



Transport Education Training Authority

Driven by Vision

Investigation into Western Cape Heavy Vehicle Goods Drivers' Skills

2022 11 14_L81-22 Road Freight Skills

Deliverable 2.2: Road Traffic Management System – trend analysis

(Task 2.2. Road Traffic Management System – trend analysis)

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DRAFT

1 INTRODUCTION

The CSIR has been appointed by the Western Cape Department of Transport and Public Works to assess the heavy vehicle goods driver skills in the Western Cape. The objective of this research study is to provide insight into the current skills and competency levels of heavy goods vehicle drivers in the Western Cape.

Road Transport Management System (RTMS) is an industry-led, government-supported, voluntary, self-regulation scheme. The scheme encourages consignors, consignees, and road transport operators to implement a management-systems standard with outcomes that contribute to preserving road infrastructure, improving road safety, and improving productivity. It is based on a SABS national standard, SANS 1395-2019. RTMS accredited companies have seen improvements in driver skills, attitude and motivation, general health, and a reduction in chronic illnesses.

This report presents the trend analysis of the quarterly RTMS monitoring data as submitted by transport companies participating in the scheme, from January 2017 to December 2021. Data submissions from companies with vehicles registered in the Western Cape were analysed separately to investigate operations when compared to RTMS transport operations in the rest of South Africa. The trends could be used to determine a targeted benchmark for transport companies to improve driver skills, attitude and motivation, general health, and reduce chronic illnesses.

The RTMS Steering Committee granted permission to access and analyse the data for this research study. It should be noted that the data were collected external to the CSIR, and the analysis was done based on the data as received from the RTMS back-office.

Data cleaning and analysis were carried out using Microsoft Office Excel. The data analysis and illustrations were done using pivot tables and pivot graphs. The results were represented as pie charts and bar graphs.



2 BACKGROUND

1.1 Road Transport Management System (RTMS)

As of June 2022, there were 261 RTMS-certified fleets representing approximately 14 000 motorised vehicles (including busses, rigid-vehicles and truck tractors) and 17 000 trailers. Numerous case studies presented at RTMS workshops by certified operators indicate some of the benefits that have been observed. These include:

- Reduction in overloading and speeding incidents;
- Reduction in breakdowns;
- Reduction in crashes;
- Reduction in fuel consumption;
- Increase in fleet availability/reduction in downtime;
- Improved driver skills e.g., reduction in harsh acceleration and braking;
- Improved attitude and motivation of drivers;
- Reduction in chronic illnesses in drivers, and
- Improved general health of drivers and a reduction in absenteeism.

The RTMS can be viewed as a tool used by transport operators and consignors/ees to improve fleet management and sustainability as well as to reduce the costs of logistics. Insurance companies are starting to recognise RTMS and could possibly reward companies benefiting from the scheme with reduced insurance premiums.

One of the main pillars of RTMS is to focus on driver behaviour and driver wellness. RTMS accredited companies have seen improvements in driver skills, attitude and motivation, general health, and a reduction in chronic illnesses. As stipulated in the SABS national standard, it is required for companies to manage the wellness of drivers. Aspects such as health management, scheduling or rostering and workplace conditions need to be addressed to ensure that the drivers are fit and competent to perform their duties and that driving hours are not only within the legal limits but are scheduled to minimise driver fatigue.

All persons to whom responsibility is assigned in the RTMS accreditation, should receive the necessary training to execute their tasks. Driver training is especially important since drivers are responsible for the correct loading, safe driving, and reporting of faults on their rigs. It is mandatory for RTMS companies to submit quarterly monitoring data, which include reporting on driver wellness and training:

- Number of vehicles
- Total number of trips
- Total kilometres travelled
- Total number of collisions / crashes:
- Total number of collisions / crashes due to third party error
- Total number of collisions / crashes due to company error
- Number of fatalities
- Number of trips overloaded

- Average mass of overload
- Number of traffic violations (fines)
- Number of service overruns
- Number of drivers employed
- Number of drivers with medical fitness certificate
- Number of drivers with chronic conditions
- Number of drivers trained in this quarter
- Number of corrective actions / disciplinary actions for: habitual over speeding
- Number of corrective actions / disciplinary actions for: excessive driving and/or shift hours
- Number of corrective actions / disciplinary actions for: other RTMS non-conformances

1.2 Ethics Clearance

The CSIR adhere to strict ethical considerations when conducting surveys and accessing information which could be regarded as sensitive. Institutional permission to access and analyse the data was requested and granted by the RTMS Steering Committee. A research ethics application was submitted to the CSIR Research Ethics Committee (REC) and approved on 7 February 2023 (REC Ref: 426/2023). The RTMS data are anonymised, and no reference is made to specific individuals or companies in this report.

3 RTMS TREND ANALYSIS

The RTMS trend analysis included quarterly monitoring data as submitted by RTMS-certified transport companies for the period January 2017 to December 2021. The data submitted by transport companies with registered vehicles in the Western Cape were analysed separately and then compared to RTMS transport operations in the rest of South Africa. All nine provinces have registered RTMS vehicles participating in the scheme.

The data collected for 2017 and 2018 did not record the province in which the vehicles were registered in. The trend analysis for the Western Cape included data submissions for the period January 2019 to December 2021.

The data were collected external to the CSIR, and the analysis was done based on the data as received from the RTMS back-office. Clear outliers in the data were regarded as incorrect data submissions and omitted from the analysis. It should be noted that the results presented in this report could still include incorrect data as submitted by transport companies, if not flagged specifically as outliers. The fluctuation in operations could have been influenced by the Covid-19 pandemic and periods of lockdown regulations. The results in this report should thus be interpreted as general trends and not as absolute values.

3.1. Overview

The following sections provide an overview of the RTMS operations and include general trends in the data submissions for each quarter. This includes the number of operational vehicles, number of trips made, total kilometre distance travelled, the fleet sizes and the top representative sectors.

3.1.1. Operations

Registered RTMS vehicles in the Western Cape made a total of 878 488 trips and travelled a total distance of 310 million kms, during 2019 to 2021. Registered RTMS vehicles in the rest of South Africa made a total of 15 million trips and travelled a total distance of 5.7 billion kms, during 2017 to 2021.

On average the total number of operational registered RTMS vehicles in the Western Cape is 1 218, average number of trips made is 73 207 and the average kilometre distance travelled is 25.9 million, per quarter. On average the total number of operational registered RTMS vehicles in the rest of South Africa is 6 982, average number of trips made is 755 818 and the average kilometre distance travelled is 283 million, per quarter.

The registered RTMS vehicles in the Western Cape on average represents the following percentages of the total national RTMS operations per quarter:

- 15% of total number of operational vehicles;
- 9% of total number of trips made, and
- 8% of total kilometre distance travelled.

Summaries of the RTMS operations are presented in Table 1 and Table 2, and Figure 1 to Figure 6.

Table 1: Overview of operations by registered RTMS vehicles in the Western Cape

Year	Quarter	Number of Vehicles	Total Number of Trips	Total Kilometres Travelled
2019	Q1 - Jan to March	316	25 377	7 893 844
	Q2 - April to June	982	51 635	14 528 727
	Q3 - July to September	1 064	87 184	28 945 984
	Q4 - October to December	1 509	118 353	34 790 906
2020	Q1 - Jan to March	3 269	109 838	54 586 227
	Q2 - April to June	1 297	87 757	20 709 130
	Q3 - July to September	866	57 170	20 311 647
	Q4 - October to December	1 278	67 043	34 421 252
2021	Q1 - Jan to March	1 202	75 294	27 813 316
	Q2 - April to June	853	58 602	19 702 428
	Q3 - July to September	905	66 551	20 519 447
	Q4 - October to December	1 070	73 684	26 332 629
TOTAL		-	878 488	310 555 537
AVERAGE PER QUARTER		1 218	73 207	25 879 628

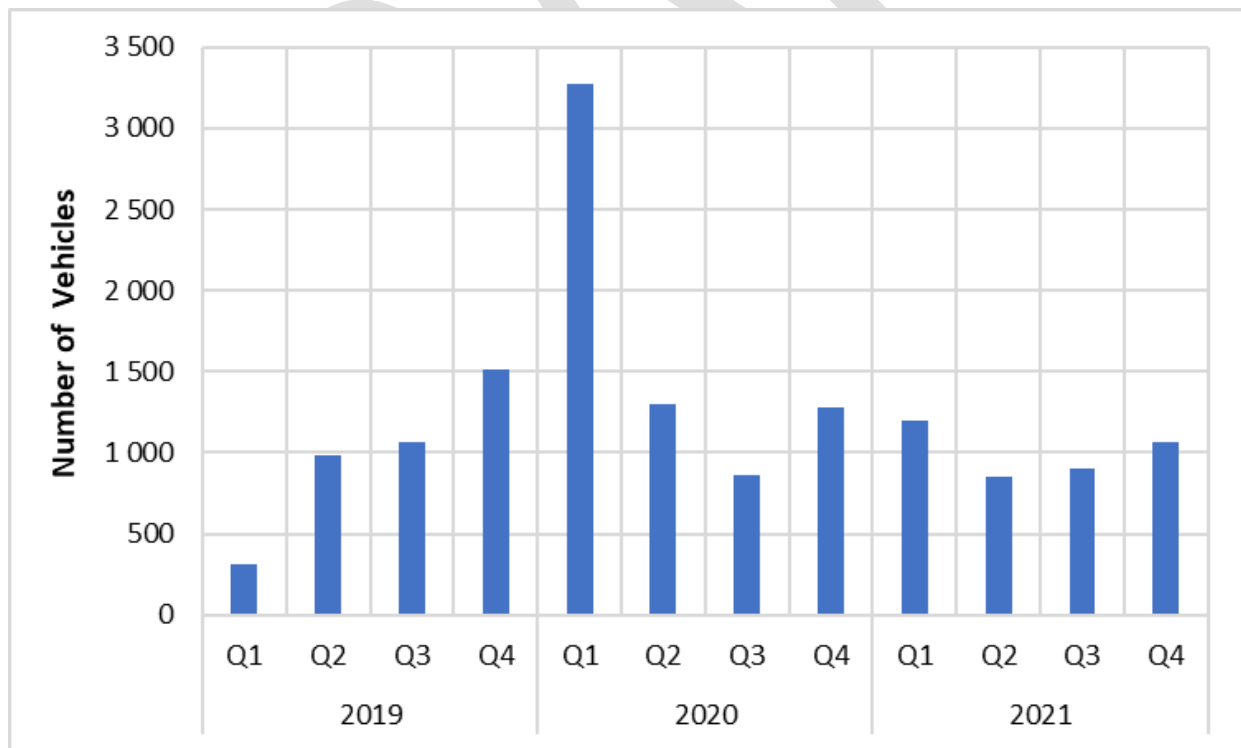


Figure 1: Number of operational RTMS vehicles registered in the Western Cape

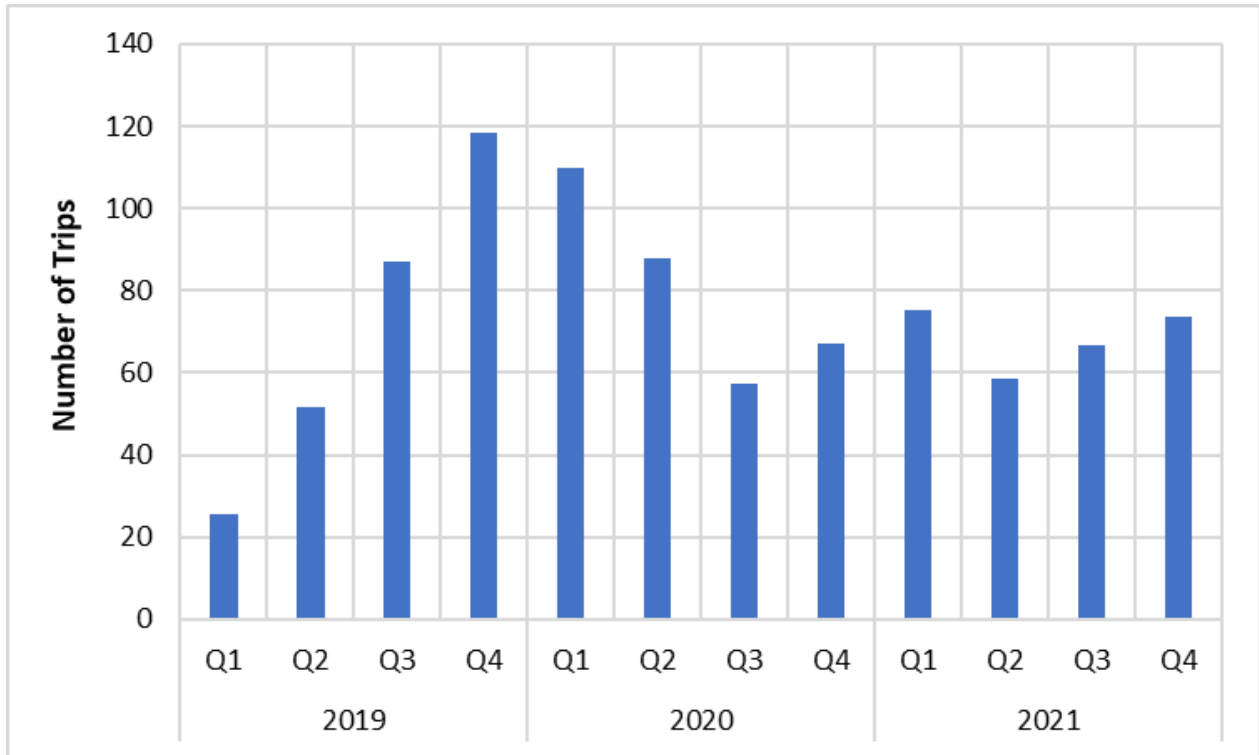


Figure 2: Number of trips made by RTMS vehicles registered in the Western Cape

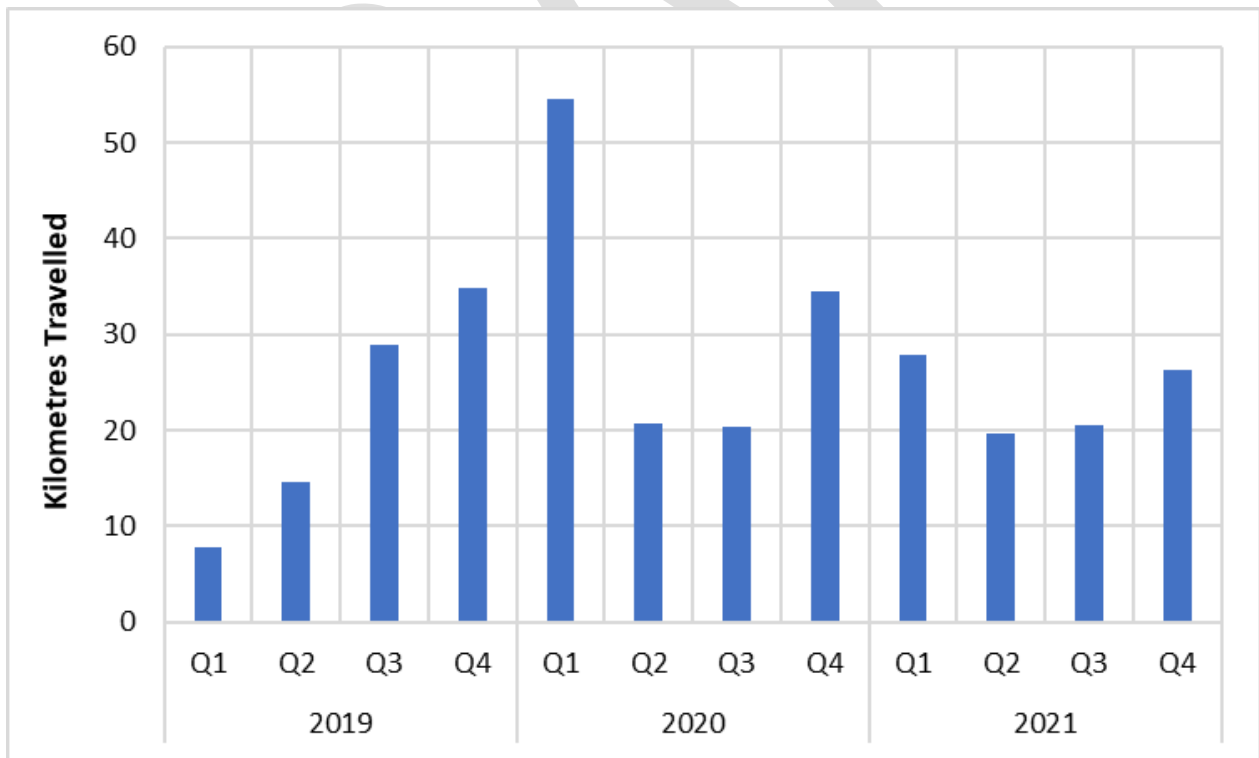


Figure 3: Kilometres travelled by RTMS vehicles registered in the Western Cape

Table 2: Overview of operations by registered RTMS vehicles in the rest of South Africa

Year	Quarter	Number of Vehicles	Total Number of Trips	Total Kilometres Travelled
2017	Q1 - Jan to March	1 718	149 093	48 079 291
	Q2 - April to June	3 511	480 693	88 017 218
	Q3 - July to September	6 036	711 643	277 599 111
	Q4 - October to December	5 217	596 224	199 675 110
2018	Q1 - Jan to March	14 462	1 255 278	447 769 684
	Q2 - April to June	6 849	775 495	214 248 119
	Q3 - July to September	6 927	703 470	210 116 895
	Q4 - October to December	6 628	815 243	354 097 364
2019	Q1 - Jan to March	6 535	773 749	172 129 434
	Q2 - April to June	7 129	862 179	170 117 573
	Q3 - July to September	11 243	1 464 507	284 118 395
	Q4 - October to December	10 014	1 257 140	280 631 333
2020	Q1 - Jan to March	9 096	1 119 770	509 520 217
	Q2 - April to June	8 723	831 119	414 273 730
	Q3 - July to September	6 492	620 922	711 178 997
	Q4 - October to December	5 728	513 160	272 880 426
2021	Q1 - Jan to March	7 230	686 626	411 870 952
	Q2 - April to June	7 788	762 180	333 433 722
	Q3 - July to September	4 759	497 003	133 192 276
	Q4 - October to December	3 564	240 866	135 657 171
TOTAL		-	15 116 360	5 668 607 018
AVERAGE PER QUARTER		6 982	755 818	283 430 351

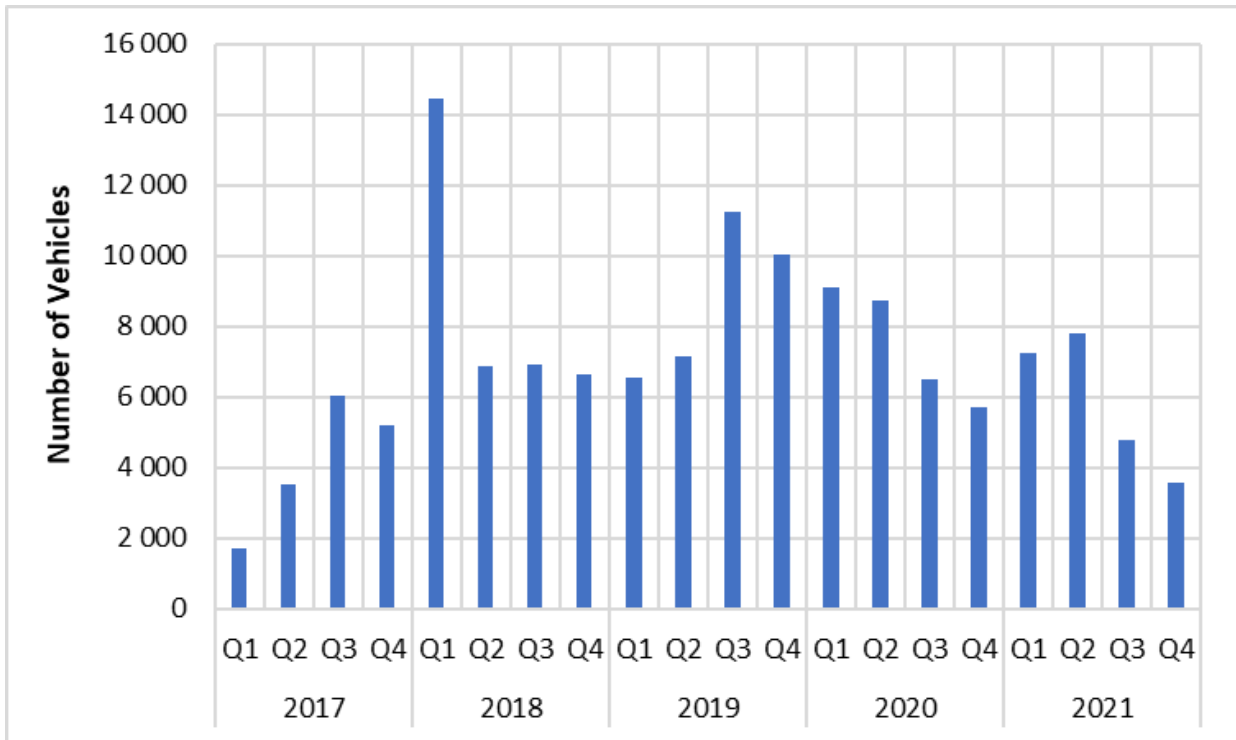


Figure 4: Number of operational RTMS vehicles registered in rest of South Africa

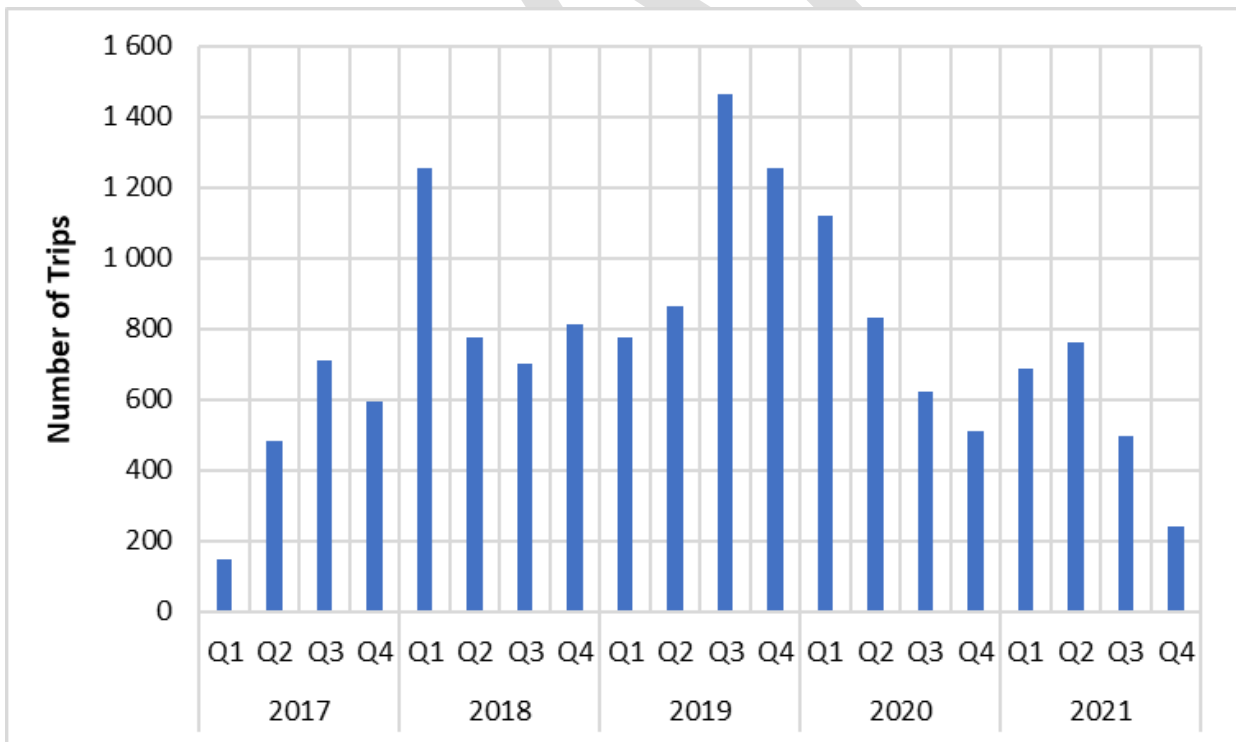


Figure 5: Number of trips made by RTMS vehicles registered in the rest of South Africa

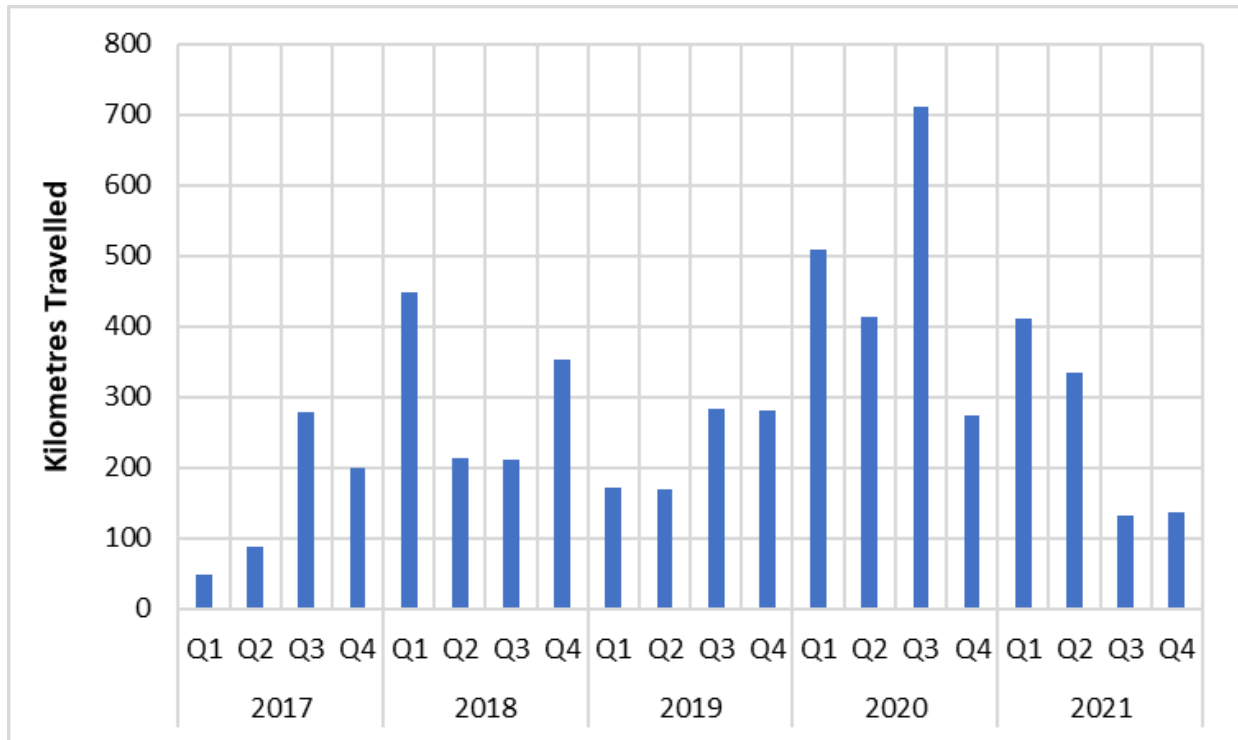


Figure 6: Kilometres travelled by RTMS vehicles registered in the rest of South Africa

3.1.2. Fleet sizes

Each data entry submitted by a transport operator was grouped according to fleet size, based on the number of operational vehicles. 46% of transport operators with registered RTMS vehicles in the rest of South Africa have operational fleet sizes of between 1 and 10 vehicles. Transport operators have larger fleet sizes registered in the Western Cape, when compared to the rest of South Africa.

The fleet size summaries and distribution of the fleet sizes are presented in Table 3 and Table 4, and Figure 7 and Figure 8.

Table 3: Fleet size of registered RTMS vehicles in the Western Cape

Year	Quarter	Fleet Size (Number of Vehicles)						
		1-10	11-50	51-100	101-500	501-1000	1001-1500	>1501
2019	Q1	0	0	1	1	0	0	0
	Q2	1	0	3	3	0	0	0
	Q3	5	3	5	3	0	0	0
	Q4	5	6	3	6	0	0	0
2020	Q1	0	3	3	7	0	0	1
	Q2	0	3	3	4	0	0	0
	Q3	1	0	2	3	0	0	0
	Q4	0	0	2	5	0	0	0
2021	Q1	0	2	1	5	0	0	0
	Q2	0	0	2	3	0	0	0
	Q3	0	0	2	4	0	0	0
	Q4	0	0	2	5	0	0	0
TOTAL		12	17	29	49	0	0	1

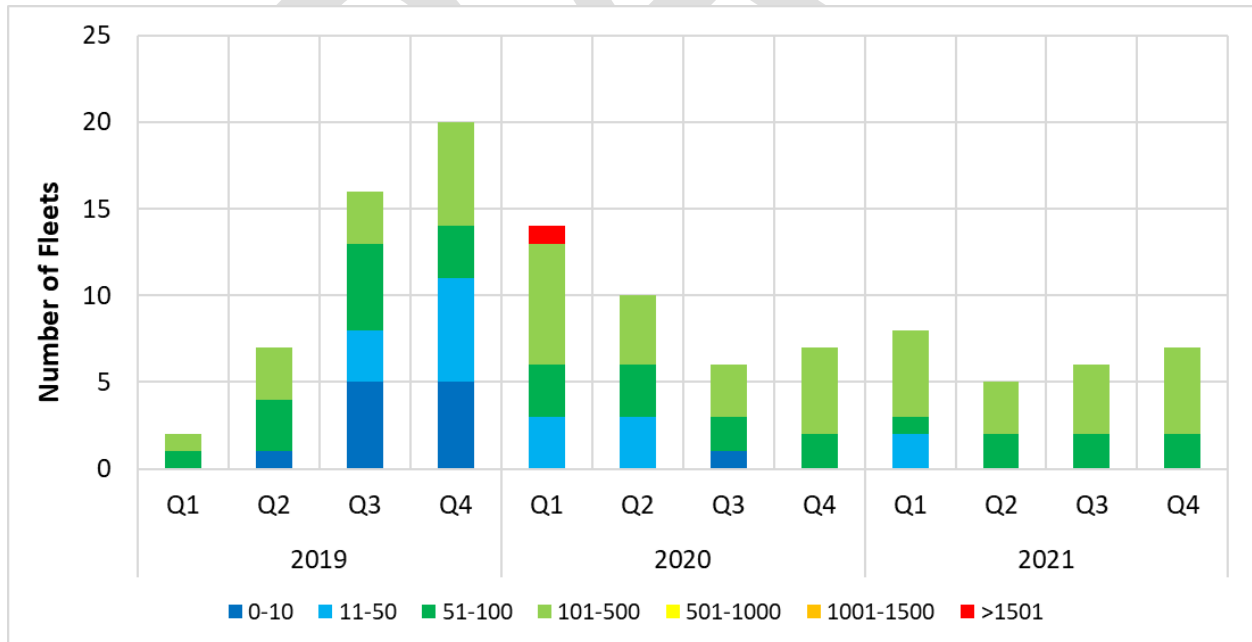


Figure 7: Fleet size distribution of registered RTMS vehicles in the Western Cape

Table 4: Fleet size of registered RTMS vehicles in the rest of South Africa

Year	Quarter	Fleet Size (Number of Vehicles)						
		1-10	11-50	51-100	101-500	501-1000	1001-1500	>1501
2017	Q1	3	14	3	6	0	0	0
	Q2	17	30	14	8	0	0	0
	Q3	23	44	15	17	0	0	0
	Q4	23	32	18	13	0	0	0
2018	Q1	43	49	21	42	1	0	0
	Q2	37	54	24	16	0	0	0
	Q3	88	65	18	13	1	0	0
	Q4	89	70	19	12	1	0	0
2019	Q1	96	71	20	12	0	0	0
	Q2	113	74	18	11	1	0	0
	Q3	108	76	22	20	2	2	0
	Q4	108	74	19	20	3	0	0
2020	Q1	109	83	27	21	1	0	0
	Q2	109	80	18	19	2	0	0
	Q3	149	65	18	13	0	0	0
	Q4	132	64	14	11	0	0	0
2021	Q1	130	68	17	16	1	0	0
	Q2	102	51	12	19	2	0	0
	Q3	54	40	5	12	1	0	0
	Q4	12	28	4	13	0	0	0
TOTAL		1545	1132	326	314	16	2	0

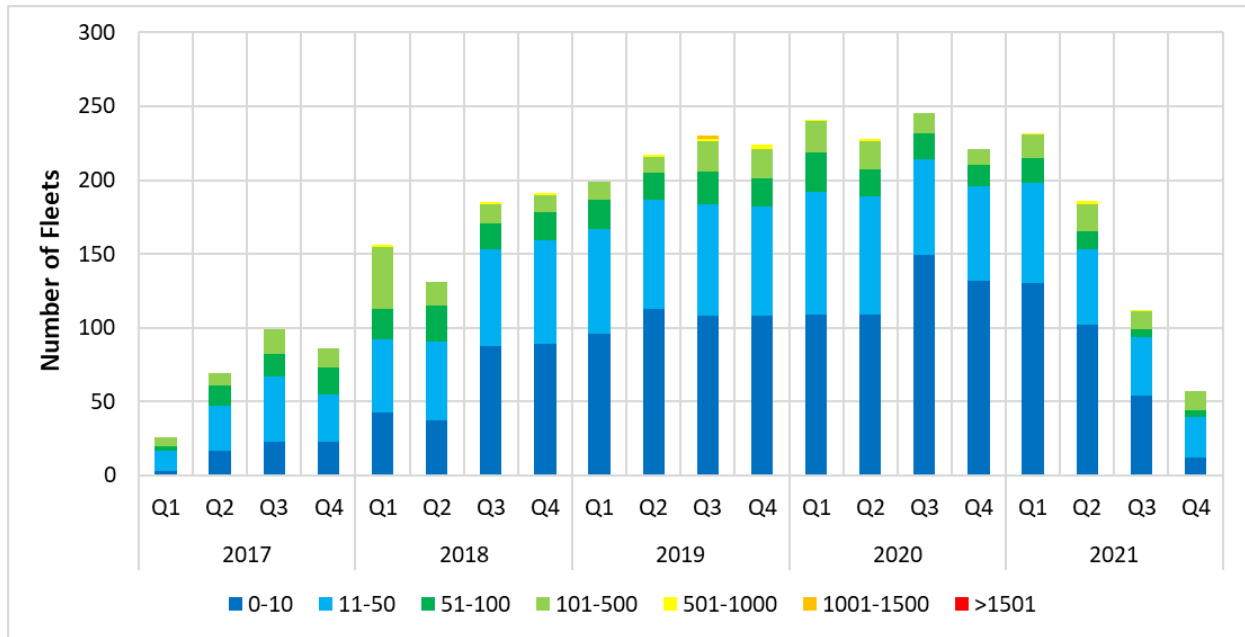


Figure 8: Fleet size distribution of registered RTMS vehicles in the rest of South Africa

3.1.3. Sectors

Considering the total distance travelled, the top 20 commodities or representative freight sectors have been identified. It should be noted that not all data submissions had the commodities or representative freight sectors recorded. The top 20 commodities or representative freight sectors are thus presented based on the available data.

The top two commodities transported by registered RTMS vehicles in the Western Cape is palletised goods and fuel and gas, which respectively represents 20% and 19% of the total top 20 commodities kilometre distance travelled. Transportation of hazardous goods (fuel, gas and chemicals) comprised 42% of the total kilometers travelled.

Coal and chrome are the top sectors or commodities transported by registered RTMS vehicles in the rest of South Africa and respectively represents 21% and 11% of the total kilometre distance travelled.

The 20 sectors or commodities transported by RTMS vehicles and the representative percentages are presented in Table 5 and Table 6, and Figure 9 and Figure 10.

Table 5: Top 20 sectors or commodities transported by registered RTMS vehicles in the Western Cape

	Sector/ Commodity	Total kms Travelled	Percentage (%)
1	Palletised Goods	61 584 159	20%
2	Fuel & Gas	55 643 701	19%
3	Bulk Fuel & Gas Transport	31 395 640	10%
4	Fuel	27 453 603	9%
5	Vehicles	23 808 008	8%
6	Transport	20 764 583	7%
7	Various Transport	19 731 620	7%
8	Package Goods	13 186 741	4%
9	Agricultural	12 950 532	4%
10	Chemicals	11 555 996	4%
11	Plant Hire	8 115 532	3%
12	Fast Moving Consumer Goods (FMCG) / Palletised Goods	3 316 366	1%
13	Cement	3 259 141	1%
14	Goods	3 014 242	1%
15	Transport General Freight	2 016 121	1%
16	Food	1 414 417	0.5%
17	Bulk Dry Goods	694 467	0.2%
18	Animal feed	455 785	0.2%
19	Plumbing & hardware stock	410 220	0.1%
20	Beer	407 949	0.1%

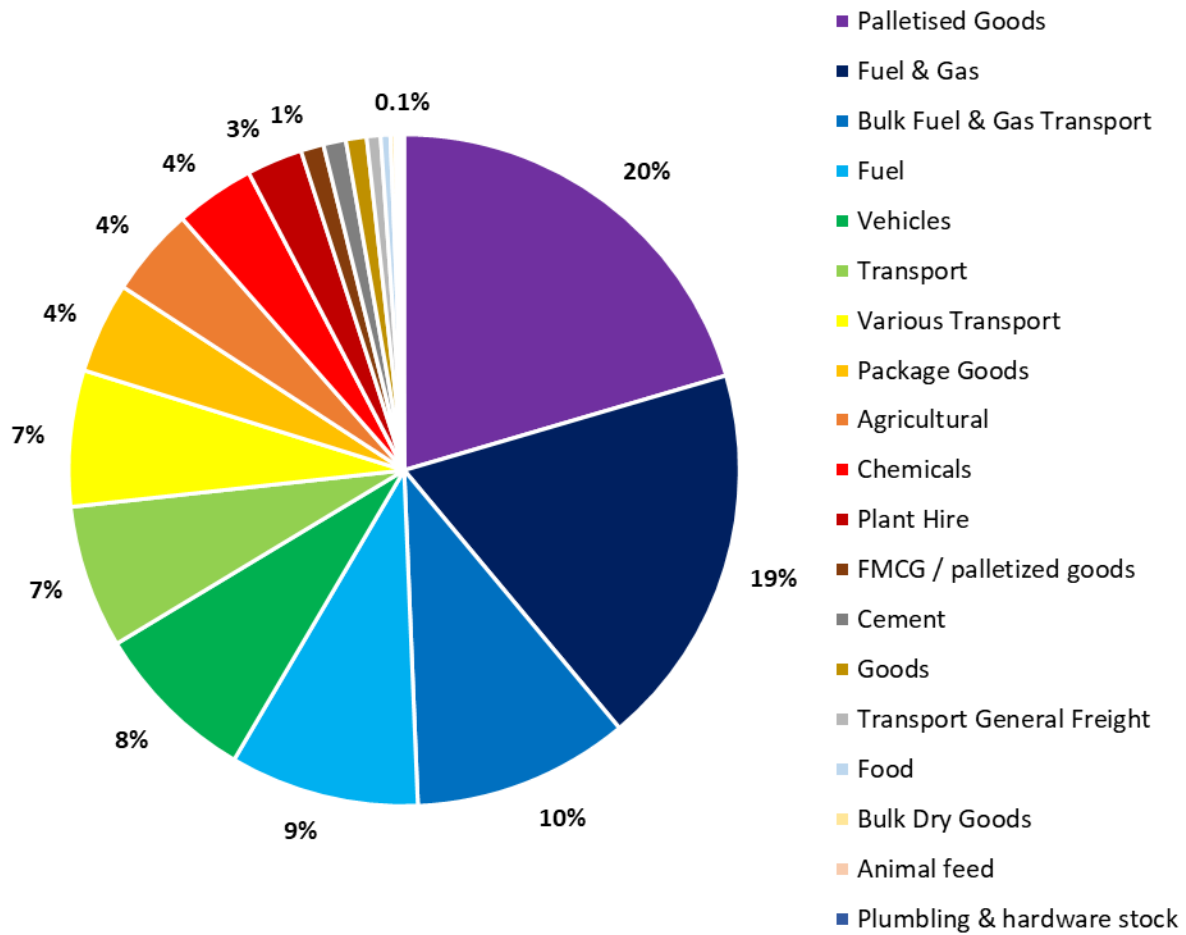


Figure 9: Distribution of sectors and commodities transported by registered RTMS vehicles in the Western Cape

Table 6: Top 20 sectors or commodities transported by registered RTMS vehicles in the rest of South Africa

	Sector/ Commodity	Total kms Travelled	Percentage (%)
1	Coal	216 548 309	21%
2	Chrome	116 274 161	11%
3	Transport	93 213 405	9%
4	Car Carrier	80 652 919	8%
5	Bulk Dry Goods	75 196 714	7%
6	Fuel	69 177 092	7%
7	Bulk Fuel and Coal	46 815 144	4%
8	FMCG	45 534 224	4%
9	Raw material and refrigerated	40 787 881	4%
10	People	39 299 862	4%
11	Motor Ferry	34 414 450	3%
12	Manganese	48 562 992	5%
13	Food Grade Products	31 220 886	3%
14	Building Materials	18 271 884	2%
15	Cement	16 420 640	2%
16	Bulk Commodities	15 435 506	1%
17	Dangerous Goods	14 659 045	1%
18	Passenger transport	14 564 865	1%
19	Magnetite	12 276 817	1%
20	FMCG– Soft Drink Beverages	12 183 058	1%

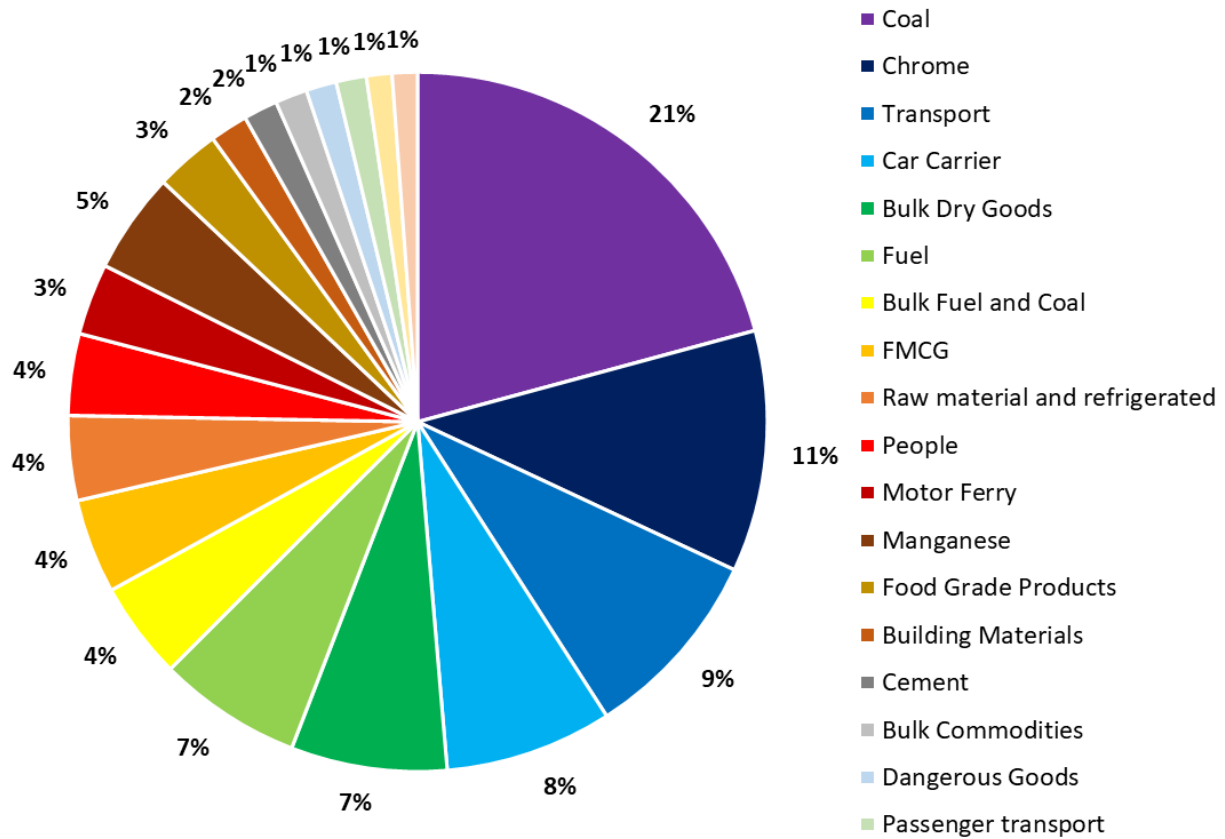


Figure 10: Distribution of sectors and commodities transported by registered RTMS vehicles in the rest of South Africa

3.2. Crashes and Fatalities

RTMS-certified transport companies are required to report on all crashes and fatalities involving registered vehicles as part of the quarterly monitoring data submissions. Fatalities refers to the number of deaths resulted from a crash involving a registered RTMS vehicle. Details regarding the responsible party of the crash are also included and is indicated as either a crash due to third party error or company (driver) error. The number of crashes and fatalities recorded were analysed per total distance travelled for comparison.

Considering the number of crashes and fatalities per million kilometres travelled involving registered RTMS vehicles in the Western Cape, the average crash and fatality rates are 2.3 and 0.03 respectively per million kilometres travelled. The average crash and fatality rates per million kilometres travelled involving registered RTMS vehicles in the rest of South Africa are 3.3 and 0.06, respectively. Figure 11 indicates that registered RTMS vehicles in the Western Cape have a lower crash and fatality rate per million kilometres travelled compared to RTMS vehicles registered in the rest of South Africa.

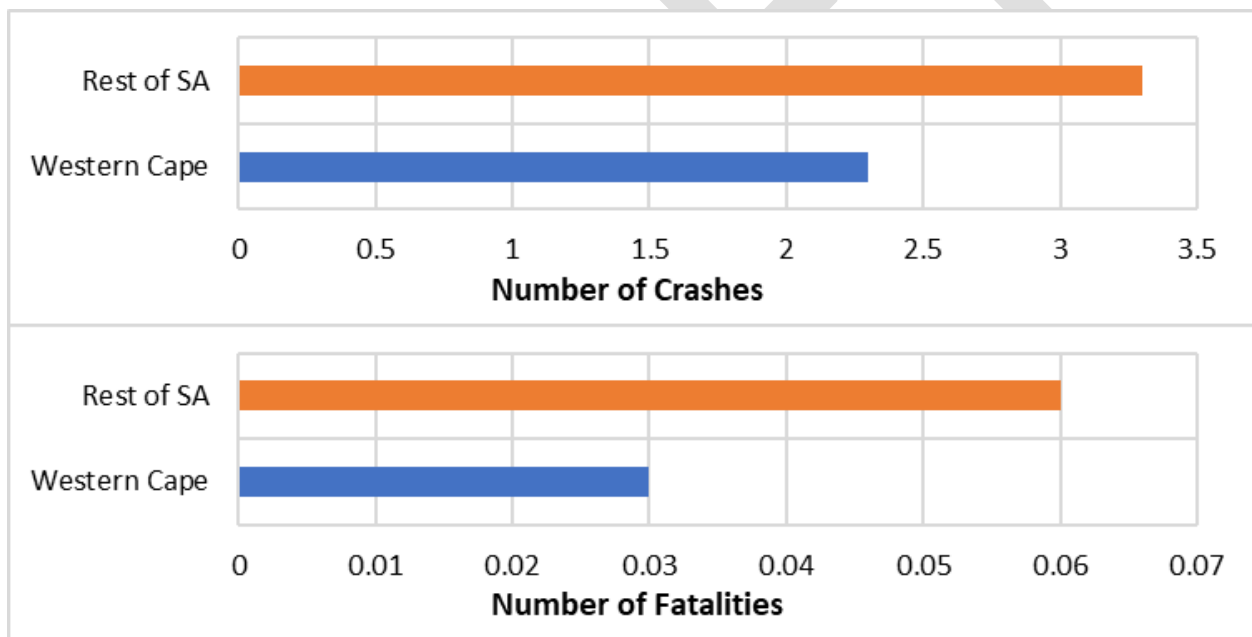


Figure 11: Average number of crashes and fatalities per million kms travelled

The recorded crash error indicates that 30% of all crashes involving registered RTMS vehicles in the Western Cape, are due to company errors. This is lower than the 44% recorded company errors involving registered RTMS vehicles in the rest of South Africa.

The number of crashes and fatalities are summarised and presented in Table 7 to Table 10, and Figure 12 to Figure 19 .

Table 7: Number of crashes and fatalities involving registered RTMS vehicles in the Western Cape

Year	Quarter	Total Number of Crashes	Third Party Error	Company Error	Unknown Error	Fatalities
2019	Q1	39	29	10	0	0
	Q2	44	27	17	0	0
	Q3	57	25	32	0	1
	Q4	82	51	31	0	3
2020	Q1	106	73	33	0	0
	Q2	37	24	13	0	2
	Q3	44	37	7	0	0
	Q4	46	36	6	4	0
2021	Q1	79	61	18	0	1
	Q2	31	20	9	2	1
	Q3	27	19	8	0	0
	Q4	69	56	13	0	0



Figure 12: Number of crashes involving registered RTMS vehicles in the Western Cape

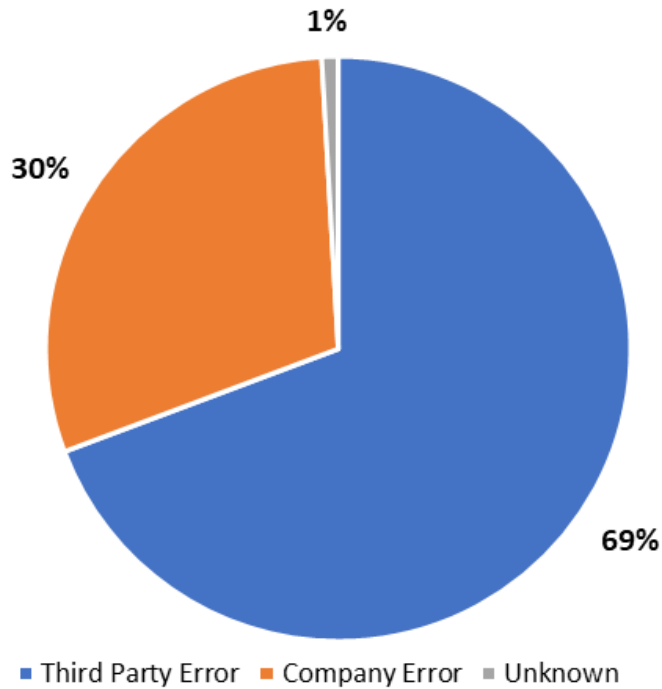


Figure 13: Crash error involving registered RTMS vehicles in the Western Cape

Table 8: Crashes and fatalities per million kms travelled involving registered RTMS vehicles in the Western Cape

Year	Quarter	Total kms Travelled	Crashes per million kms Travelled	Fatalities per million kms Travelled
2019	Q1	7 893 844	4.9	0
	Q2	14 528 727	3.0	0
	Q3	28 945 984	2.0	0.03
	Q4	34 790 906	2.4	0.09
2020	Q1	54 586 227	1.9	0
	Q2	20 709 130	1.8	0.10
	Q3	20 311 647	2.2	0
	Q4	34 421 252	1.3	0
2021	Q1	27 813 316	2.8	0.04
	Q2	19 702 428	1.6	0.05
	Q3	20 519 447	1.3	0
	Q4	26 332 629	2.6	0

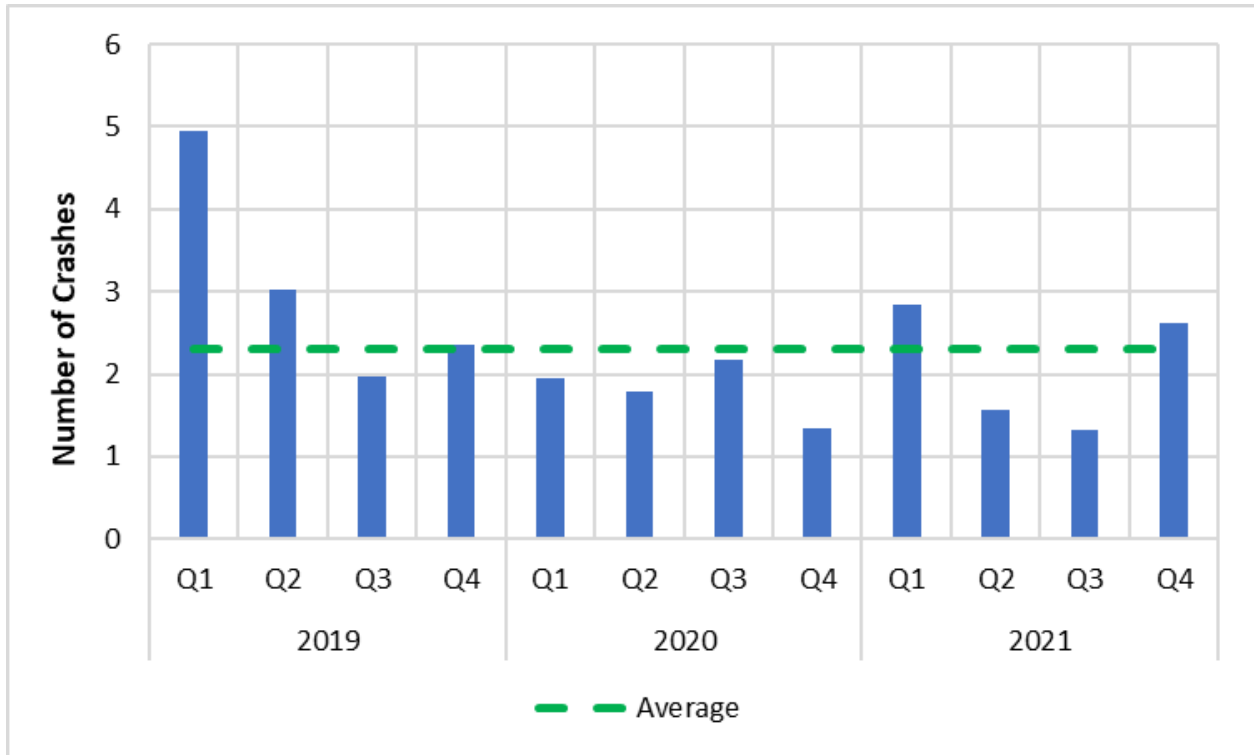


Figure 14: Number of crashes per million kms travelled involving registered RTMS vehicles in the Western Cape

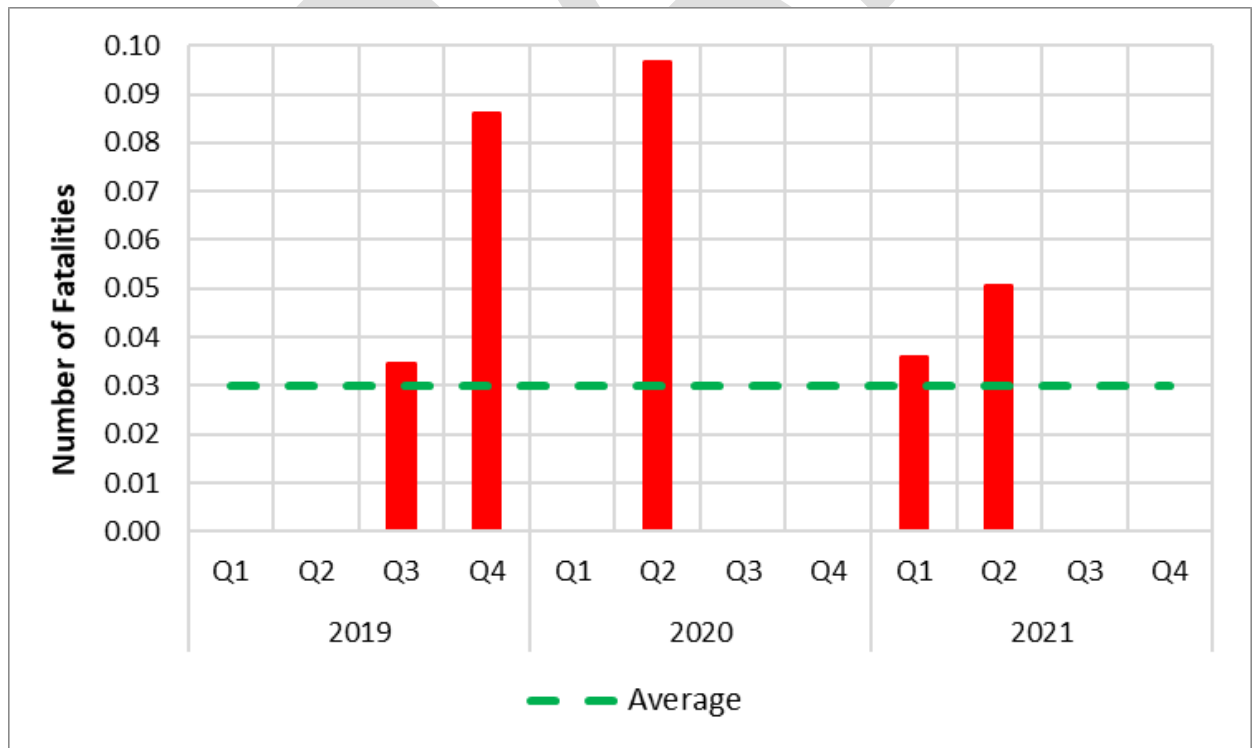


Figure 15: Number of fatalities per million kms travelled involving registered RTMS vehicles in the Western Cape

Table 9: Number of crashes and fatalities involving registered RTMS vehicles in the rest of South Africa

Year	Quarter	Total Number of Crashes	Third Party Error	Company Error	Unknown Error	Fatalities
2017	Q1	346	64	144	138	2
	Q2	326	176	120	30	6
	Q3	663	353	286	24	32
	Q4	579	371	199	9	9
2018	Q1	1 489	663	767	59	51
	Q2	857	475	370	12	7
	Q3	644	338	252	54	17
	Q4	499	305	173	21	8
2019	Q1	659	380	252	27	6
	Q2	674	399	238	37	1
	Q3	1 913	550	1 295	68	15
	Q4	1 077	646	421	10	16
2020	Q1	999	511	463	25	7
	Q2	602	307	270	25	11
	Q3	560	314	221	25	8
	Q4	377	219	130	28	3
2021	Q1	752	460	286	6	14
	Q2	1 220	759	459	2	15
	Q3	727	443	287	0	1
	Q4	396	232	182	0	47

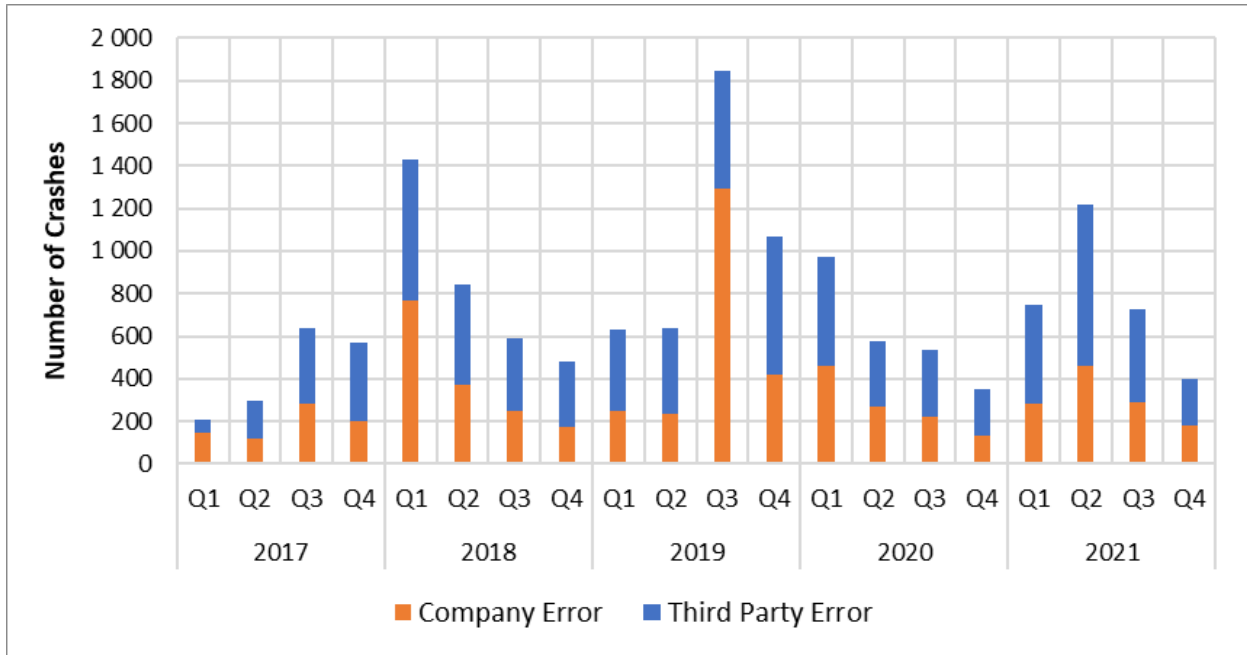


Figure 16: Number of crashes involving registered RTMS vehicles in the rest of South Africa

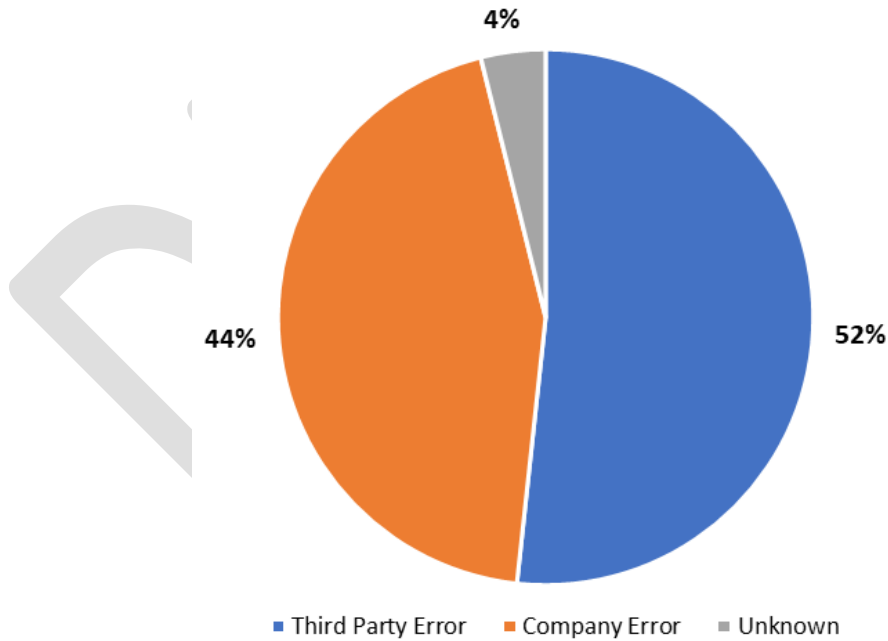


Figure 17: Crash error involving registered RTMS vehicles in the rest of South Africa

Table 10: Crashes and fatalities per million kms travelled involving registered RTMS vehicles in the rest of South Africa

Year	Quarter	Total kms Travelled	Crashes per million kms Travelled	Fatalities per million kms Travelled
2017	Q1	48 079 291	7.2	0.04
	Q2	88 017 218	3.7	0.07
	Q3	277 599 111	2.4	0.12
	Q4	199 675 110	2.9	0.05
2018	Q1	447 769 684	3.3	0.11
	Q2	214 248 119	4.0	0.03
	Q3	210 116 895	3.1	0.08
	Q4	354 097 364	1.4	0.02
2019	Q1	172 129 434	3.8	0.03
	Q2	170 117 573	4.0	0.01
	Q3	284 118 395	6.7	0.05
	Q4	280 631 333	3.8	0.06
2020	Q1	509 520 217	2.0	0.01
	Q2	414 273 730	1.5	0.03
	Q3	711 178 997	0.8	0.01
	Q4	272 880 426	1.4	0.01
2021	Q1	411 870 952	1.8	0.03
	Q2	333 433 722	3.7	0.04
	Q3	133 192 276	5.5	0.01
	Q4	135 657 171	2.9	0.35

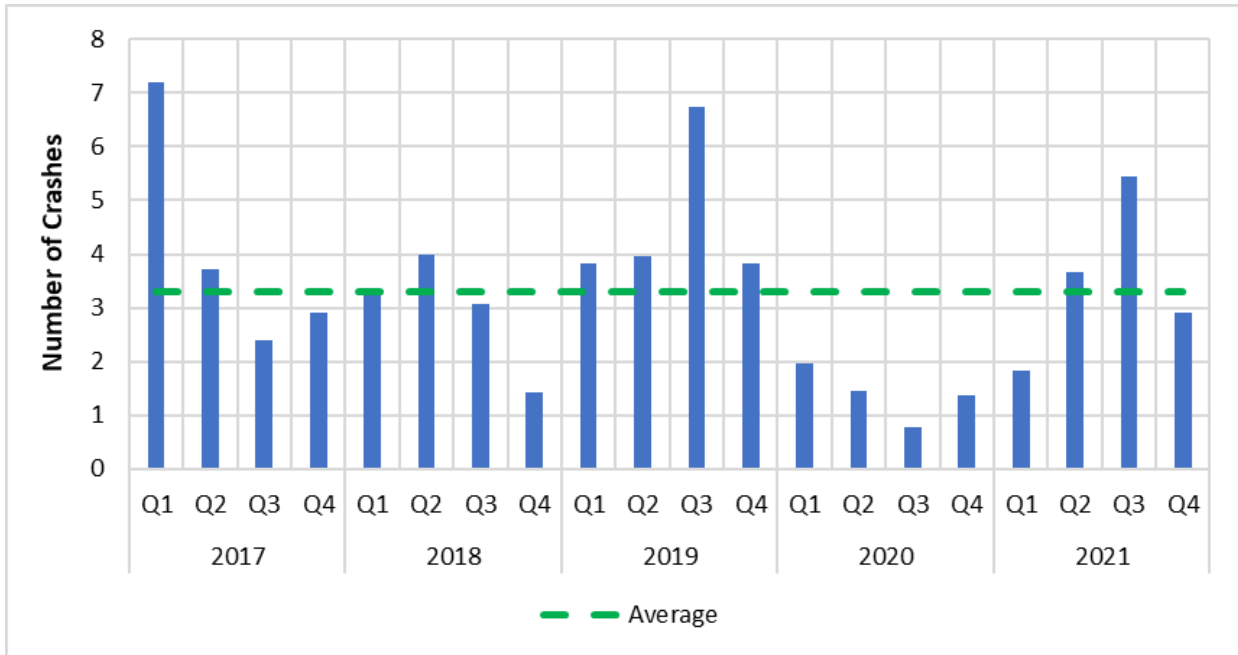


Figure 18: Number of crashes per million kms travelled involving registered RTMS vehicles in the rest of South Africa

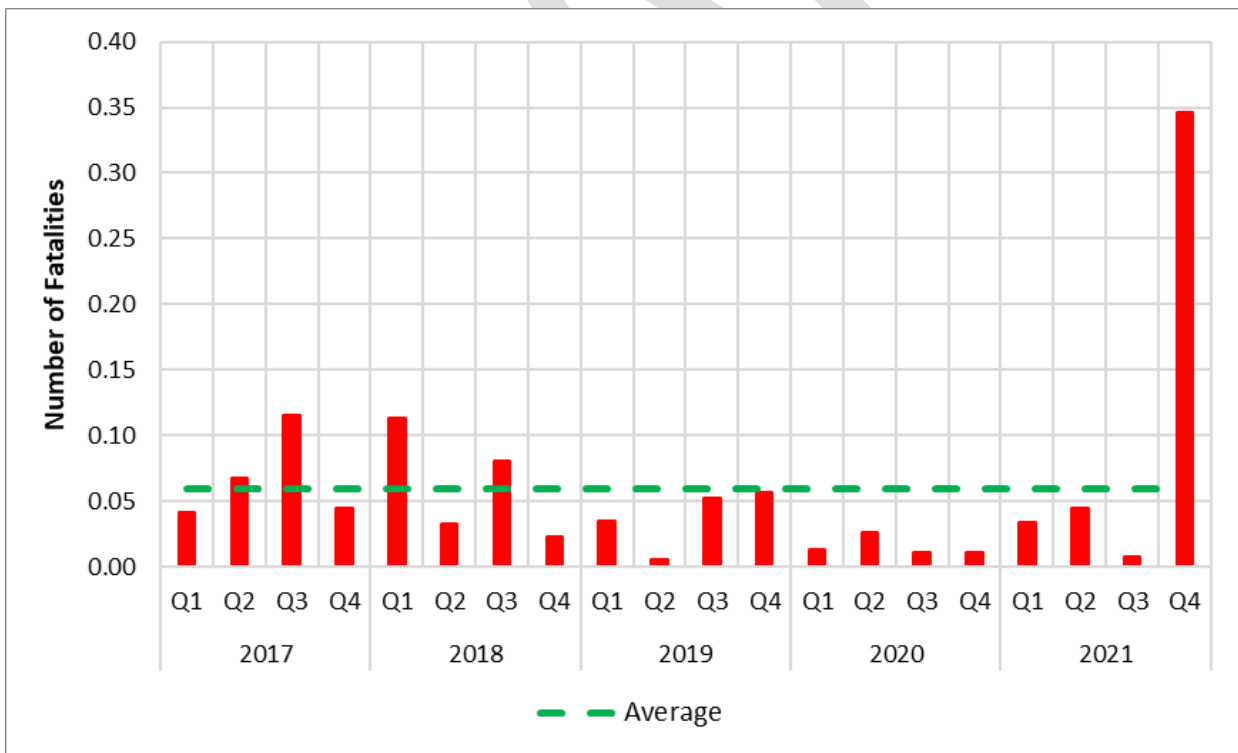


Figure 19: Number of fatalities per million kms travelled involving registered RTMS vehicles in the rest of South Africa

3.3. Driver Behaviour

The number of traffic violations and corrective or disciplinary actions recorded by each transport company could provide insights to the drivers' operational behaviour. The fines issued could be for speeding or any other violation that received a fine. The number of corrective or disciplinary actions recorded were grouped as habitual over-speeding, excessive driving and/or shift hours or other RTMS non-conformances. The number of traffic violations and corrective or disciplinary actions were analysed per total distance travelled for comparison.

Considering the number of traffic violations per million kilometres travelled involving registered RTMS vehicles in the Western Cape, the average traffic violation rate is 3.4 per million kilometres travelled. The average traffic violation rate per million kilometres travelled involving registered RTMS vehicles in the rest of South Africa is 7.1. Figure 20 indicates that Registered RTMS vehicles in the Western Cape have a lower traffic violation rate per million kilometres travelled compared to the vehicles registered in the rest of South Africa.

Considering the number of corrective or disciplinary actions per million kilometres travelled involving registered RTMS vehicles in the Western Cape, the average number of corrective or disciplinary action rate is 9 per million kilometres travelled. The average number of corrective or disciplinary action rate per million kilometres travelled involving registered RTMS vehicles in the rest of South Africa is 8. Figure 20 indicates that registered RTMS vehicles in the Western Cape have a higher corrective or disciplinary action rate per million kilometres travelled compared to the vehicles registered in the rest of South Africa.



Figure 20: Average number of traffic violations and corrective or disciplinary actions per million kms travelled

The number of traffic violations and corrective or disciplinary actions are summarised and presented in Table 11 to Table 14, and Figure 21 to Figure 30.

Table 11: Number of traffic violations received by registered RTMS vehicles in the Western Cape

Year	Quarter	Number of Traffic Violations	Total kms Travelled	Number of Traffic Violations per million kms Travelled
2019	Q1	29	7 893 844	3.7
	Q2	84	14 528 727	5.8
	Q3	161	28 945 984	5.6
	Q4	104	34 790 906	3.0
2020	Q1	115	54 586 227	2.1
	Q2	22	20 709 130	1.1
	Q3	53	20 311 647	2.6
	Q4	101	34 421 252	2.9
2021	Q1	179	27 813 316	6.4
	Q2	75	19 702 428	3.8
	Q3	47	20 519 447	2.3
	Q4	43	26 332 629	1.6

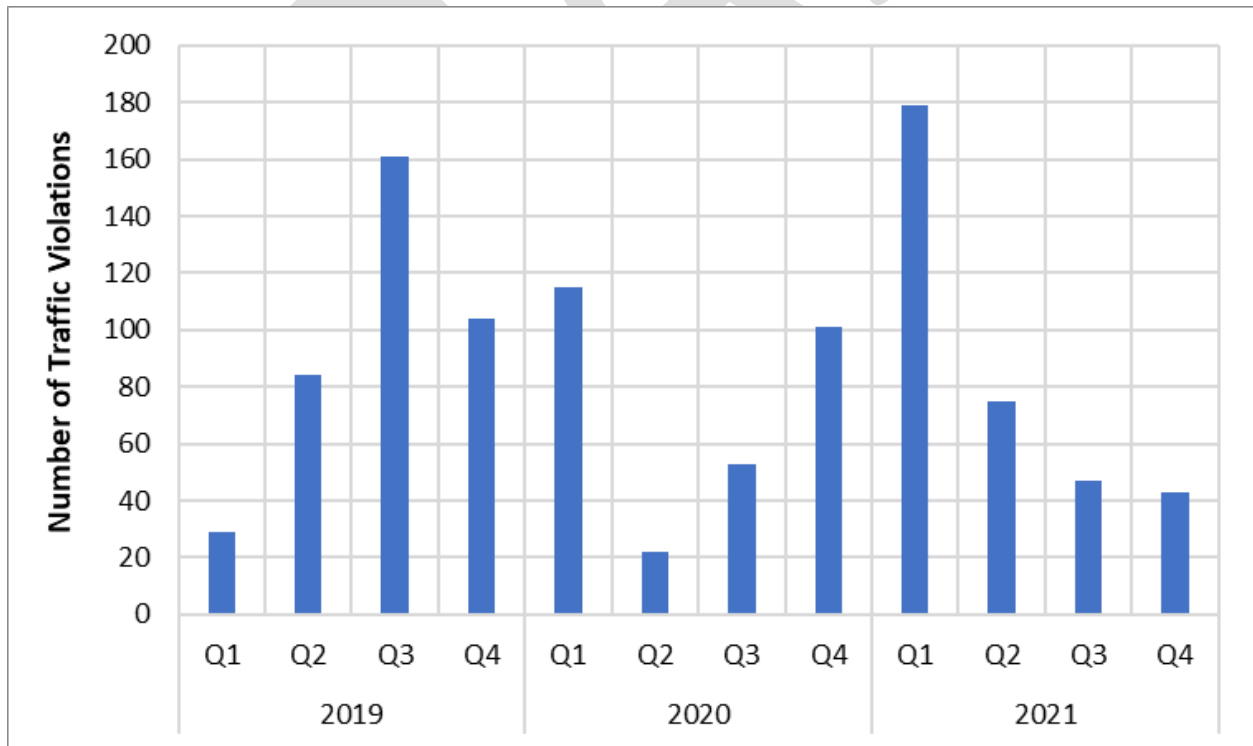


Figure 21: Number of traffic violations received by registered RTMS vehicles in the Western Cape

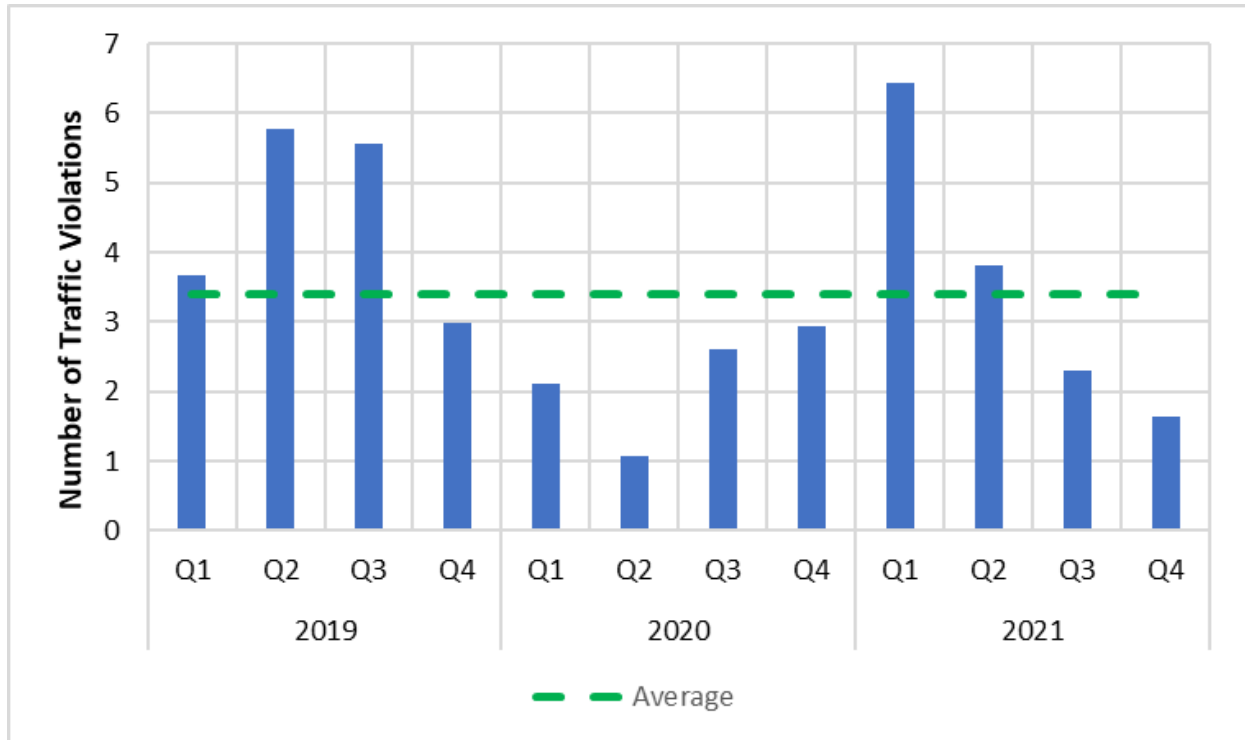


Figure 22: Number of traffic violations received per million kms travelled by registered RTMS vehicles in the Western Cape

Table 12: Number of corrective or disciplinary actions received by registered RTMS vehicles in the Western Cape

Year	Quarter	Habitual Over-speeding	Excessive Driving and/or Shift Hours	Other RTMS Non-conformances	Total	Total kms Travelled	Number of Corrective/ Disciplinary Actions per million kms Travelled
2019	Q1	4	-	-	4	7 893 844	1
	Q2	64	13	4	81	14 528 727	6
	Q3	88	185	54	327	28 945 984	11
	Q4	73	179	66	318	34 790 906	9
2020	Q1	216	147	78	441	54 586 227	8
	Q2	24	126	63	213	20 709 130	10
	Q3	55	209	67	331	20 311 647	16
	Q4	78	362	108	548	34 421 252	16
2021	Q1	75	115	43	233	27 813 316	8
	Q2	50	104	33	187	19 702 428	9
	Q3	45	70	31	146	20 519 447	7
	Q4	52	12	49	113	26 332 629	4

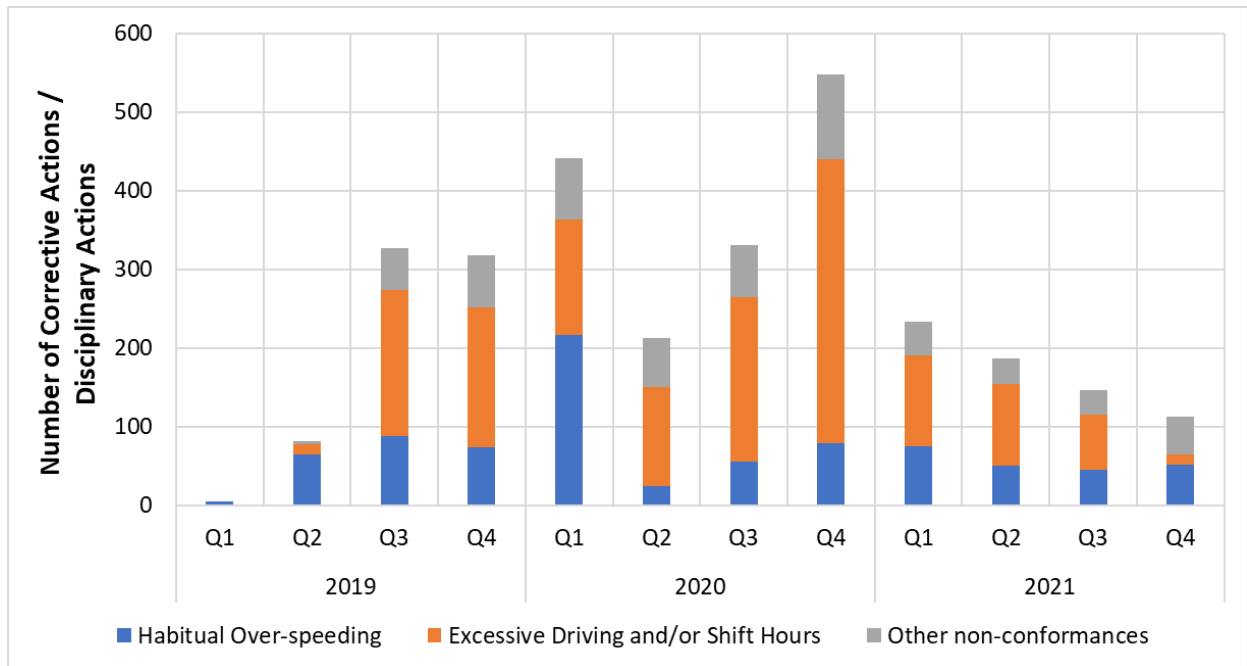


Figure 23: Number of corrective or disciplinary actions received by registered RTMS vehicles in the Western Cape

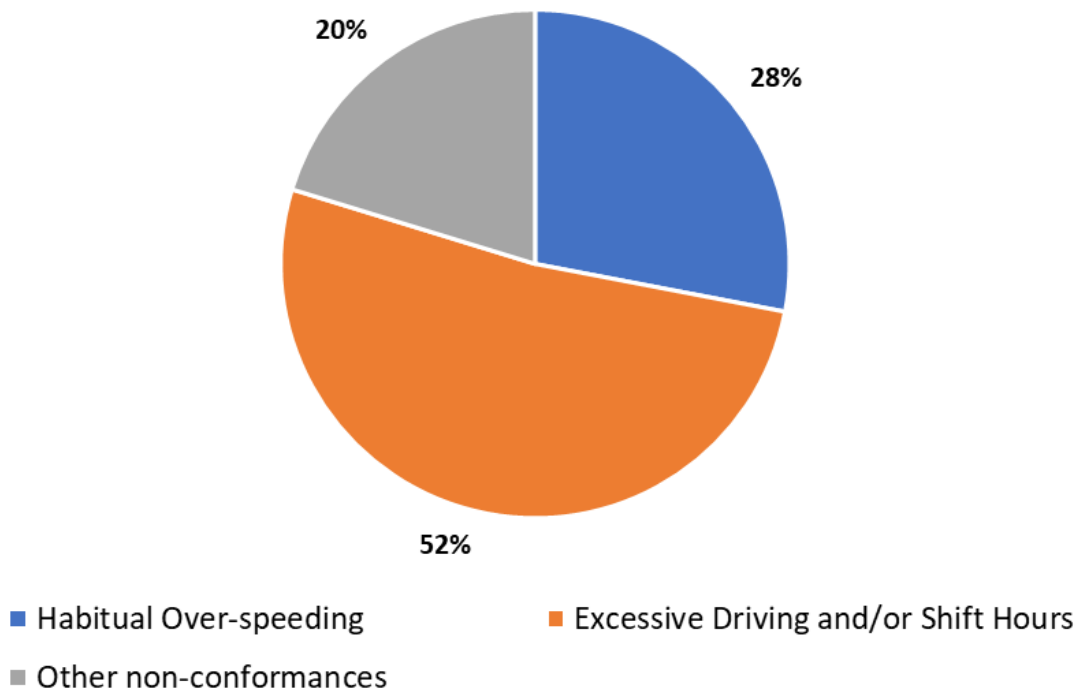


Figure 24: Distribution of corrective or disciplinary actions received by registered RTMS vehicles in the Western Cape

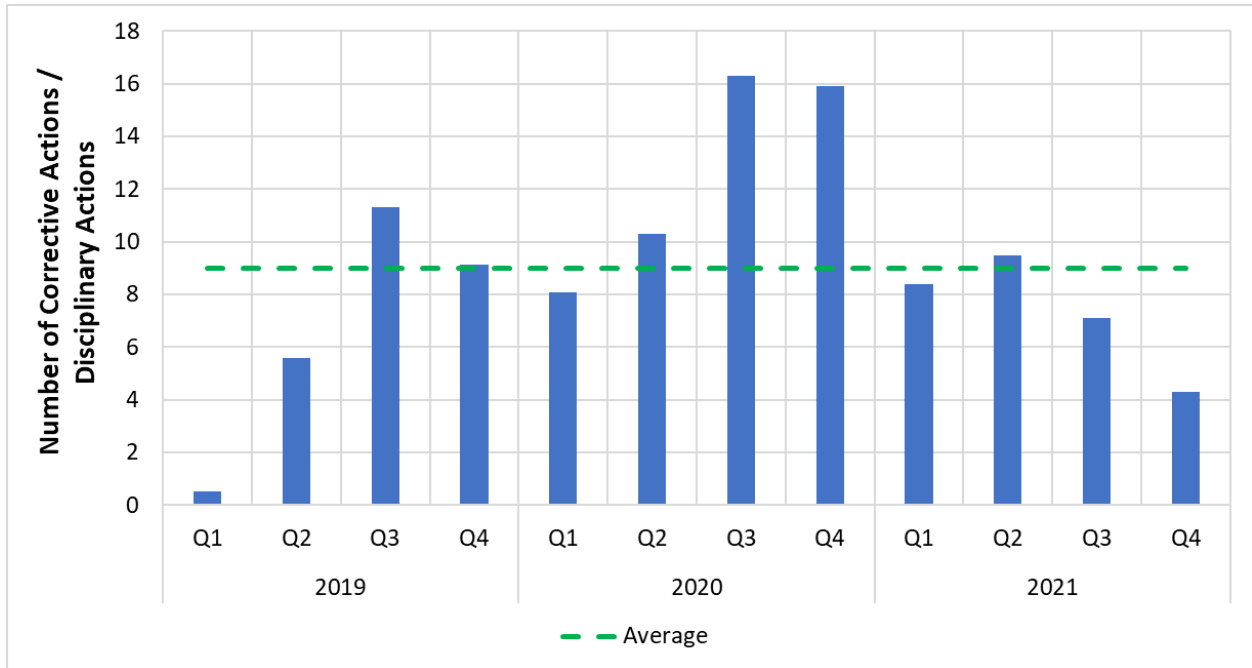


Figure 25: Number of corrective or disciplinary actions received per million kms travelled by registered RTMS vehicles in the Western Cape

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Table 13: Number of traffic violations received by registered RTMS vehicles in the rest of South Africa

Year	Quarter	Number of Traffic Violations	Total kms Travelled	Number of Traffic Violations per million kms Travelled
2017	Q1	676	48 079 291	14.1
	Q2	1 285	88 017 218	14.6
	Q3	1 972	277 599 111	7.1
	Q4	2 573	199 675 110	12.9
2018	Q1	4 656	447 769 684	10.4
	Q2	1 702	214 248 119	7.9
	Q3	1 827	210 116 895	8.7
	Q4	1 638	354 097 364	4.6
2019	Q1	1 680	172 129 434	9.8
	Q2	1 675	170 117 573	9.8
	Q3	2 049	284 118 395	7.2
	Q4	1 611	280 631 333	5.7
2020	Q1	1 444	509 520 217	2.8
	Q2	792	414 273 730	1.9
	Q3	968	711 178 997	1.4
	Q4	1 099	272 880 426	4.0
2021	Q1	1 905	411 870 952	4.6
	Q2	1 610	333 433 722	4.8
	Q3	762	133 192 276	5.7
	Q4	505	135 657 171	3.7

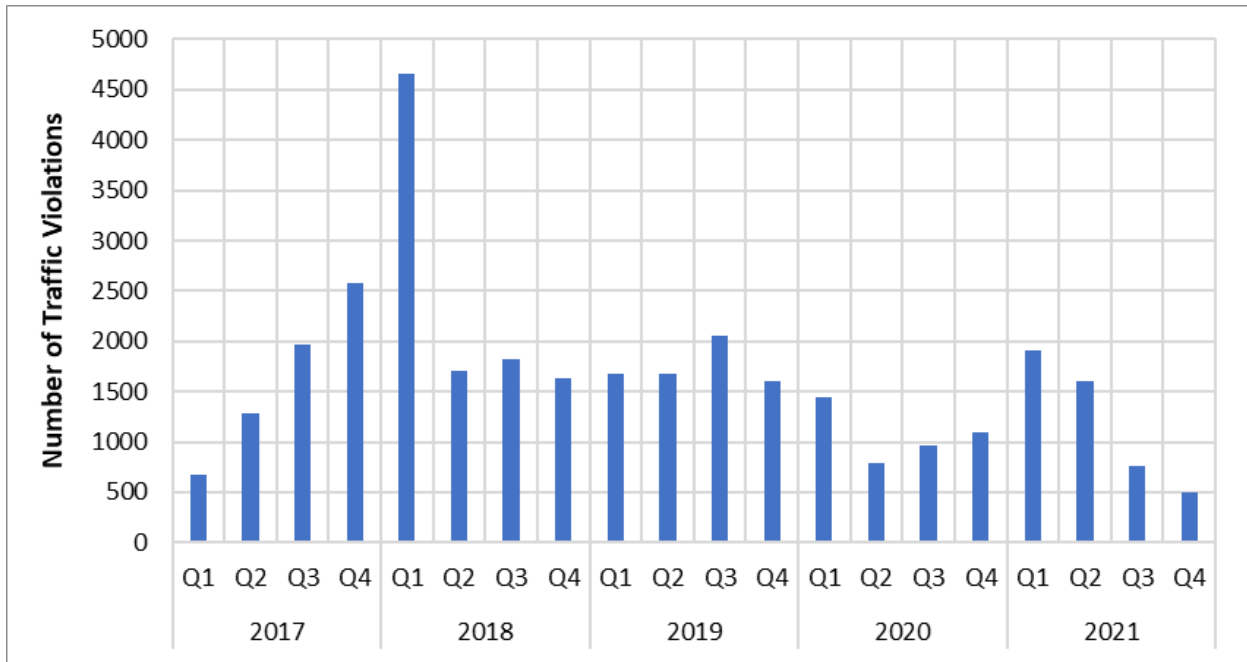


Figure 26: Number of traffic violations received by registered RTMS vehicles in the rest of South Africa

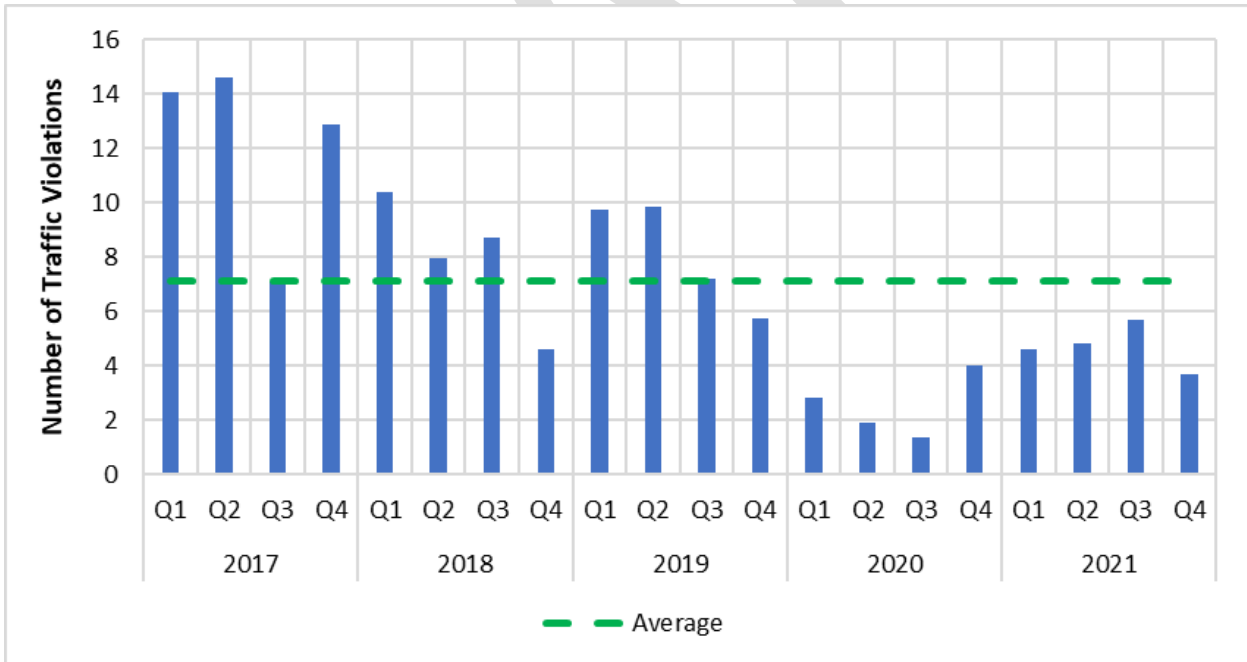


Figure 27: Number of traffic violations received per million kms travelled by registered RTMS vehicles in the rest of South Africa

Table 14: Number of corrective or disciplinary actions received by registered RTMS vehicles in the rest of South Africa

Year	Quarter	Habitual Over-speeding	Excessive Driving and/or Shift Hours	Other RTMS Non-conformances	Total	Total kms Travelled	Number of Corrective/ Disciplinary Actions per million kms Travelled
2017	Q1	186	46	73	305	48 079 291	6
	Q2	1 459	63	230	1 752	88 017 218	20
	Q3	2 004	762	228	2 994	277 599 111	11
	Q4	1 284	295	288	1 867	199 675 110	9
2018	Q1	1 074	514	1 049	2 637	447 769 684	6
	Q2	855	216	291	1 362	214 248 119	6
	Q3	890	505	585	1 980	210 116 895	9
	Q4	786	359	513	1 658	354 097 364	5
2019	Q1	844	544	343	1 731	172 129 434	10
	Q2	855	529	449	1 833	170 117 573	11
	Q3	1 024	349	350	1 723	284 118 395	6
	Q4	2 121	293	431	2 845	280 631 333	10
2020	Q1	1 262	760	538	2 560	509 520 217	5
	Q2	1 010	351	428	1 789	414 273 730	4
	Q3	711	373	493	1 577	711 178 997	2
	Q4	968	373	146	1 487	272 880 426	5
2021	Q1	872	756	238	1 866	411 870 952	5
	Q2	1 082	772	348	2 202	333 433 722	7
	Q3	572	283	121	976	133 192 276	7
	Q4	783	364	197	1 344	135 657 171	10

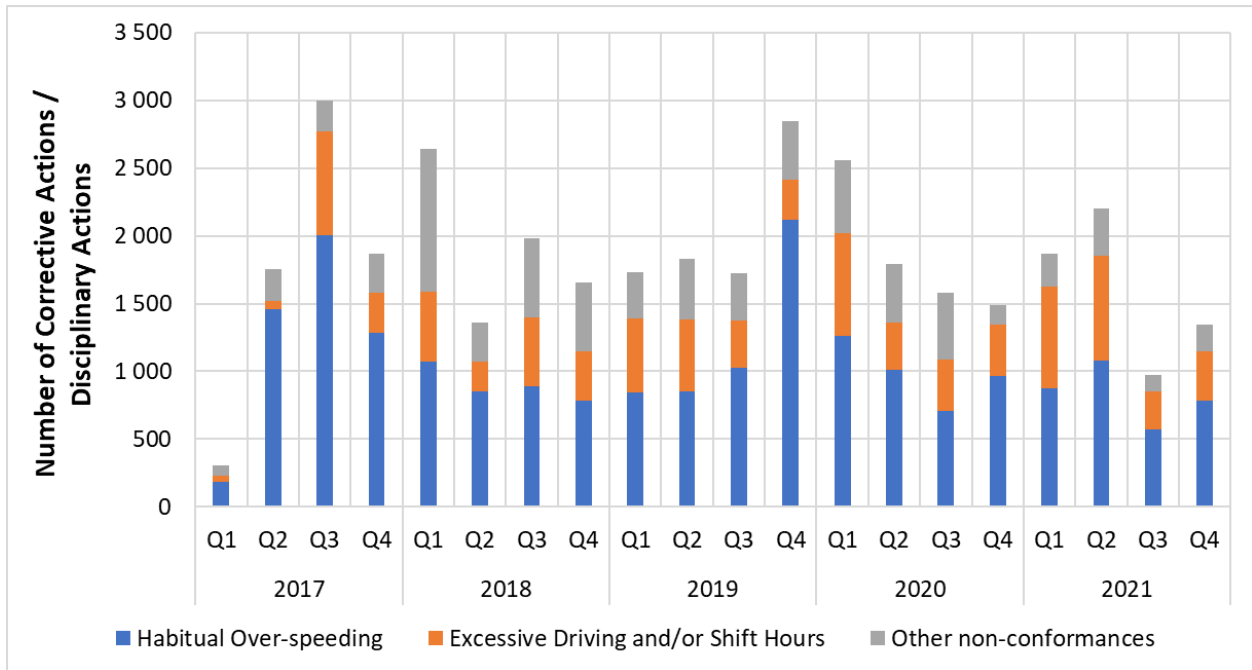


Figure 28: Number of corrective or disciplinary actions received by registered RTMS vehicles in the rest of South Africa

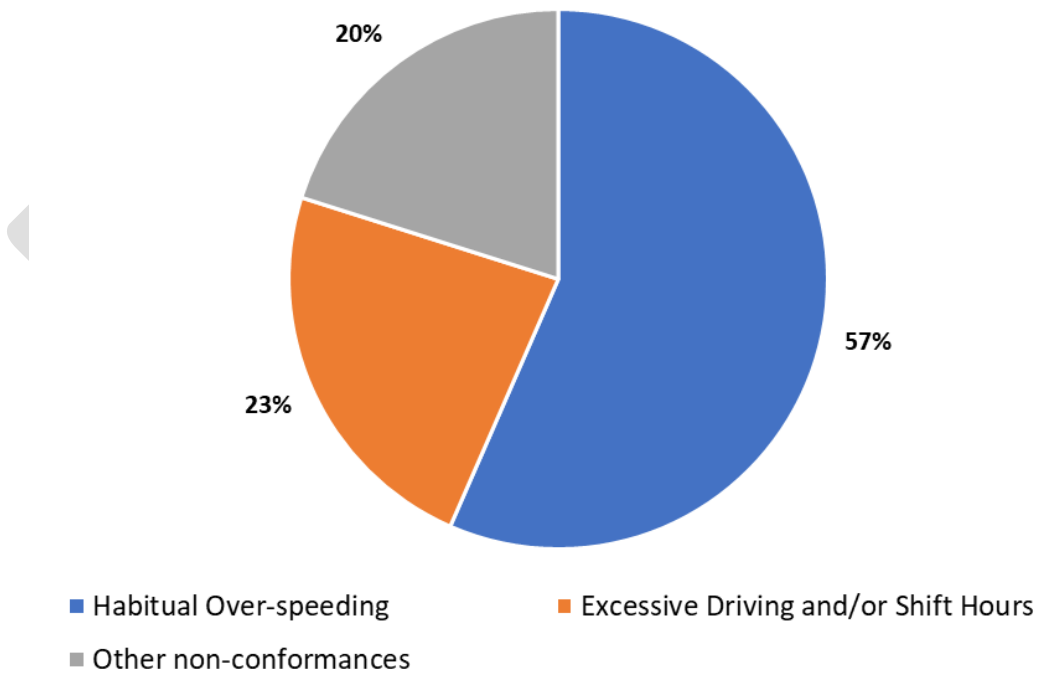


Figure 29: Distribution of corrective or disciplinary actions received by registered RTMS vehicles in the rest of South Africa

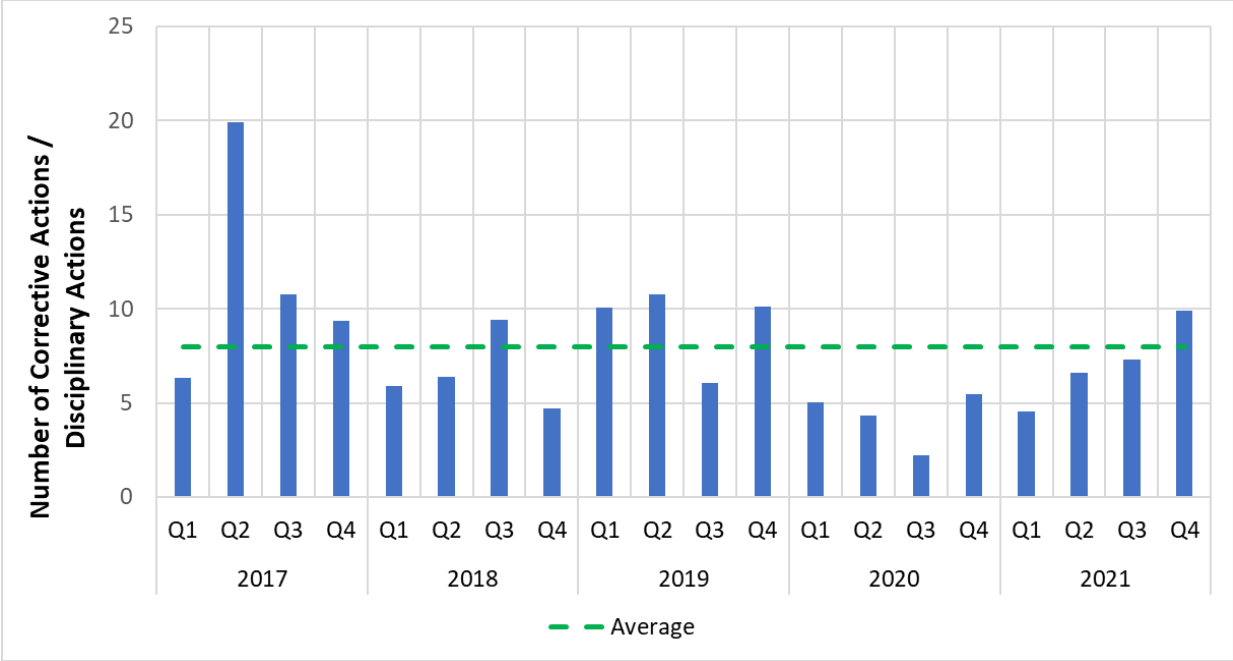


Figure 30: Number of corrective or disciplinary actions received per million kms travelled by registered RTMS vehicles in the rest of South Africa

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3.4. Driver Training

RTMS-certified transport companies are required to report on the number of drivers who received training during the specific reporting quarter. The monitoring data do not contain details on the type of driver training that was received. The number of drivers trained in the quarter were analysed as a percentage of total drivers employed and per fleet size for comparison.

On average 66% of registered RTMS employed drivers in the Western Cape were trained per quarter and 39% of registered RTMS employed drivers in rest of South Africa were trained per quarter. Figure 31 indicates that a higher percentage of registered RTMS employed drivers in the Western Cape receive training per quarter compared to registered RTMS employed drivers in the rest of South Africa.

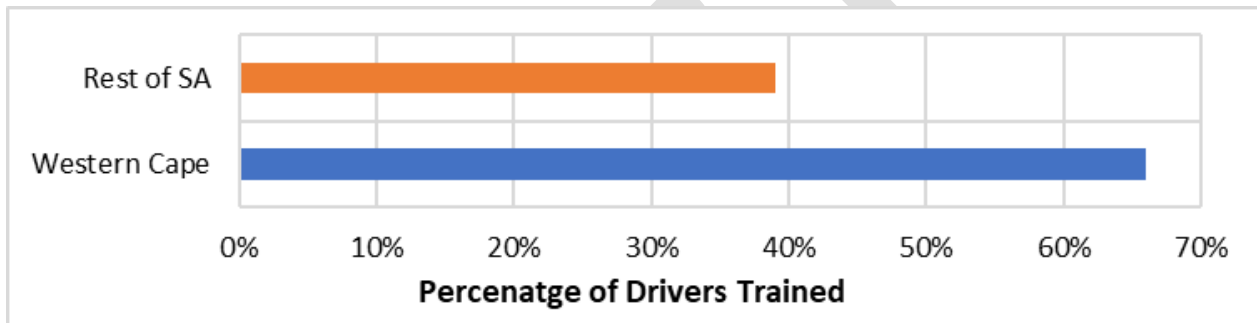


Figure 31: Average percentage of employed drivers trained per quarter

Considering the different fleet sizes, smaller fleets had a lower percentage of employed drivers trained per quarter than the larger fleets.

The number of drivers employed and trained are summarised and presented in Table 15 to Table 18, and Figure 32 to Figure 35.

Table 15: Number of registered RTMS drivers employed and trained in the Western Cape

Year	Quarter	Drivers Employed	Drivers Trained in Quarter	Percentage (%)
2019	Q1	542	513	95%
	Q2	1 058	828	78%
	Q3	1 375	785	57%
	Q4	1 937	1 214	63%
2020	Q1	3 044	1 496	49%
	Q2	1 913	1 045	55%
	Q3	1 330	1 153	87%
	Q4	1 716	1 076	63%
2021	Q1	1 664	1 049	63%
	Q2	1 302	876	67%
	Q3	1 296	916	71%
	Q4	1 555	762	49%

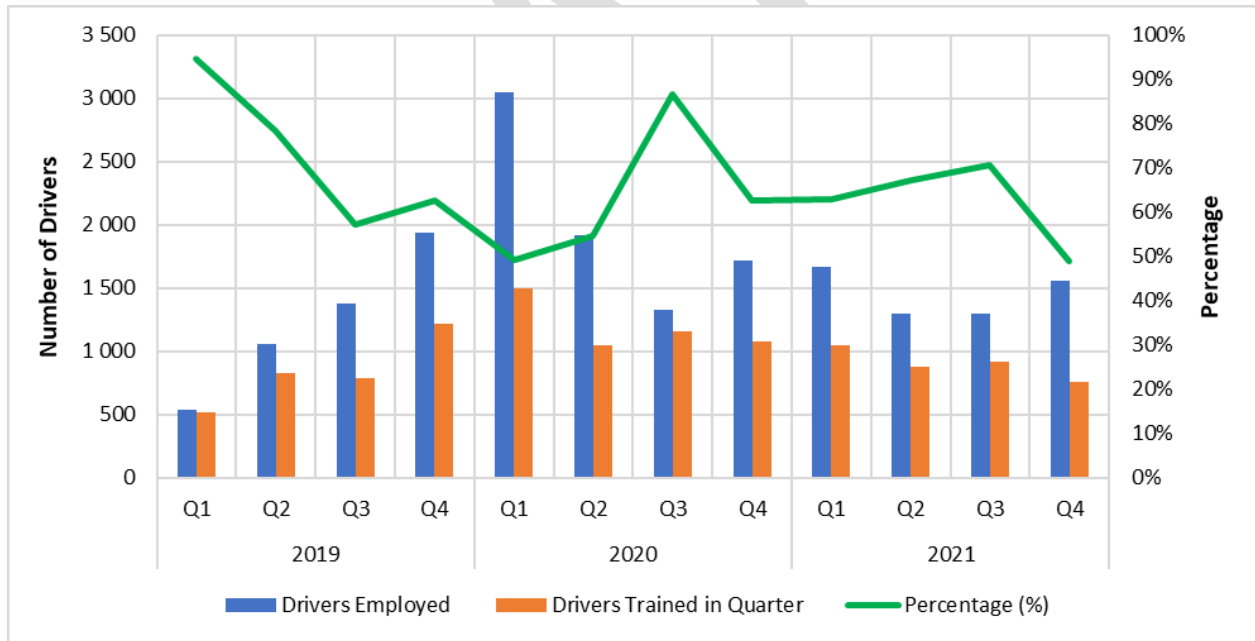


Figure 32: Percentage of registered RTMS drivers employed and trained in the Western Cape

Table 16: Percentage of registered RTMS trained per fleet size in the Western Cape

Year	Quarter	Fleet Size (Number of Vehicles)						
		1-10	11-50	51-100	101-500	501-1000	1001-1500	>1501
2019	Q1	-	-	44%	100%	-	-	-
	Q2	0%	-	37%	75%	-	-	-
	Q3	8%	29%	17%	64%	-	-	-
	Q4	17%	10%	19%	72%	-	-	-
2020	Q1	-	73%	27%	71%	-	-	0%
	Q2	-	42%	20%	60%	-	-	-
	Q3	17%	-	37%	87%	-	-	-
	Q4	-	-	32%	61%	-	-	-
2021	Q1	-	50%	84%	49%	-	-	-
	Q2	-	-	10%	79%	-	-	-
	Q3	-	-	23%	84%	-	-	-
	Q4	-	-	34%	44%	-	-	-

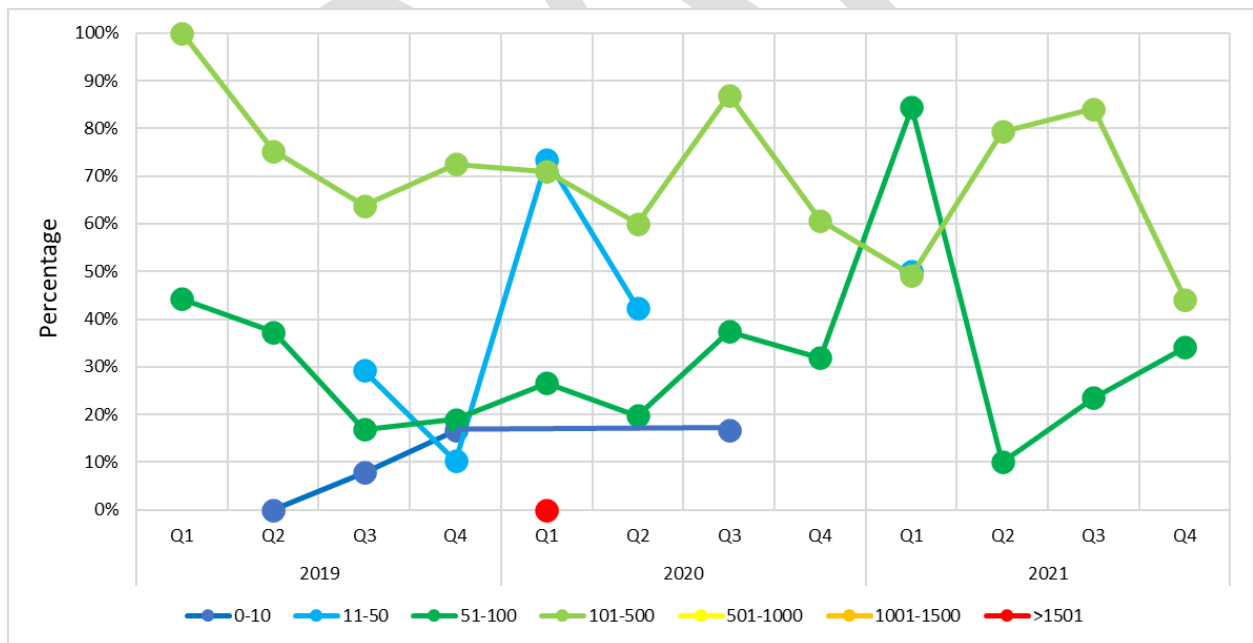


Figure 33: Percentage of registered RTMS drivers trained per fleet size in the Western Cape

Table 17: Number of registered RTMS drivers employed and trained in the rest of South Africa

Year	Quarter	Drivers Employed	Drivers Trained in Quarter	Percentage (%)
2017	Q1	2 630	729	28%
	Q2	4 891	1 957	40%
	Q3	8 406	3 984	47%
	Q4	7 107	3 070	43%
2018	Q1	13 466	6 760	50%
	Q2	9 326	4 416	47%
	Q3	8 633	4 580	53%
	Q4	8 741	3 881	44%
2019	Q1	8 491	3 635	43%
	Q2	10 233	3 384	33%
	Q3	11 584	5 046	44%
	Q4	13 986	4 096	29%
2020	Q1	12 465	4 418	35%
	Q2	12 219	2 759	23%
	Q3	8 277	2 612	32%
	Q4	12 694	2 394	19%
2021	Q1	9 756	3 338	34%
	Q2	10 536	4 098	39%
	Q3	7 089	3 694	52%
	Q4	4 807	2 458	51%

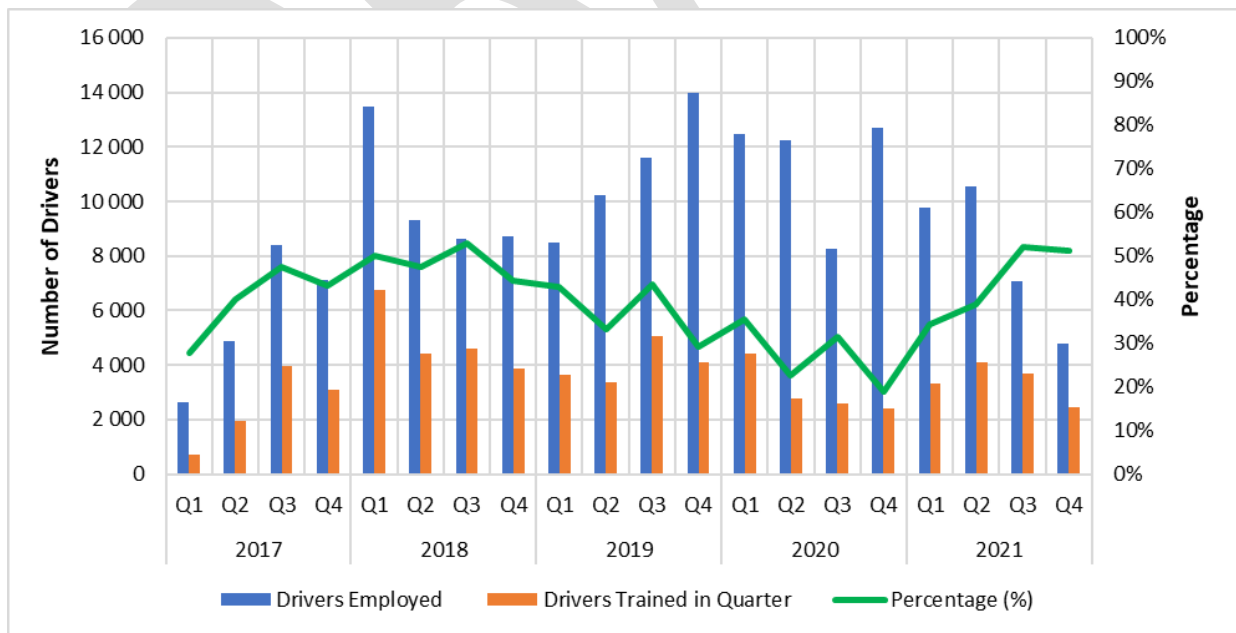


Figure 34: Percentage of registered RTMS drivers employed and trained in the rest of South Africa

Table 18: Percentage of registered RTMS trained per fleet size in the rest of South Africa

Year	Quarter	Fleet Size (Number of Vehicles)						
		1-10	11-50	51-100	101-500	501-1000	1001-1500	>1501
2017	Q1	11%	27%	62%	28%	-	-	-
	Q2	42%	44%	48%	20%	-	-	-
	Q3	50%	51%	63%	38%	-	-	-
	Q4	37%	44%	43%	46%	-	-	-
2018	Q1	53%	47%	51%	58%	42%	-	-
	Q2	39%	39%	46%	55%	-	-	-
	Q3	34%	56%	37%	49%	44%	-	-
	Q4	27%	44%	34%	53%	100%	-	-
2019	Q1	29%	38%	49%	48%	-	-	-
	Q2	25%	35%	37%	48%	3%	-	-
	Q3	30%	39%	39%	51%	2%	100%	-
	Q4	26%	33%	40%	37%	12%	-	-
2020	Q1	27%	48%	31%	41%	5%	-	-
	Q2	13%	27%	30%	29%	3%	-	-
	Q3	15%	34%	48%	27%	-	-	-
	Q4	13%	32%	26%	26%	-	-	-
2021	Q1	16%	44%	39%	46%	51%	-	-
	Q2	12%	46%	42%	44%	39%	-	-
	Q3	8%	41%	50%	45%	4%	-	-
	Q4	58%	41%	23%	51%	-	-	-

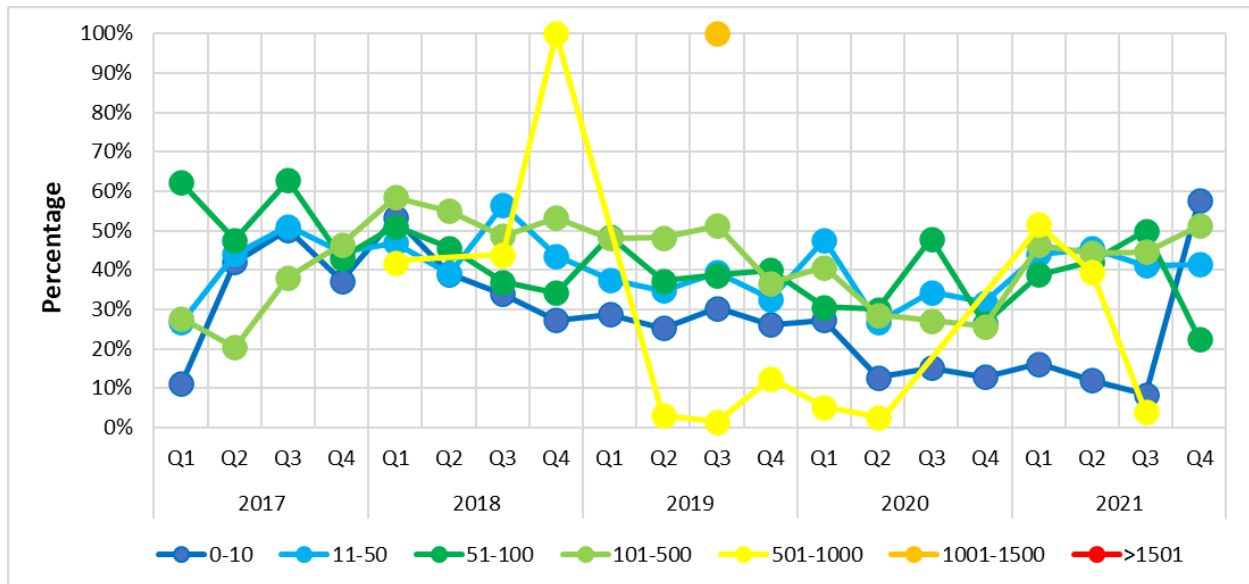


Figure 35: Percentage of registered RTMS trained per fleet size in the rest of South Africa

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3.5. Driver Wellness

RTMS-certified transport companies are required to report on the number of drivers with medical fitness certificates and chronic medical conditions. The number of drivers with medical fitness certificates and chronic medical conditions were analysed as a percentage of total drivers employed for comparison.

Figure 36 indicates that on average 88% of registered RTMS employed drivers in the Western Cape had medical fitness certificates and 13% had chronic medical conditions. Considering registered RTMS employed drivers in the rest of South Africa, 85% had medical fitness certificates and 10% had chronic medical conditions.

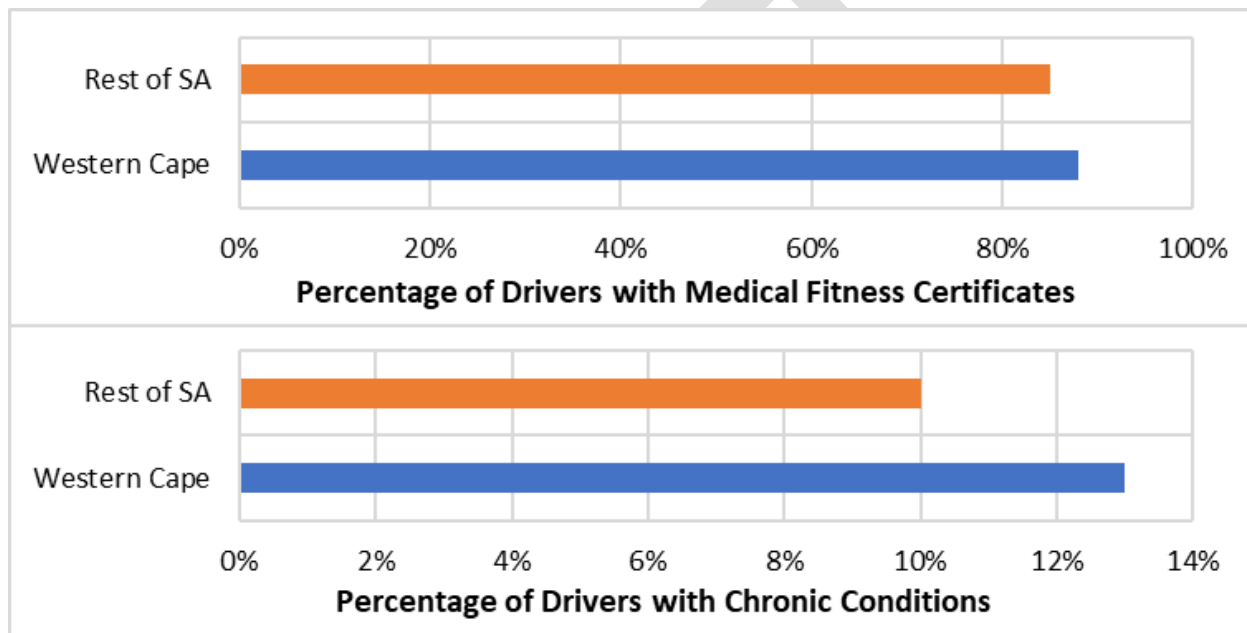


Figure 36: Percentage of drivers with medical fitness certificates and chronic conditions

A higher percentage of registered RTMS employed drivers in the Western Cape thus have medical fitness certificates and chronic medical conditions compared to registered RTMS employed drivers in the rest of South Africa.

The number of drivers employed with medical fitness certificates and chronic medical conditions are summarised and presented in Table 19 and Table 20, and Figure 37 to Figure 40.

Table 19: Number of registered RTMS drivers with medical fitness certificates and chronic conditions in the Western Cape

Year	Quarter	Drivers Employed	Drivers with Medical Fitness Certificate	Percentage (%)	Drivers with Chronic Conditions	Percentage (%)
2019	Q1	542	525	97%	97	18%
	Q2	1 058	1 035	98%	148	14%
	Q3	1 375	1 172	85%	165	12%
	Q4	1 937	1 782	92%	252	13%
2020	Q1	3 044	2 412	79%	393	13%
	Q2	1 913	1 682	88%	167	9%
	Q3	1 330	1 152	87%	160	12%
	Q4	1 716	1 340	78%	175	10%
2021	Q1	1 664	1 449	87%	221	13%
	Q2	1 302	1 137	87%	172	13%
	Q3	1 296	1 130	87%	177	14%
	Q4	1 555	1 371	88%	173	11%

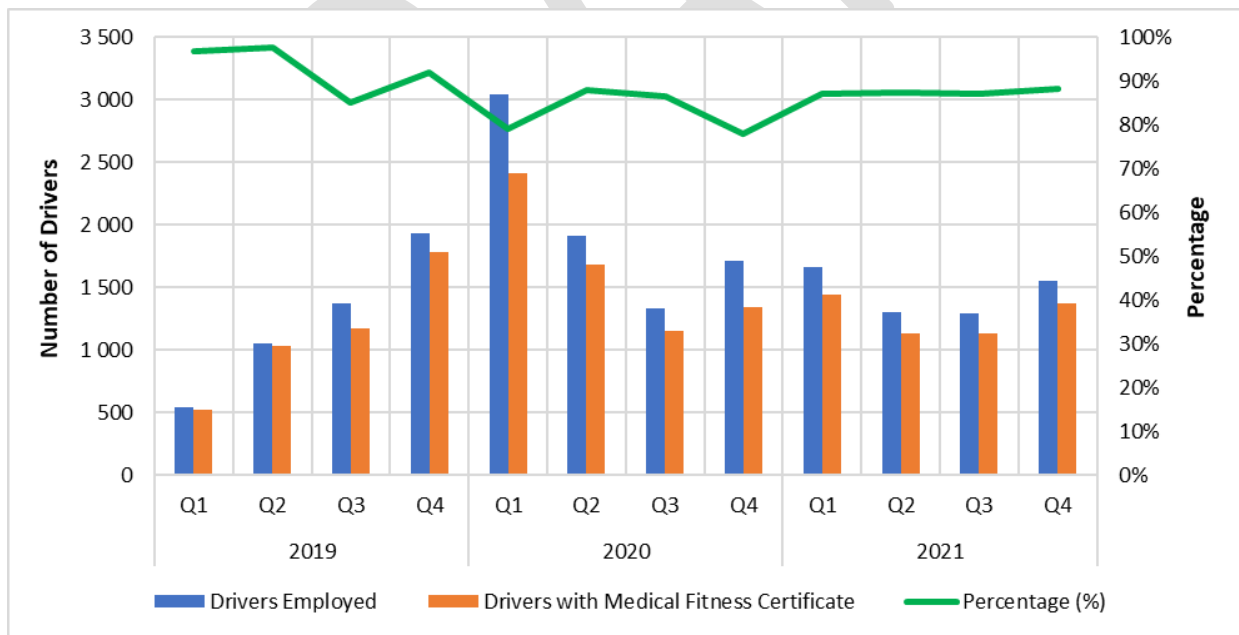


Figure 37: Number of registered RTMS drivers with medical fitness certificates in the Western Cape

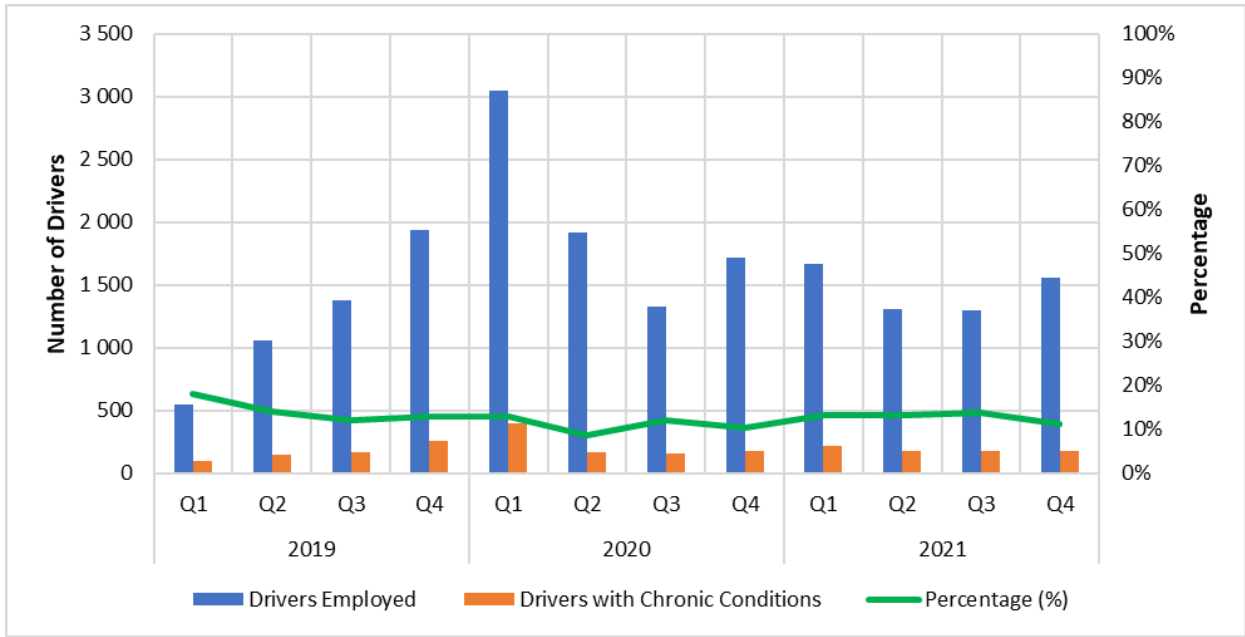


Figure 38: Number of registered RTMS drivers with chronic conditions in the Western Cape

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Table 20: Number of registered RTMS drivers with medical fitness certificates and chronic conditions in the rest of South Africa

Year	Quarter	Drivers Employed	Drivers with Medical Fitness Certificate	Percentage (%)	Drivers with Chronic Conditions	Percentage (%)
2017	Q1	2 630	1 533	58%	164	6%
	Q2	4 891	3 617	74%	470	10%
	Q3	8 406	6 830	81%	938	11%
	Q4	7 107	5 703	80%	690	10%
2018	Q1	13 466	12 048	89%	1 746	13%
	Q2	9 326	8 243	88%	993	11%
	Q3	8 633	7 522	87%	991	11%
	Q4	8 741	7 237	83%	910	10%
2019	Q1	8 491	7 698	91%	910	11%
	Q2	10 233	9 508	93%	859	8%
	Q3	11 584	10 956	95%	1 107	10%
	Q4	13 986	11 906	85%	1 627	12%
2020	Q1	12 465	11 734	94%	1 219	10%
	Q2	12 219	9 850	81%	1 608	13%
	Q3	8 277	7 433	90%	887	11%
	Q4	12 694	7 458	59%	840	7%
2021	Q1	9 756	9 360	96%	1 042	11%
	Q2	10 536	9 688	92%	1 004	10%
	Q3	7 089	6 621	93%	819	12%
	Q4	4 807	4 610	96%	555	12%

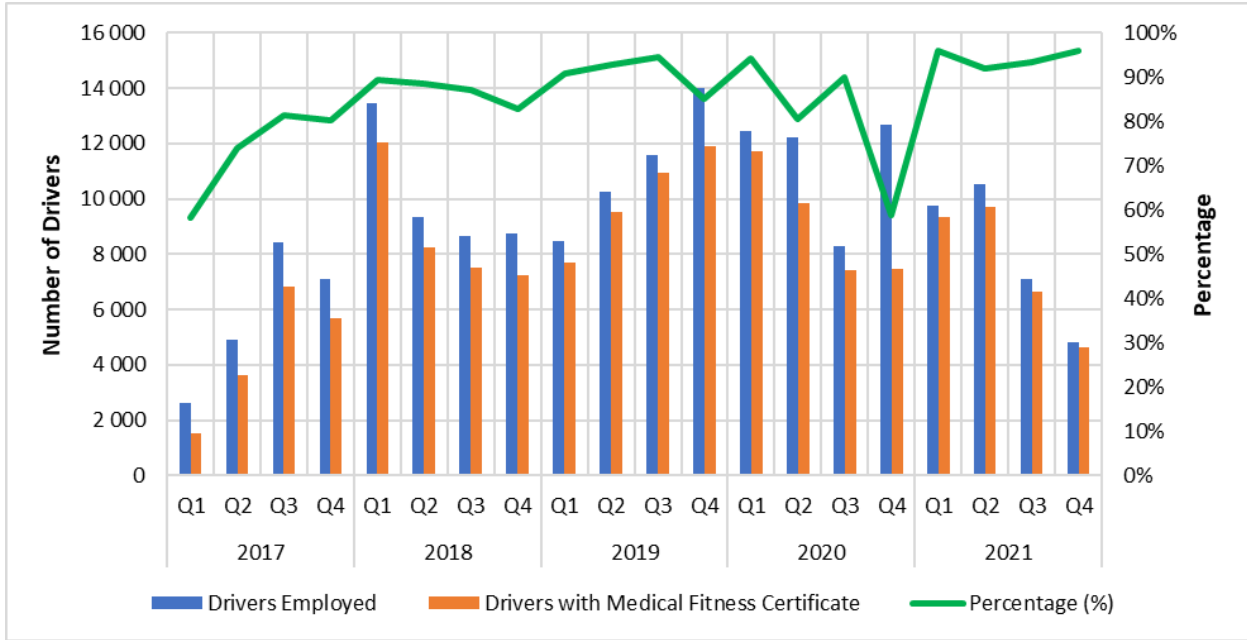


Figure 39: Number of registered RTMS drivers with medical fitness certificates the rest of South Africa

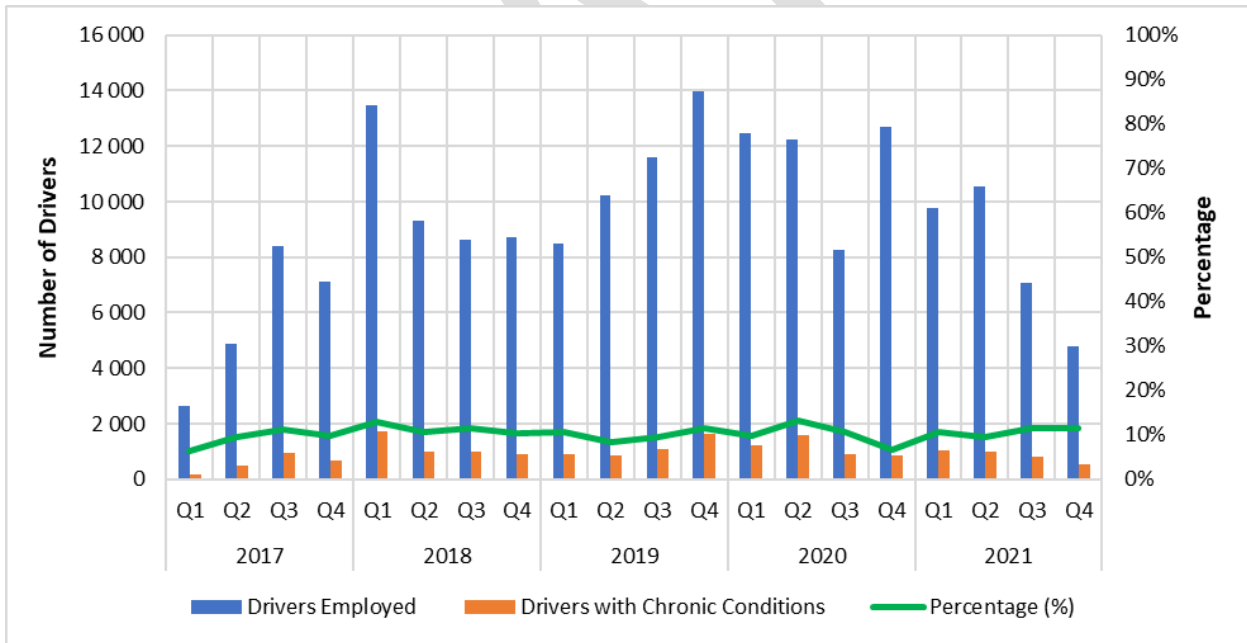


Figure 40: Number of registered RTMS drivers with chronic conditions in the rest of South Africa

4 CONCLUSIONS

The RTMS trend analysis included quarterly monitoring data as submitted by RTMS-certified transport companies for the period January 2017 to December 2021. The data submitted by transport companies with registered vehicles in the Western Cape were analysed separately and then compared to RTMS transport operations in the rest of South Africa.

The main findings in this report can be summarised as follow:

- The registered RTMS vehicles in the Western Cape on average represents the following percentages of the total national RTMS operations per quarter:
 - 15% of total number of operational vehicles;
 - 9% of total number of trips made, and
 - 8% of total kilometre distance travelled.
- 45% of transport operators with registered RTMS vehicles in the Western Cape have operational fleet sizes of between 100 to 500 vehicles. 46% of transport operators with registered RTMS vehicles in the rest of South Africa have operational fleet sizes of between 1 and 10 vehicles. Transport operators have larger fleet sizes registered in the Western Cape, when compared to the rest of South Africa.
- The top two commodities transported by registered RTMS vehicles in the Western Cape is palletised goods and fuel and gas, which respectively represents 20% and 19% of the total top 20 commodities kilometre distance travelled. Transportation of hazardous goods (fuel, gas and chemicals) comprised 42% of the total kilometers travelled. Coal and chrome are the top sectors or commodities transported by registered RTMS vehicles in the rest of South Africa and respectively represents 21% and 11% of the total kilometre distance travelled.
- Considering the number of crashes and fatalities per million kilometres travelled involving registered RTMS vehicles in the Western Cape, the average crash and fatality rates are 2.3 and 0.03 respectively per million kilometres travelled. The average crash and fatality rates per million kilometres travelled involving registered RTMS vehicles in the rest of South Africa are 3.3 and 0.06, respectively. Registered RTMS vehicles in the Western Cape thus have a lower crash and fatality rate per million kilometres travelled compared to RTMS vehicles registered in the rest of South Africa.
- The recorded crash error indicates that 30% of all crashes involving registered RTMS vehicles in the Western Cape, are due to company errors. This is lower than the 44% recorded company errors involving registered RTMS vehicles in the rest of South Africa.
- Considering the number of traffic violations per million kilometres travelled involving registered RTMS vehicles in the Western Cape, the average traffic violation rate is 3.4 per million kilometres travelled. The average traffic violation rate per million kilometres travelled involving registered RTMS vehicles in the rest of South Africa is 7.1. Registered

RTMS vehicles in the Western Cape thus have a lower traffic violation rate per million kilometres travelled compared to the vehicles registered in the rest of South Africa.

- Considering the number of corrective or disciplinary actions per million kilometres travelled involving registered RTMS vehicles in the Western Cape, the average number of corrective or disciplinary action rate is 9 per million kilometres travelled. The average number of corrective or disciplinary action rate per million kilometres travelled involving registered RTMS vehicles in the rest of South Africa is 8. Registered RTMS vehicles in the Western Cape thus have a higher corrective or disciplinary action rate per million kilometres travelled compared to the vehicles registered in the rest of South Africa.
- On average 66% of registered RTMS employed drivers in the Western Cape were trained per quarter and 39% of registered RTMS employed drivers in rest of South Africa were trained per quarter. A higher percentage of registered RTMS employed drivers in the Western Cape thus receive training per quarter compared to registered RTMS employed drivers in the rest of South Africa.
- Considering the different fleet sizes, smaller fleets had a lower percentage of employed drivers trained per quarter than the larger fleets.
- On average 88% of registered RTMS employed drivers in the Western Cape had medical fitness certificates and 13% had chronic medical conditions. Considering registered RTMS employed drivers in the rest of South Africa, 85% had medical fitness certificates and 10% had chronic medical conditions.
- A higher percentage of registered RTMS employed drivers in the Western Cape thus have medical fitness certificates and chronic medical conditions compared to registered RTMS employed drivers in the rest of South Africa.

This RTMS trend analysis will be supplemented by a survey study conducted through a questionnaire and semi-structured interviews. The RTMS back-office will be approached to send a letter on behalf of the CSIR to each of the Western Cape RTMS-certified companies, requesting permission to be contacted and to participate in this research study. The survey will aim to determine which strategies have been implemented successfully to achieve improved driver skills, attitude and motivation, general health, and a reduction in chronic illnesses. The heavy vehicle drivers will also be approached to participate in the survey to determine how they have benefited from RTMS accreditation and the identified strategies.