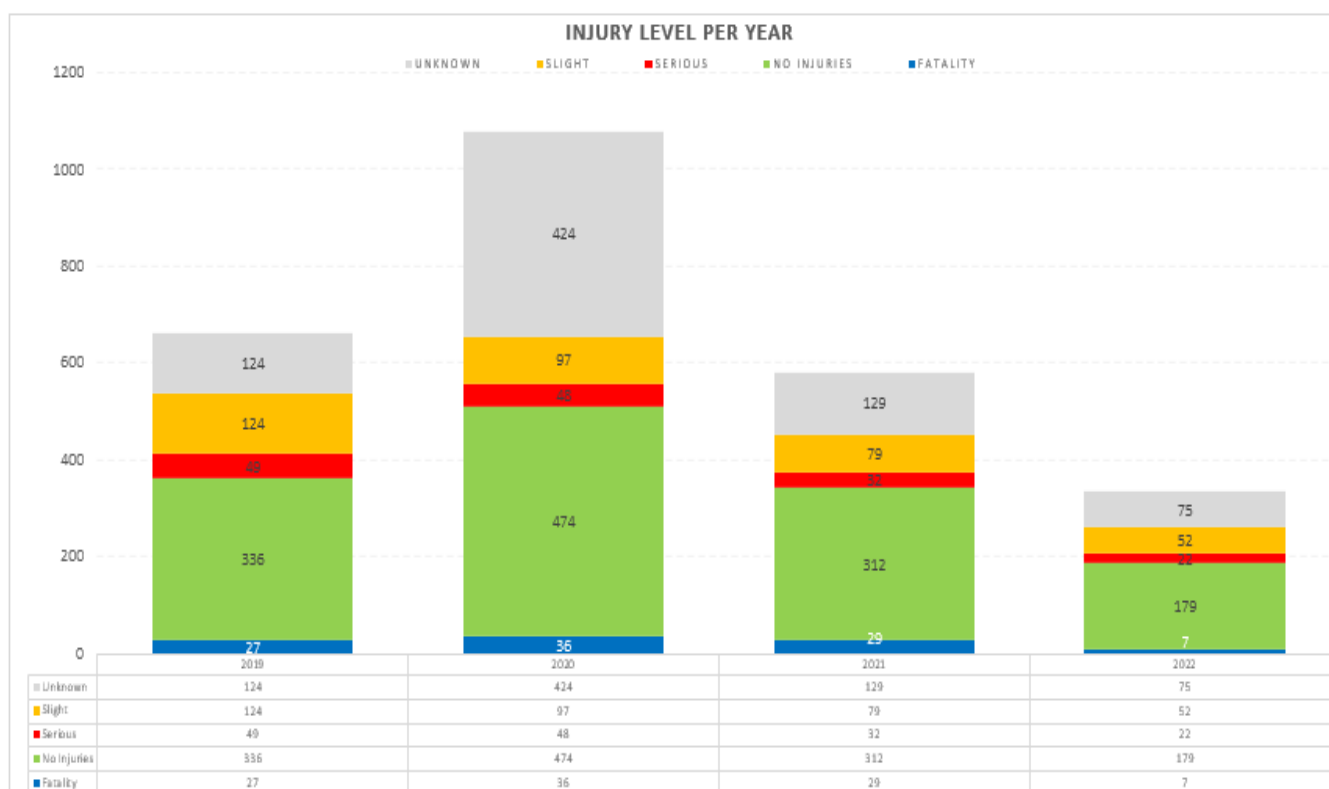


FIGURE 14: N2 SECTION 2-8: SEVERITY OF INJURY (NUMBER OF CRASHES)

5. N7: WEST COAST



FIGURE 15: N7 ORANGE LINE

Crash data for the N7, from Melkbosstrand interchange (N7-1 km 18.0) to the Western Cape / Northern Cape boundary (N7-6 km 30.0), were analyzed in this paragraph of the report. (Refer to Figure 15 above). There are 6 sections along this route.

5.1 Total number of crashes per section

The number of crashes recorded along the N7 is shown in FIGURE 16 below. There is some variation in the number of crashes with the most crashes (40) recorded along N7-3 (Moorsburg to Clanwilliam). This could also be attributed to the length of the section (127 kilometers), which is the longest of the road, as well as the location of Pienekierskloof Pass within this section. Section 2 and Section 6 are relatively short sections of approximately 30 kilometers.

The anomaly identified in the previous sections where the 2020 and 2021 number of crashes are higher than in 2019, despite the lower economic activity and reduced travel, is very evident in Section 3, but not so in the other sections. There is no clear explanation for this.

There is a reduction in the number of crashes from 2019 to 2022.

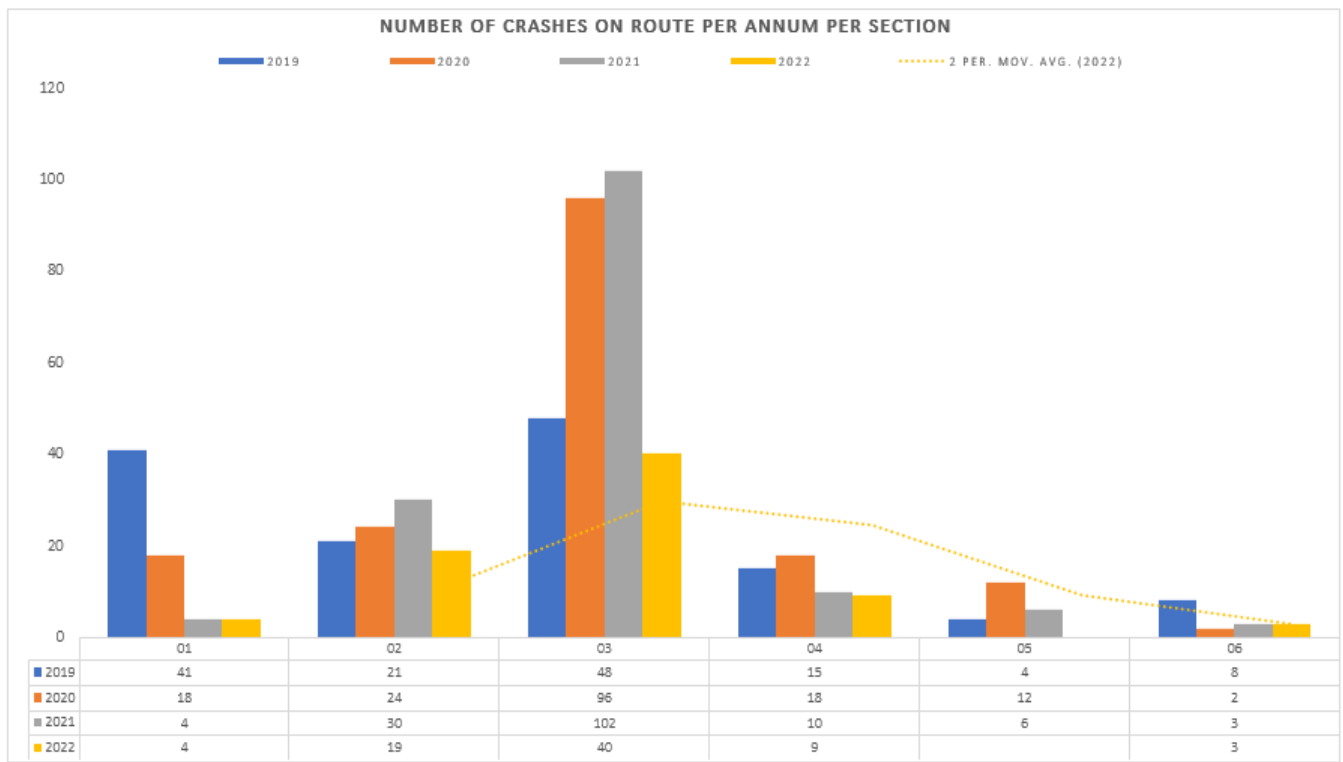


FIGURE 16: N7 SECTION 1-6: NUMBER OF CRASHES PER SECTION

5.2 Crashes over time

The number of crashes in 2022 along the N7 is considerably lower when compared to the average from 2019 to 2022. There was also a sharp decrease in crashes per month from July 2022 (as shown in [FIGURE 17](#))

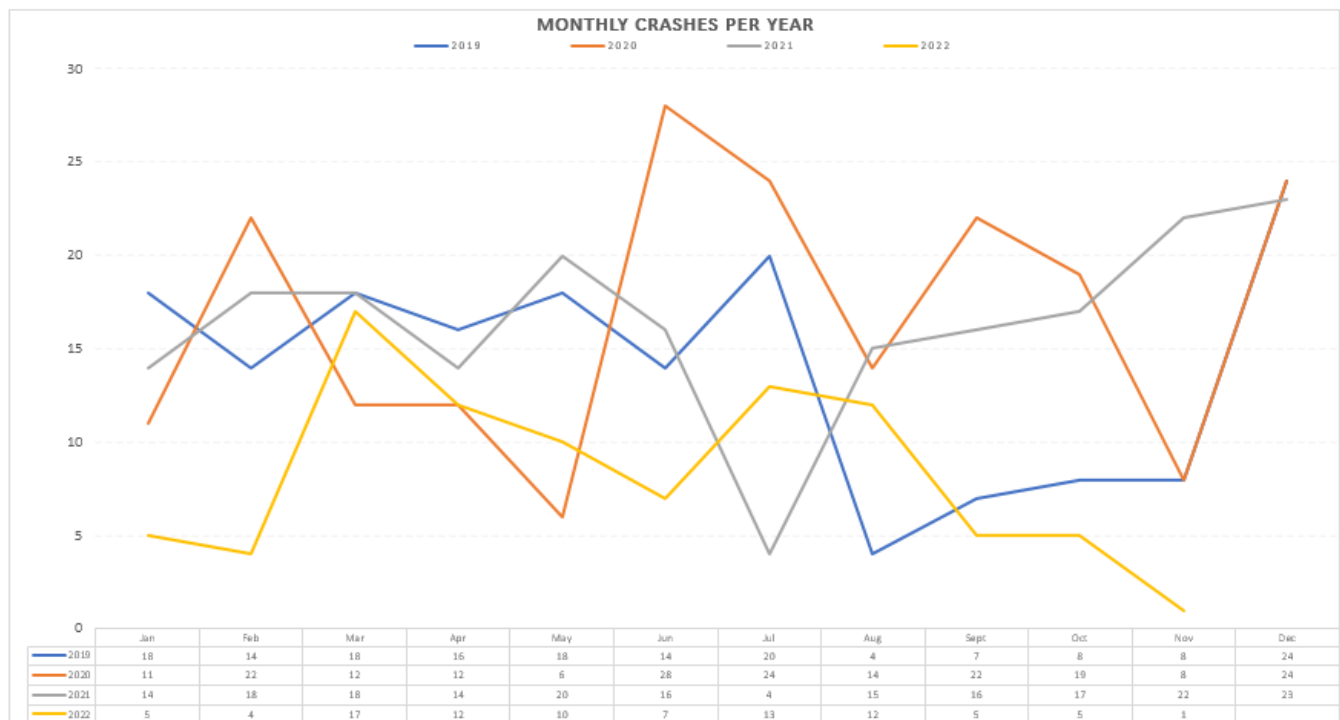


FIGURE 17: N7 – NUMBER OF CRASHES PER MONTH

5.3 Severities of injuries

The recorded injury severities against the total number of crashes over each year is shown in [Table B8](#) and [Figure 18](#). Similar to the N1 and N2, a large percentage (22%) of “unknowns” were recorded during 2022. Crashes recorded reduced from 169 in 2019 to 91 during 2022, however, proportionally the number of fatal crashes increased from 8.9% to around 12%. This is much higher than the 2% along the N2 but similar to the 11% along the N1. This indicates that although there are less crashes on the N7, they are generally of a more serious nature. The long road sections between the towns and villages may contribute to slower emergency medical response.

N7 INJURY SEVERITY PERCENTAGES 2019 TO 2022

| N7 | 2019 | % | 2020 | % |
|-------------|------|---------|------|---------|
| Fatal | 15 | 8.88% | 11 | 12.09% |
| Serious | 17 | 10.06% | 6 | 6.59% |
| Slight | 31 | 18.34% | 20 | 21.98% |
| No injuries | 79 | 46.75% | 34 | 37.36% |
| Unknown | 27 | 15.98% | 20 | 21.98% |
| Total | 169 | 100.00% | 91 | 100.00% |

TABLE B8: INJURY SEVERITY PERCENTAGES 2019 TO 2022

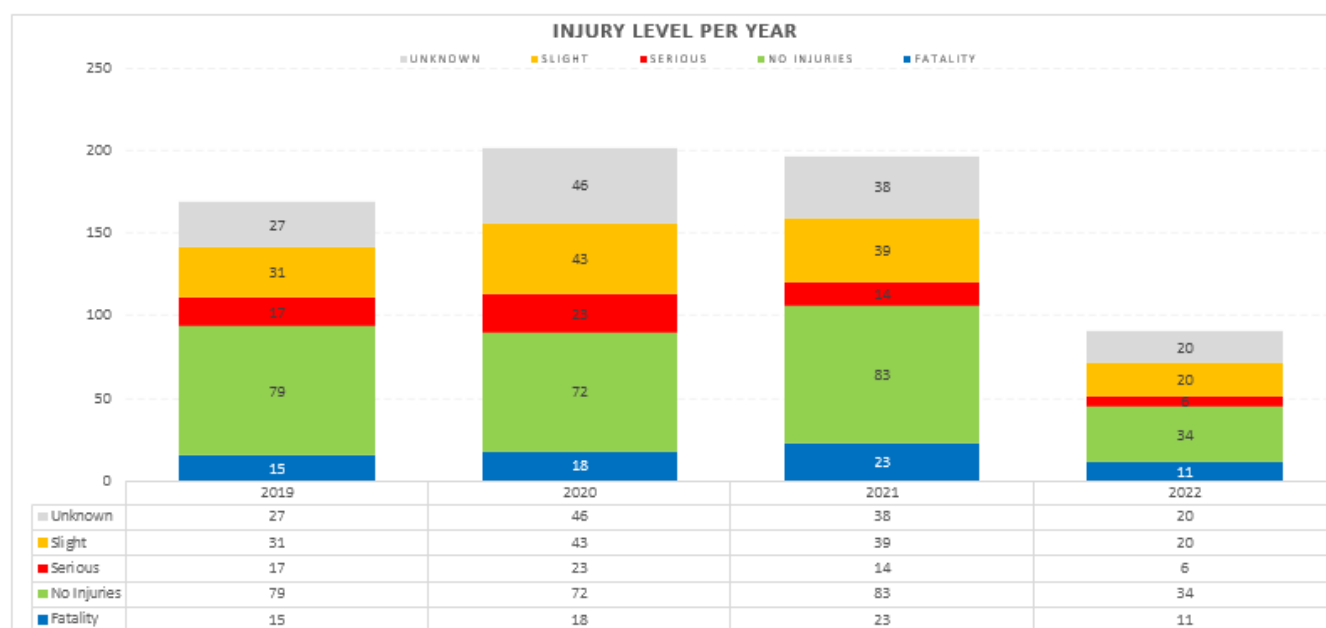


FIGURE 18: N7 SECTION 1-6: INJURY TYPE PER SECTION

6. HAZARDOUS LOCATIONS

Hazardous locations have been identified by the RRM's and are shown below in Table B9.

TABLE B9 shows 28 sites that were identified with safety risks. At most of the sites, no further investigations are currently required. However, these sites need to remain on the list for monitoring purposes to determine if the crash rates are changing.

At 10 of these sites, Road Safety Appraisals have already been done which will be monitored to verify if the mitigations measures proposed in the reports are implemented and effective.

TABLE B10 lists the 16 locations where further investigations may be needed to determine the cause and extent of the challenges experienced at these crash hotspots. The sites with specific pedestrian risks were considered as candidates for Road Safety Appraisals, and three appraisals were awarded to tenderers.

It might be that several of these sections are related to random events that resulted in a large number of serious injuries and / or fatalities. Discussions with the relevant Route Managers are required before Road Safety Appraisal are conducted.

TABLE B9 HAZARDOUS LOCATIONS (MONITOR ONLY)

| RRM | Route / Section | Area Known As | Description of Hazard | Proposed Intervention | Status / Mitigations Implemented |
|-----|------------------------------|---------------------------|--|--|---|
| CR | N1-1 Km 68,6 to km 69,2 | Du Toitskloof | Road narrow on the left and R101 joins from the right. Movement of vehicles hazardous | Monitoring (geometric issue) | Ongoing / None |
| CR | N1-2 km 6,8 to km 25,4 | Florence to Worcester | 2+1 lane configuration | Additional bump type road studs on centre line. | Ongoing / Long term, add additional lanes through this section. |
| CR | N1-2 km 25,6 to N1-3 km 3,6 | Worcester | Intersections | Enforcement | Ongoing / HV signs at approaches to intersections |
| CR | N1-3 km 3,6 to km 19,0 | Worcester to Sandhills | Road narrow, minimum surfaced shoulders. | Enforcement (patrolling) | Ongoing / Warning and regulatory signs. |
| CR | N1-3 km 19,7 to km 24,5 | De Doorns -farms | Peri-urban environment, pedestrians along the road, Farm vehicles crossing National Road, Illegal trading / alleged assault of motorists | Enforcement | Improvement / Pedestrian paths constructed / Fewer incidents / Road signs and enforcement / Ongoing |
| CR | N1-3 km 24,5 to km 31,2 | De Doorns | Urban environment / Pedestrians crossing the road / Vehicles stopping next to or on National Road / Accesses | Enforcement / PLO to inform residents through ward members, Information sessions with communities / Geometric Assessment | Ongoing / HV signs at approaches to intersections |
| CR | N1-3 km 44,2 to km 48,6 | Hex Pass, direction south | Steep up and down grades / Sharp bends | Monitoring and enforcement | Ongoing / Road signs and enforcement |
| CR | N1-3 km 65,78 | Ceres R46 intersection | Side road junction. Road users tend not to stop at intersection | Enforcement | Ongoing |
| CR | N1-3 km 72,1 to N1-4 km 2,4 | Touwsrivier | Urban environment / Pedestrians crossing the road | Enforcement, PLO to inform residents through ward members. Information sessions with communities | |
| CR | N1-1 km 66.0 to N1-3 km 68.0 | Du Toitskloof | Geometric layout | Monitoring (Geometric upgrade) | |
| AB | N2-7 KM 21.6 to KM 27 | George | People are staying close to road and use the road as walkway. Contractor pick-up their labours next to road. | Repair current footpath that is inside the road reserve. Interact with pedestrian to see what we can do so that they will use our current walkway. | |
| AB | N2-8 Km 31.6 to Km 35 | | People are staying close to road and use the road as walkway. Contractor pick-up their labours next to road. | Repair current footpath that is inside the road reserve. Interact with pedestrian to see what we can do so that they will use our current walkway. | |

| | | | | | |
|----|-----------------------------|-------------------------|---|--|---|
| AB | N2-7 | Pacaltsdorp | Fence been broken down frequently. | We currently repair it as soon as it is broken. Long term will have to put up a more long-lasting fence. | |
| JB | N7-3 km 13.100 to km 13.100 | Die Brug Misverstand | Motorists approaching the T-junction do not stop at the Stop sign. The crashes occur frequently and mainly at night. Motorists sometimes overtake on the barrier lines. | High visibility road signage and repainting of road marking every six months or after the rainy season. Construction of a dedicated right turning lane. | New T-junction staggered and concealed signs were erected in the North Bound direction. Road marking was done. |
| JB | N7-3 Km 26.3 | PPC Turn Off – Die Hook | Motorists approaching the intersection does not stop at the Stop signs when they want to join onto the N7. Thick misty during a winter season causing driver to misjudge the cars driving on a high speed on N7. | The intersection junction needs to be upgraded in the next road construction project. Provision need to need to be made for the HMTV coming and going to PPC Cement Manufacturer | Erection high visibility diamond-graded STOP signs on both sides of the road were erected. Road marking was done. |
| JB | N7-3 km 55.500 | Porterville T-junction | Motorists approaching the intersection does not stop at the Stop signs when they want to join onto the N7. The crashes occur frequently and mainly at night. | Provisional Road Department to add more high visibility road signage, rumble strips or speed humps and painting of road markings as the motorist approached the stop sign before joining onto the N7 No speed limit on the R44 (Provincial Road) when approaching the T-junction. The T-junction sign is not retroreflective and there is no commentary sign at the bottom. | Road marking was done |
| JB | N7-3 km 75.100 | Ceres T-junction | Motorists approaching the intersection does not stop at the Stop signs. The crashes occur frequently and mainly at night. | Recommend high visibility road signage and speed limit restriction on the R303 (Provincial Road). Motorists driving on the N7 do not expect to encounter speeding vehicles that don't stop at the Stop sign for the T-junction. | Road markings were repainted in October 2019. Rumble strips were installed under the Reseal Project Of Piekenierskloof Pass between August 2017 and March 2018. The situation improved after the road markings were repainted and after the installation of the Vuka Road Studs. |
| JB | N7-3 km 79.400 | Snoop Garage | Motorist approaching the T-junction do not stop at the Stop sign. HMTV joining onto N7 they are moving in a slow speed. The crashes occur frequently and mainly at night. The stop sign is on a slightly inclined area, and this | To raise the entrance and exit to the height of the N7 or move the entrance and exited to a safe location on N7 and add a dedicated right-turn lane. | Road marking were repainted. The stop sign was changed to diamond-grade material which provides a high retro-reflective |

| | | | | | |
|----|-------------------------|--|--|---|---|
| | | | occasionally causes a problem for some heavy motor vehicles. | | background. The situation remained unchanged. |
| MG | N1 4 km 81.4 to km 81.6 | Laingsburg | Pedestrians/ Speeding | Road signage / traffic lights to be fixed | Erect Road signs and fix Traffic lights |
| MG | N1-6 km 39.4 | Leeu Gamka | Pedestrians/ Speeding | Bridge light to be fixed | Pedestrians are crossing the road. Fix bridge light |
| MG | N1-6 km36 to km 39.4 | Leeu Gamka | Fatigue/ Speeding/ Crashes | Engage provincial roads on fatigue management awareness | Engage Provincial roads on fatigue management awareness |
| RS | N2-2 km18.83 | Siyanyanzela / Siteview / Peregrine | Pedestrians and domestic animals are mostly affected. This is due to lack fencing in the area due vandalism and theft. Also signage in the area has completely been vandalised and motorists are not warned enough to mind their speed to avoid domestic animals and pedestrians. | Proposed any type of signage that does not use Steel and Wooden posts. Also to use an alternative fence that cannot be vandalised so easily. | None, but monitoring the area |
| RS | N2 2 km 38.0 to km 43.0 | Houwhoek Pass | Speeding of vehicles and losing control especially the west bound when it is wet. | More visible signage Illuminated warning signs and road studs for the entire Houwhoek pass | None |
| RS | N2 3 km 0.0 to km 4.0 | Caledon / Middleton | Vehicles speeding Pedestrian walking and hitchhiking in the area | Warning road signage | None |
| RS | N2 2 km 50.0 to km 55.0 | Langhoogte / Dassiesfontein | Speeding of vehicles and losing control. | More visible signage Illuminated warning signs and road studs around sharp bends | None |
| RS | N2 2 km 32.0 to km 37.4 | High Rising / Knoffoskraal / Houwhoek Farm Stall | Pedestrians and domestic animals | More visible signage Illuminated warning signs and road studs. | None |
| RS | N2 4 km 44.2 to km 44.3 | Bredasdorp Turnoff (R319) | Driver seem to miss the STOP ahead High visibility sign on the R319 and drive through the N2 into the farm. | More aggressive Rumble strips needed on the R319 approach to the N2. Illuminated warning signs and road studs. | None |
| KM | N1 8 km 37.5 to km39.2 | Remhoogte | Rocks falling inside the road | Slope stabilization | Slope stabilization in progress |

TABLE B10 HAZARDOUS LOCATION REGISTER (INVESTIGATIONS REQUIRED)

| Route | Kilometer | Area known as | Status | Description of hazard |
|-------|-----------------|---------------------------|----------|---|
| N1-01 | 68,6-69,2 | Du Toitskloof | | Road narrows, R101 joins from the right. Movements hazardous |
| N1-02 | 6,8-25,4 | Florence to Worcester | | 2+1 lane configuration |
| N1-03 | 19,7-24,5 | De Doorns -farms | Done | Peri-urban environment, pedestrians along the road |
| N1-03 | 3,6-19,0 | Worcester to Sandhills | | Road narrow, minimum surfaced shoulders. |
| N1-03 | 44,2-48,6 | Hex Pass, direction south | | Steep up and down grades / Sharp bends |
| N1-03 | 65.78 | Ceres R46 intersection | | Side road junction. Road users tend not to stop at intersection |
| N1-03 | 72,1- N1-04 2,4 | Touwsrivier | Proposed | Urban environment / Pedestrians crossing the road |
| N1-04 | 81,4-81,6 | Laingsburg | Proposed | Pedestrians /Speeding. Public transport. Hospital |
| N1-06 | 36-39,4 | Leeu Gamka | Done | Fatigue /Speeding /Pedestrians |
| N2-05 | 51 | Heidelberg | Proposed | Pedestrians and public transport |
| N2-05 | 79.8 | Riversdale | | Pedestrians crossing |
| N2-06 | 37 | Albertinia | Proposed | Pedestrians and public transport |
| N2-07 | 0.0 to 32 | Dual carriage way | | Grootbrak to George: Edge build up: hazard |
| N2-08 | 61.8 | Old Nick | Done | Increase of vehicles and pedestrians Market every Wednesday |
| N7-03 | 79.40 | Sonop Motors | | Fatal incidents. Entrance to Sonop Motors a potential hazard. Speed reduction analysis |
| N2-02 | 64.3 | Greyton/Klipheuwel | | 13hr count to be done & development rights of both truck stop/loading depot to be confirmed |

7. EMERGENCY SERVICES INPUT

As part of the RIMS process, comments and feedback about the possible hazardous locations are requested at all the Steering Committee meetings. Below is the list of hazardous locations identified by emergency services and other role-players. Proposed mitigation measures should be discussed with SANRAL and other role-players.

8. ROAD SAFETY APPRAISALS

From the previous Road Incident Management System (RIMS) summary reports as well as various other road safety initiatives, SANRAL in conjunction with the RIMS road safety expert, identified hazardous locations on the road network.

Provision was made within the RIMS contract, to procure the services of a Road Safety Auditor (targeted enterprise) to undertake Road Safety Appraisals at agreed locations. The RIMS road safety expert was required to provide guidance, management and mentoring to the Road Safety Auditor.

The Road Safety Appraisal undertaken by the Targeted Enterprise used the principles embodied in the South African Road Safety Audit Manual (SARSAM) May 2012, as well as the SANRAL Road Safety Audit policy. The successful tenders submitted the Road Safety Assessment reports to the RIMS Service Provider for review and approval. There were three road safety appraisals conducted as part of the contract. The appraisals with the problem statements and proposed interventions are summarized below.

8.1 N2, SECTION 2 FROM KM 42.0 TO KM 45.60, BOT RIVER

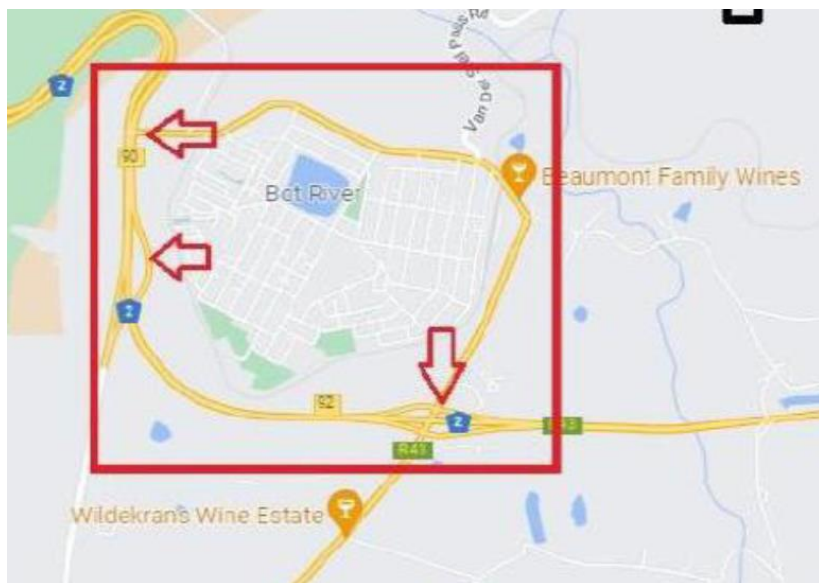


FIGURE 19: LOCATION OF THE STUDY AREA.

(The three arrows indicate where the pedestrian activities are concentrated, i.e. km 42.35, R43 km 0.40, and km 45.10.)

The project road is 3.60 kilometers in length, and is located on the N2 along the periphery of Botriver within the boundaries of the Theewaterkloof Municipality which forms part of the Overberg District Municipality. The existing road comprises a dual carriageway section of the N2 National Road, Section 2, in both directions. The N2 leads to Cape Town in the western direction and to Caledon in the eastern direction. However, past

the R43 off ramp, it has two lanes in the direction of Cape Town and one lane in the direction of Caledon.

The R43 has an on ramp from Hermanus at about km 42.70 and an off ramp that goes towards Hermanus at about km 42.50. At km 45.10 there is a diamond interchange that also provides direct access to the Botriver town. This interchange also provides access to Hermanus by joining onto the R43.

Common observations to both areas, namely, N2-2 KM 42.35 intersection and N2-2 KM 0.40 to KM 0.43, included:

- 8.1.1 Significant volumes of pedestrians, hitchhikers and people waiting for staff shuttles.
- 8.1.2 No lay-bys in the pedestrian hotspots, particularly at the first intersection at km 42.35 where there is a lot of pedestrian activity.
- 8.1.3 Narrow or degraded shoulder.
- 8.1.4 Hard edge breaks.
- 8.1.5 Insufficient advanced warning signage.
- 8.1.6 The morning period saw more pick-ups than drop-offs.
- 8.1.7 The afternoon period saw an approximately equal number of pick-ups and drop-offs.
- 8.1.8 The morning period revealed some school children waiting for transport at various points.
- 8.1.9 Lack of street lightning at hotspots.

Pedestrians were observed waiting for public transport with some using this location as a hitchhiking sport. During the morning pedestrian counting a rear-end collision almost occurred when a taxi suddenly stopped to pick up a passenger without giving due to notice to the vehicles coming from behind and was nearly hit by a heavy vehicle. This created an unsafe environment for all road users.

It must also be noted that this location is on a curve and hidden by vegetation growing on the N2. Furthermore, motorists on the N2 taking the off ramp do not expect to see any pedestrians walking or crossing the road. This is against driver expectations and awareness. The situation is exacerbated during the nighttime or adverse weather conditions.

Remedial Measures:

- 8.1.10 Pedestrian sidewalks should be constructed, behind the guardrail for road safety reasons along the off-ramp, over the N2 to link with the proposed public transport lay-bys.
- 8.1.11 The crossing over the N2 may require the construction of a sidewalk or an attachment of a steel structure onto the existing bridge deck.
- 8.1.12 The edge break in this vicinity could be remedied by extending the shoulder along the off-ramp all the way to the bridge over the N2 with accompanying warning road markings and signage.

8.2 N1, SECTION 3 KM 73.65 TO SECTION 4 KM 1.0, TOUWS RIVER

ITIS data indicated 179 crashes (3 pedestrians) with 10 fatalities on the section of N1 SECTION KM 73.65 TO N1 SECTION 4 KM 1.0 TOUWS RIVER.

Touws River is at the south end of N1-4. Crashes on rural main roads are typically clustered at the transition of rural to urban.

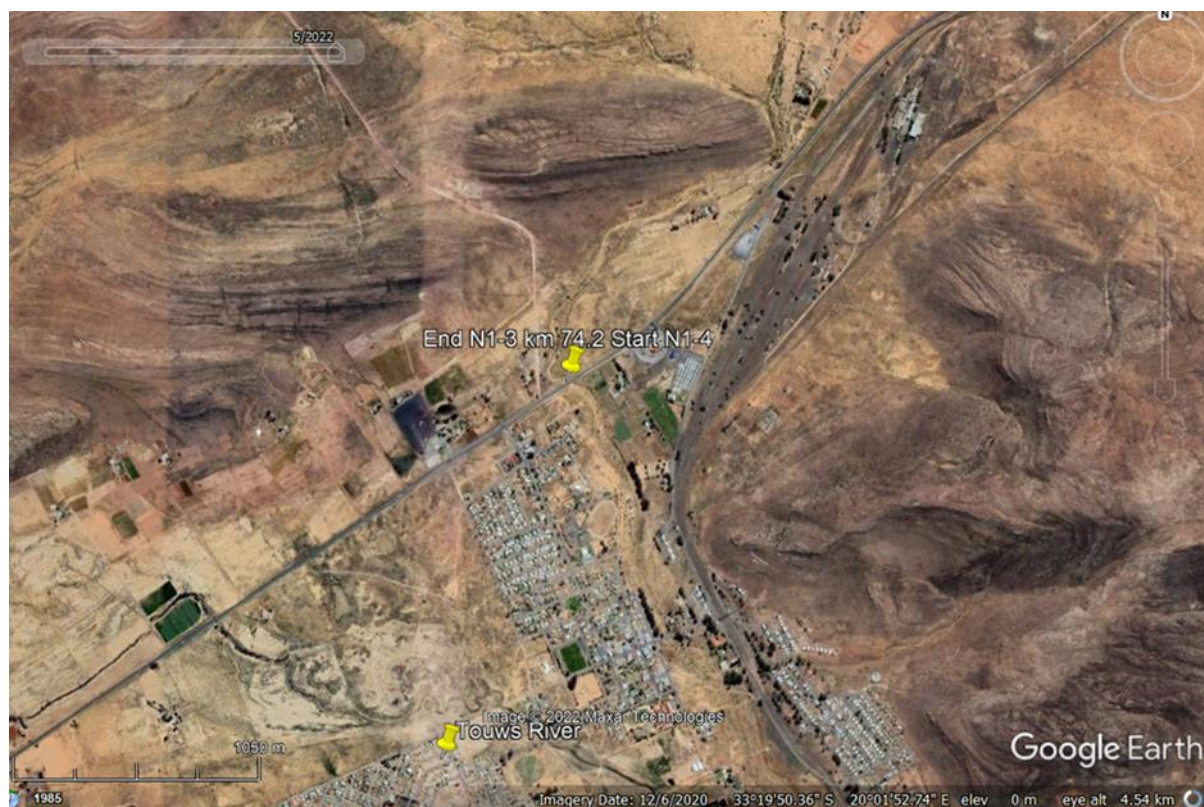


FIGURE 20: LOCATION OF THE STUDY AREA.

Touws River, at the start of N1 section 4 was identified as probable crash hot spot. At Touws River, the presence of not stopping signs and bollards confirms that a history of hitch hiking was addressed. The presence of pedestrians could be obtained from historical Google Street view images. The layout of the town on the south side and a major filling station and shops on the north side is similar to the Leeu Gamka layout, where a study in 2019 confirmed problems of pedestrians crossing the road to get to the facilities such as ATM and shops at the filling station. There are no pedestrian facilities to cross the N1.

Streetlights have been erected. There are footpaths leading from the residential areas to the south leading to the fillings station on the north.

The findings of the road safety appraisal will be incorporated into the next annual report.

8.3 N1, SECTION 4 KM 70 TO SECTION 5 KM 1.0, LAINGSBURG

Laingsburg at the end of the N1-4 is also a probable crash hot spot. The N1-4 ends and N1-5 begins in Laingsburg. On the west side of town, the road runs through two urban settlements. This is considered community severance. There are pedestrian paths along the N1-4. The hospital is on the north side of the N1-4. The section of road within the Laingsburg CBD is dual carriageway, but the angled parking causes high risks for conflict with through traffic. This section is not under the control of SANRAL, but has to be evaluated as the crashes in the CBD can affect the perception of the start of the N1-5 being hazardous. The N1-5 curves to the right and then up a steep gradient. See FIGURE

The findings of the road safety appraisal will be incorporated into the next annual report.

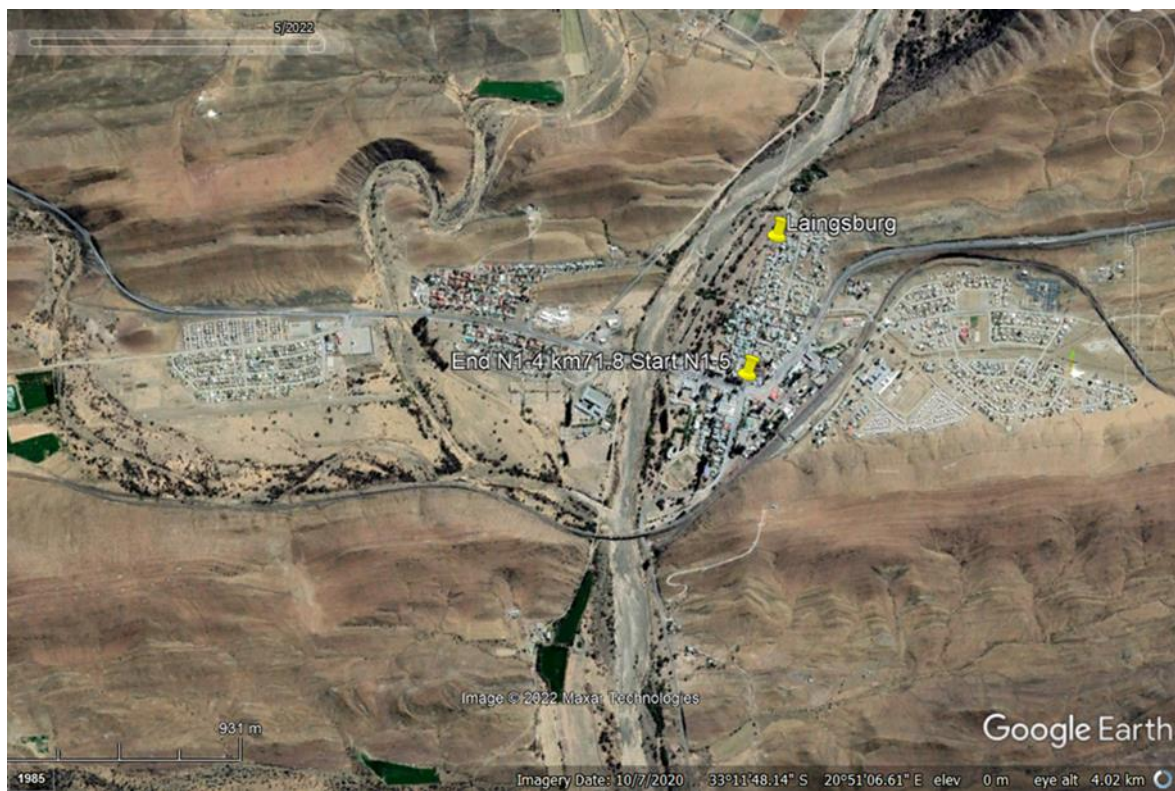


FIGURE 21: LOCATION OF THE STUDY AREA.

9. SUMMARY

- Traffic patterns that were affected by the Covid pandemic between March 2020 and December 2022 could not be determined due to the absence of CTO data. Based on the Huguenot tunnel traffic count, the traffic (AADT) in 2022 was 96% of the 2019 traffic (AADT).
- The number of crashes on SANRAL roads in the Western Province per annum varied between 1225 (2019), 1910 (2020), 1380 (2021) and 724 (2022) crashes throughout the province. The data shows a significant reduction in crashes from the 2020 figure of 1981 high to 2022 low of 724 (about two thirds).
- During 2022, the number of crashes on the N1 reduced by 25% but fatalities increased by 26%.
- The crash rate over the last 5 years is relatively constant through N1-5 to N1-8 (Laingsburg to Three Sisters) varying between 0.25 and 0.37 crashes per MVKm. The crash rate decreased considerably over the last couple of years. The biggest change was N1-7 (Leeu Gamka to Beaufort West) which reduced from 1.17 at the end of 2015 to 0.31 crashes per MVKm over the 5-year reporting period.
- The average number of crashes and fatalities for the Province decreased. The crashes on the N1 remained similar although the number of fatalities for 2022 was higher than 2019 but similar to both 2017 and 2018.
- Approximately 51% of the crashes in the province occur on the N2, however it has only 29% of fatalities. Approximately 37% of the crashes are on the N1, however the fatalities are 50% of the total fatalities.
- On the N2, the number of fatal crashes per section remains relatively stable. The only exception is during 2022 where the number of fatal crashes decreased from 38 to 21 from the previous year.
- The number of crashes in sections N2-2 and N2-8 are noticeably higher when compared with the other five sections, N2-3 to N2-7.
- In terms of the crash rate, the 0.73 crashes per MVKm on N2-4 is the highest on the entire SANRAL network covered in this report.
- The number of crashes in 2022 along the N2 is much lower when compared to the average from 2019 to 2022.
- The number of crashes and fatalities on the N7 is relatively low in comparison with the other routes. During 2019 there was a larger portion of the fatalities on the N7 (23 percent) but this was largely due to three major crashes.
- Generally, there is a high proportion of unknown crashes, with the N7 the highest at 20 percent of all the crashes. This is concerning and highlights the lack of complete crash statistics in general.
- On the N7 the most crashes (283) were recorded in section three (Moorreesburg to Clanwilliam).
- This could also be attributed to the length of the section (127 kilometers).
- The crash rate on the N7 is generally low with section one the highest at 0.37 crashes per MVKm. There is no clear distinction between the crash rate, pre- and post, upgrades on parts of N7-3 and N7-4.
- The number of crashes in 2022 along the N7 is distinctively lower than the average of 2019 to 2022. There was also a sharp reduction in crashes per month from August 2019 that corresponds with the conclusion of the road upgrades in section N7-1 and N7-2.
- With reference to the crash data, sixteen high crash locations were identified where further investigations are required. Refer to Table B10.
- N2-2, KM 64.3 Greyton / Klipheuwel intersection has become challenging due to the increase in truck turning volumes. To the south a truck stop was opened along Cemetery Way while Agri-Overberg opened a loading depot to the north towards Greyton. The intersection geometry and design does not allow for many heavy movements. It is proposed that a 13hr count be done and the development rights of both the truck stop and loading depot be confirmed.

- There were three road safety appraisals conducted as part of the contract. The appraisals report for Botrivier was submitted and the findings and proposed interventions were summarized in the report. The other two Appraisals will be summarized in the next annual report.
 - o N2 Section 2 from KM 42.0 to KM 45.6, Bot River
 - o N1 Section 3 KM 73.65 to Section 4 KM 1.0, Touws River
 - o N1 Section 4 from KM 70.0 to Section 5 KM 1.0 Laingsburg