

# CONTRIBUTORY FACTORS TO ROAD TRAFFIC CRASHES

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## ABSTRACT

Road traffic crashes are random events or incidents – nobody decides “*today is the day that I will be involved a crash*”. However, crashes also do not just happen – they happen because of certain real contributory factors. These contributory factors are circumstantial elements that are present at the time of the crash and are generally classified under four main categories, namely: **human, vehicle, roadway and the environment**. The first three factors reflect human and authority behaviour, attitudes and performance, while the fourth factor, the environment could, to a certain extent, be regarded as being beyond the control of the driver or the authorities.

It is very seldom that a crash happens because of only one contributory factor. In most cases there are 2, 3 and even 4 or more factors from any one or more of the above categories present simultaneously. It is further accepted that 90% or more road traffic crashes happen as a direct result of traffic offences or non-compliance with prescribed norms and standards. In this regard the human element plays a major role. For example, should a crash result from a tyre burst, generally classified under *vehicle factors*, it still is the responsibility of the driver or owner of the vehicle to see that the worn or damaged tyre is replaced timeously.

Whilst it is stated that these contributory factors are present at the time of the crash, in many cases most of the factors are all known to the driver or owner of a vehicle even before the event of a crash. A certain level of risk of being involved in a crash is therefore already present at the start of the trip. This level of risk can be eliminated or at least reduced, should timeous precautions be taken.

Major traffic offences and contraventions that mostly contribute to traffic crashes or the severity of crashes, have been identified and to some extent monitored during the past few years through independent Annual Traffic Offence Surveys. The purpose of this paper is to highlight some of these offences and contraventions as contributory factors and to show their relationship in the occurrence of crashes.

## 1. INTRODUCTION

Since the invention of the motor vehicle over a century ago, it is estimated that about 30 million people have been killed in road crashes worldwide. The first road crash recorded in South Africa happened in the evening on 1 October 1903 in Maitland, Cape Town. The driver of the vehicle entered a level crossing through an open gate only to find the opposite gate closed. Before he or his passenger could open the gate or reverse, they were struck by the Johannesburg express train travelling at full speed. The passenger was thrown

clear and the driver suffered only minor injuries. The motorcar was badly damaged, see photograph below. The enquiry into the crash revealed a *remarkably casual* attitude by drivers of motorcars towards level crossings. This “*casual attitude*” still remains with us today and has expanded to much more than level crossings.

Since this date to the end of 2003 a total of about 393,977 persons (1,31% of the world total) were killed in traffic crashes on South African roads.

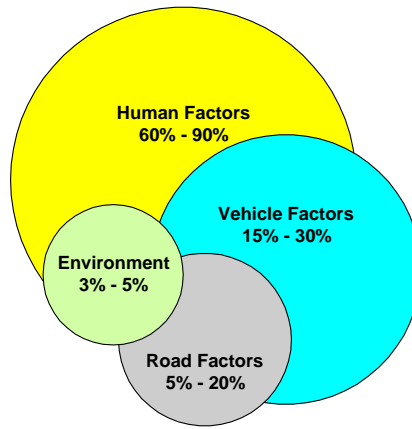


## 2. CONTRIBUTORY FACTORS TO ROAD CRASHES

Road crashes do not just happen – they happen because of certain contributory factors. These contributory factors are real circumstantial elements that are present at the time of the crash and are generally classified under four main categories, namely: **human, vehicle, roadway and the environment**. The first three factors reflect both human and authority behaviour, attitude and performance, while the fourth factor, the environment could, to a certain extent, be regarded as being beyond the control of the driver or the authorities. South African information collected over many years on contributory factors, show the percentage contribution of each of these categories to crashes as indicated in figure 1 below.

Road crashes are rarely caused by a single factor. In most cases there are 2, 3 and even 4 or more factors from any one or more of the above categories present simultaneously.

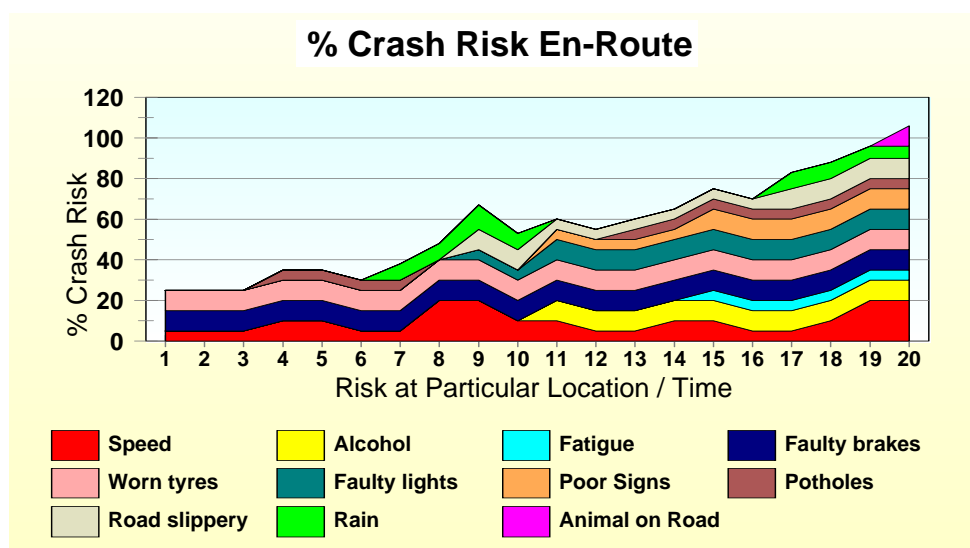
It is further accepted that 90% or more road traffic crashes happen as a direct result of traffic offences or non-compliance with prescribed norms and standards. In this regard the human element plays a major role. For example, should a crash result from a tyre burst, generally classified under *vehicle factors*, it still is the responsibility of the driver or owner of the vehicle to see that the worn or damaged tyre is replaced timeously.



**Figure 1: Percentage of Contributory Factors to Road Crashes**

In case of a crash happening as a result of a pothole in the road or a smooth road surface, generally classified under *road factors*, it is the responsibility of the driver to reduce speed and drive more carefully under such circumstances. In such cases it is also the responsibility of the roads authority to timeously detect the unsafe conditions through regular inspections and efficient routine road maintenance programmes and either effect the required remedial measures as soon as possible or, to at least provide the required road signs to warn road users of the unsafe condition of the road.

Whilst it is stated that these contributory factors are present at the time of the crash, in most cases some of the factors are known to a certain extent before the crash. For example, drivers know that they are risk takers and that they will exceed the speed limit, they also drink and get behind the wheel of a vehicle and deliberately not wear a seatbelt. It is also the responsibility of the driver to inspect and replace smooth and damaged tyres, defective lights, etc. Road authorities know about the poor condition of roads and missing fences, road signs, etc, yet fail to effect the required improvements in time. Under such circumstances the driver should react to warnings and reduce speed and drive more carefully. For illustration purposes only, a theoretical example of the *constant risks* related to the vehicle and the road which is known even before a trip starts, as well as varying *driver risks* during a trip, is given in the combined crash risk Figure 2 below.



**Figure 2: Example of Crash Risk En-route**

As illustrated above, under certain conditions, for example poor vehicle maintenance, each and every trip starts and continues with a certain level of risk of being involved in an incident. The better a driver is educated and trained and complies with the law during the trip; the better a vehicle is maintained according to prescribed standards; and the better the roadway is maintained to comply with minimum standards, the lower the risk. The level or degree of lawlessness and non-compliance with norms and standards reflects the risk level, which in turn is directly related to the level or degree of safety.

### 3. THE CURRENT SOUTH AFRICAN REALITY

The current low level and quality of targeted road traffic law enforcement on South Africa's roads is not sufficiently effective in curbing the continuing, general high level of lawlessness and the increase in the number of road traffic crashes and resulting fatalities and injuries.

Major traffic offences and contraventions that mostly contribute to traffic crashes or the severity of crashes, have been identified and to some extent monitored during the past few years through independent Annual Traffic Offence Surveys. These include:

*Driver offences* : driving while under the influence of alcohol; unsafe and illegal overtaking across barrier lines or in the face of oncoming traffic; ignoring red traffic signals and stop signs; non-wearing of seatbelts and excessive speed. Other driver offences reflect reckless, negligent, inconsiderate and aggressive behaviour and include inadequate proof of their ability to drive through failure to produce a valid driving licence or professional driving permit, PrDP, etc.

*Vehicle contraventions* : poor tyres and brakes; faulty steering and defective lights. Other "vehicle" offences include non-submission of vehicles for compulsory vehicle fitness testing (trucks, buses and minibus taxis and other vehicles on change of ownership); fitting of false vehicle licence plates, etc. Overloaded vehicles that damage the road network and contribute towards unsafe driving conditions can also be added to the above.

The continued general level of lawlessness with regard to these offences over the past few years is unacceptably high. Some selected results from the above list of the 2003 Road Traffic Offence Survey are briefly given below.

#### 3.1 Alcohol limits

Information on the percentage of drivers found driving under the influence of alcohol is given in Table 1 below. The figures include the 10% tolerance as required by the Judiciary for law enforcement purposes.

<b>Table 1: % Drivers found driving under the influence of Alcohol (Including 10% tolerance)</b>											
<b>Vehicle Type</b>	<b>Year</b>	<b>GA</b>	<b>KZ</b>	<b>WC</b>	<b>EC</b>	<b>FS</b>	<b>MP</b>	<b>NW</b>	<b>LI</b>	<b>NC</b>	<b>RSA</b>
All Vehicles All Times	2002	2.00	0.90	2.00	1.50	1.00	1.80	4.00	2.20	3.10	1.80
	2003	1.14	1.68	2.85	1.74	1.48	4.68	2.63	3.73	2.29	2.08
All Vehicles Between 18:00-21:00	2002	7.80	2.50	2.60	6.25	3.60	5.00	8.90	8.00	7.40	5.50
	2003	2.65	4.49	8.13	2.48	4.40	13.42	2.86	8.90	4.69	5.08
Drivers of Trucks, Buses & Taxis	2002	3.00	4.20	1.60	1.40	0.80	1.10	2.30	2.00	3.40	2.50
	2003	1.44	0.90	0.51	2.74	0.50	6.12	1.79	1.92	1.23	1.74

The above figures for all vehicles at all times indicate an increase in the national rate of about 15,6% from 1,80% drivers found under the influence of alcohol in 2002 to an average of 2,1% drivers under the influence in 2003.

Figures were also released early in 2003 by the Medical Research Council (MRC) on the number of persons killed in road accidents that were found to be under the influence of alcohol. These figures are given in Table 2 below.

Road Accidents	Blood Alcohol Concentration (BAC) - g/100ml						
	User Group	Zero	0,01-0,04	0,05-0,14	0,15-0,24	>0,25	Excl Zero
Drivers	48.20	5.30	<b>18.20</b>	18.80	9.50	<b>51.8</b>	<b>46.5</b>
Passengers	62.60	4.70	<b>14.00</b>	13.70	5.00	<b>37.4</b>	<b>32.7</b>
Pedestrians	37.50	5.40	<b>12.00</b>	20.40	24.70	<b>62.5</b>	<b>57.1</b>
Cyclists	61.20	3.20	<b>15.10</b>	14.00	6.50	<b>38.8</b>	<b>35.6</b>

In accordance with the above figures, the Blood Alcohol Concentration (BAC) of 46,5% of all drivers killed in crashes exceeded the legal limit of 0,05 g/ml while 9,5% consumed more than 5 times than the legal limit. The BAC of 57,1% of pedestrians killed in crashes exceeded the legal limit while 24,7% consumed more than 5 times the legal limit of alcohol. These figures, taking into consideration the high percentage of pedestrians jaywalking, is a matter of great concern.

### 3.2 Professional Driving Permits (PrDP's)

Information on the percentage of drivers of the various types of vehicles that require professional driving permits (PrDP's), but failed to produce such permits, or who had the wrong permit for the type of vehicle or produced a permit which had expired, is given in Table 3 below.

Province	2002	2003			% Change 2002-2003	
	% Offenders	PrDP Present ?		% Offenders		
		Yes	No			Present but expired
Gauteng	16.00	81.90	9.20	8.90	18.10	13.12
KwaZulu-Natal	31.00	81.50	9.70	8.80	18.50	-40.32
Western Cape	22.00	83.90	7.30	8.80	16.10	-26.82
Eastern Cape	28.00	80.10	10.50	9.40	19.90	-28.93
Free State	20.00	84.00	7.70	8.30	16.00	-20.00
Mpumalanga	10.00	92.40	4.50	3.10	7.60	-24.00
North West	13.00	88.10	5.50	6.40	12.00	-7.69
Limpopo	8.00	83.40	7.90	8.60	16.60	107.50
Northern Cape	14.00	87.30	6.40	6.40	12.70	-9.29
<b>Weighted RSA</b>	<b>20.00</b>	<b>83.50</b>	<b>8.30</b>	<b>8.20</b>	<b>16.50</b>	<b>-17.50</b>

The figures in Table 3 above indicate that, on average, 16,5% professional drivers did not carry a PrDP or carried a permit that had expired. Based on these percentages, the estimated number of drivers using the roads daily without valid PrDP's was calculated per Province and shown in Table 4 below. The total is 91 398 drivers with expired PrDP's or not having a PrDP.

<b>Table 4: Estimated No. of Drivers on the Road without a Valid Professional Driving Permit</b>										
	GA	KZ	WC	EC	FS	MP	NW	NP	NC	RSA
<b>PrDP's issued</b>	173,169	85,685	80,186	40,400	39,980	50,998	34,809	42,014	14,403	561,644
<b>PrDP's invalid</b>	31,344	15,852	12,910	8,040	6,397	3,876	4,177	6,974	1,829	91,398

### 3.3 Non-wearing Rate of Seatbelts

Information on the percentage of drivers of vehicles, front and backseat passengers not wearing seatbelts is given in Table 5 below. These figures indicate that, on average 67,5% of drivers during the un-observed, rural survey, did not wear seatbelts. This figure changed to 14,2% for the observed (roadblock) survey where they had the opportunity to quickly put on their seatbelts while waiting to be interviewed. The roadblock survey indicated that 33,3% of front seat passengers and 93,2% backseat passengers do not wear seatbelts.

<b>Table 5: % Vehicle Occupants Not Wearing Seatbelts : Rural Roads : 2003</b>										
Occupant	GA	KZ	WC	EC	FS	MP	NW	LI	NC	RSA
<b>Driver - Unobserved</b>	74.10	69.40	61.30	63.10	63.80	63.10	60.20	70.20	57.60	<b>67.50</b>
<b>Driver - Roadblock</b>	16.80	13.30	14.80	11.10	16.60	9.10	10.60	15.90	12.40	<b>14.20</b>
<b>Front Pass - Roadblock</b>	36.90	32.60	30.40	31.00	32.20	35.00	20.90	40.60	28.90	<b>33.30</b>
<b>Back Pass - Roadblock</b>	98.00	95.90	88.30	93.10	87.40	85.80	95.30	90.60	80.80	<b>93.20</b>

### 3.4 Overtaking Across Barrier Lines

Although there was a general improvement in this regard from 2002 to 2003, unsafe and illegal overtaking across barrier lines remains an issue of serious concern. Barrier line and unsafe overtaking offences are generally associated with head-on, sideswipe, as well as single vehicle and some fixed object crashes, where one vehicle is forced off the road in order to avoid a crash with another vehicle when an overtaking offence is committed. Together with ignoring red traffic signals, this is one of the most serious and dangerous offences a driver can commit. The survey results in this regard for 2002 and 2003 are given in Table 6 below.

<b>Table 6: Overtaking Across Barrier Lines : All Vehicles : Average number of crossings per barrier line per hour</b>										
Year	GA	KZ	WC	EC	FS	MP	NW	LI	NC	RSA
<b>2002</b>	10.50	9.00	4.20	5.10	3.00	27.30	4.80	2.40	0.90	<b>8.70</b>
<b>2003</b>	1.60	2.14	4.29	4.50	2.44	9.46	5.65	1.24	2.63	<b>3.27</b>

The national, weighted average number of overtaking offences recorded at barrier lines is 3,3 offences per barrier line per hour. Considering how many barrier lines there are in the country, the scenario is frightening. For every 1 000 barrier lines on our roads, an average of 3 270 overtaking offences can be expected every hour! The seriousness of this situation is confirmed by the large number of fatalities that could be linked back to barrier line offences. Overtaking offences should be a high priority in enforcement and traffic management operations.

### 3.5 Vehicle Tyres

Information on the quality of vehicle tyres found on minibus taxis, buses and trucks during the 2003 survey is summarized in Table 7 below.

<b>Table 7: % Vehicles with at least One Worn or One Damaged Tyre</b>											
Vehicle Type	Status	GA	KZ	WC	EC	FS	MP	NW	LI	NC	RSA
Minibus Taxi	Worn	17.00	19.00	19.00	19.00	20.00	8.00	18.00	17.00	19.00	17.00
	Damaged	2.00	3.00	3.00	2.00	3.00	5.00	4.00	2.00	5.00	3.00
Bus	Worn	2.00	9.00	8.00	5.00	6.00	7.00	6.00	6.00	10.00	6.00
	Damaged	14.00	5.00	2.00	3.00	6.00	9.00	6.00	6.00	3.00	8.00
Truck	Worn	15.00	21.00	23.00	25.00	19.00	13.00	18.00	17.00	19.00	19.00
	Damaged	26.00	17.00	14.00	11.00	28.00	18.00	16.00	29.00	17.00	20.00

The information in Table 7 above indicate that, on average in the RSA, about 17,0% of all minibus taxis are fitted with at least one worn tyre, while 3,0% have at least one tyre fitted that is damaged. The number of trucks with smooth and damaged tyres is of great concern. On average in the RSA about 19,0% of all trucks have at least one smooth tyre and 20,0% have at least one damaged tyre.

Based on the above percentages, the estimated number of vehicles per Province with worn or damaged tyres is shown in Table 8 below.

<b>Table 8: Number of Vehicles with at least One Worn or One Damaged Tyre</b>											
Vehicle Type	Status	GA	KZ	WC	EC	FS	MP	NW	LI	NC	RSA
Minibus Taxi	Worn	7,477	3,410	3,250	1,731	1,099	639	1,586	1,359	297	20,848
	Damaged	880	538	513	182	165	400	352	160	78	3,268
Bus	Worn	183	421	317	97	82	168	155	125	68	1,615
	Damaged	1,281	234	79	58	82	216	155	125	20	2,250
Truck	Worn	12,965	7,970	7,277	4,354	3,054	2,379	2,573	2,351	1,235	44,158
	Damaged	22,472	6,452	4,430	1,916	4,500	3,294	2,287	4,011	1,105	50,467

### 3.6 Vehicle Lights – Rear

The figures in Table 9 below indicate that 2,0% of light motor vehicles (motorcars and LDV's or "bakkies"); 4,0% of minibus taxis; 2,5% buses and 4,4% trucks in the RSA have at least one tail light (back) that is defective. The percentages of vehicles per type with defective brake lights are as follows: light vehicles 5,1%; minibus taxis 8,8%; buses 4,8% and trucks 8,0%.

<b>Table 9: % Vehicles with One or More Back Lights not working</b>											
Vehicle Type	Status	GA	KZ	WC	EC	FS	MP	NW	LI	NC	RSA
Motorcar & LDV	Tail	0.80	2.20	2.50	1.90	1.90	3.70	4.00	2.30	3.80	2.00
	Brake	6.50	4.60	3.20	5.20	3.30	4.60	6.30	4.20	4.80	5.10
Minibus Taxi	Tail	3.10	1.90	5.10	3.60	6.80	2.90	10.00	3.20	7.40	4.00
	Brake	12.00	6.70	6.40	5.70	9.70	6.10	13.00	7.40	5.90	8.80
Bus	Tail	3.10	1.30	1.70	3.20	3.00	3.60	1.50	3.70	1.70	2.50
	Brake	6.30	5.30	3.30	4.80	4.50	2.40	1.50	7.30	1.70	4.80
Truck	Tail	3.10	5.20	5.50	5.90	5.20	4.30	3.70	4.10	4.30	4.40
	Brake	8.60	7.10	8.40	10.80	8.00	6.20	6.30	6.70	9.00	8.00

Based of the above, the actual number of vehicles with faulty rear lights per Province is shown in Table 10: below.

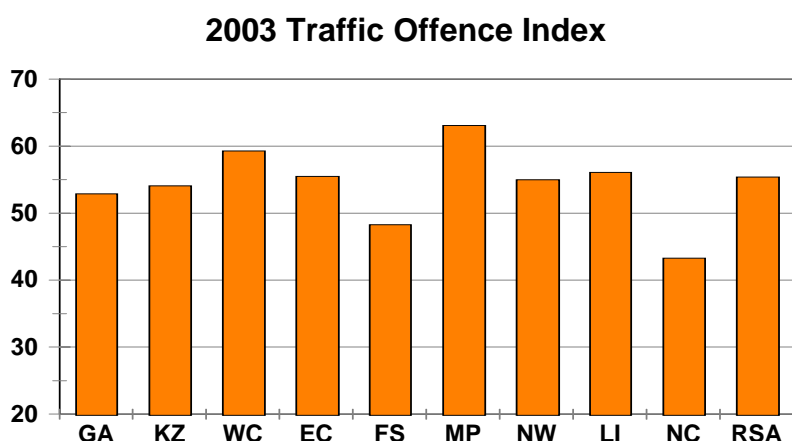
<b>Table 10: Number of Vehicles with at least One or More Rear Lights not Functioning</b>											
Vehicle Type	Status	GA	KZ	WC	EC	FS	MP	NW	LI	NC	RSA
Motorcar & LDV	Tail	17,965	17,993	25,383	7,647	5,735	11,813	12,152	5,741	4,421	108,850
	Brake	145,964	37,622	32,490	20,929	9,961	14,686	19,140	10,483	5,584	296,859
Minibus Taxi	Tail	1,363	341	872	328	374	232	881	256	116	4,763
	Brake	5,278	1,202	1,095	519	533	488	1,145	592	92	10,944
Bus	Tail	284	61	67	62	41	86	39	77	12	729
	Brake	577	248	131	94	61	57	39	152	12	1,370
Truck	Tail	2,679	1,974	1,740	1,027	836	787	529	567	280	10,419
	Brake	7,433	2,695	2,658	1,881	1,286	1,135	900	927	585	19,499

### 3.7 Traffic Offence Index

During the 2003 Survey the following traffic issues were monitored, some of which have been described in more detail above: Speed; Alcohol; Pedestrians Jay-walking; Wearing of seatbelts : Drivers and passengers, separately in front and back seats (stationary survey); and drivers (unobserved survey) Ignoring traffic signals : Urban areas; Overtaking across barrier / no-overtaking lines : Rural areas; Drivers : Driving licences and professional driving permits; Vehicle fitness aspects : Tyres and lights; Correlation of information between vehicle registration plate and licence disc. In addition, observations were made on the presence of pedestrians, cyclists, animals, and traffic officers, etc on the road.

All the traffic offences monitored were combined into a Traffic Offence Index in order to obtain an overall indication of the general level of lawlessness per Province. The resulting Index is shown in Table 11 and Figure 3 below.

Table 11: Combined Provincial 2003 Traffic Offence Index									
GA	KZ	WC	EC	FS	MP	NW	LI	NC	RSA
52.9	54.1	59.3	55.5	48.3	63.1	55	56.1	43.3	55.4



**Figure 3: 2003 Provincial Traffic Offence Index**

The above information indicates that the general level of lawlessness is the highest in Mpumalanga followed by the Western Cape. The lowest level is in the Northern Cape followed by the Free State with the second lowest. Depending on the type of offences, theoretically the average level should preferably not exceed about 25%.

### 3.8 Level of Law Enforcement Observed during Survey

The observed traffic law enforcement levels, if any, were far too low. During the 2003 Survey the presence of traffic officers were observed only 5 times over a total distance of 4 600 kilometres travelled over a period of about 2½ months on the inter-city and inter-provincial road network, (see Table 12 below). In only 3 cases was there active interaction with road users. The other 2 cases observed, were officers sitting under bridges “observing” the traffic.

Table 12: Presence of Traffic Officers Observed on Main Routes									
GA	KZ	WC	EC	FS	MP	NW	LI	NC	RSA
0	2	0	1	0	2	0	0	0	5



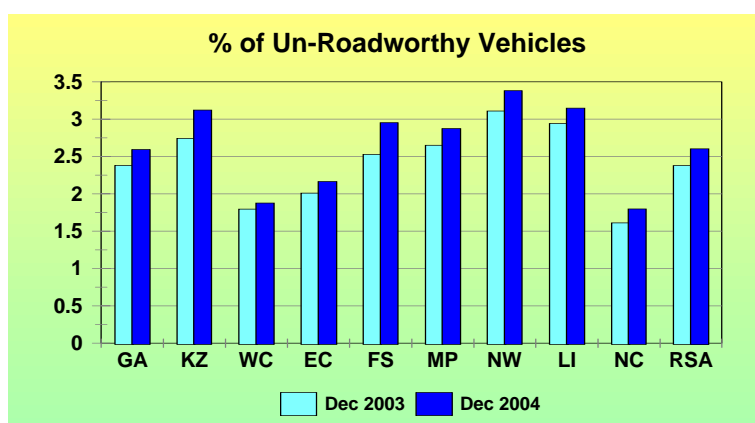
This signifies that the function of law enforcement needs urgent attention, with the view to drastically improve the active presence of officers and to increase personal interaction with road users on the national and major provincial road network.

### 3.9 Un-Roadworthy Vehicles (Based on information on NaTIS)

The number of un-roadworthy vehicles (vehicles that failed to be taken for compulsory roadworthy testing) increased by 23 009 (13,6%) from 169 199 on 31 December 2003 to 192 208 on 31 December 2004. On a percentage basis, on 31 December 2004 the highest number of un-roadworthy vehicles was trucks at 11,0% (25 191) of all trucks registered being un-roadworthy; followed by 9,4% (2 591) of all buses; 9,2% (21 932) minibuses and 9,1% (9 539) heavy trailers being un-roadworthy. These figures support the findings of the Offence Survey.

The total percentages of un-roadworthy vehicles per Province at the end of 2003 and 2004 respectively, are shown in Table 13 and Figure 4 below.

<b>%</b>	<b>GA</b>	<b>KZ</b>	<b>WC</b>	<b>EC</b>	<b>FS</b>	<b>MP</b>	<b>NW</b>	<b>LI</b>	<b>NC</b>	<b>RSA</b>
<b>Dec 2003</b>	2.38	2.74	1.80	2.01	2.53	2.65	3.11	2.94	1.61	<b>2.38</b>
<b>Dec 2004</b>	2.59	3.12	1.88	2.16	2.95	2.88	3.38	3.15	1.80	<b>2.61</b>



**Figure 4: % of Un-Roadworthy Vehicles per Province**

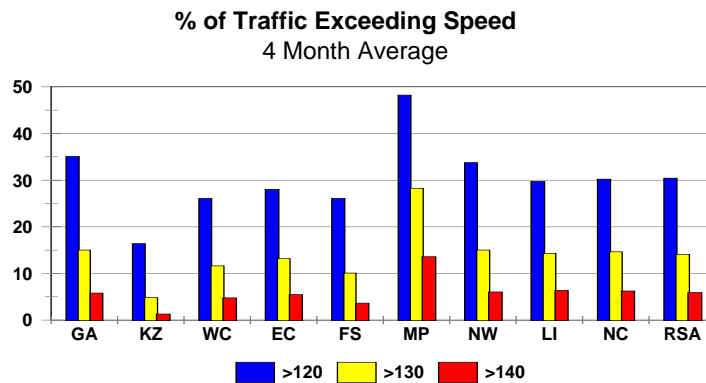
### 3.10 Excessive Speed

Three stations per Province on different routes (27 stations in total) were selected for the analysis of the daily speed, per hour of each day of 24,8 million vehicles over the 18 week period from Sunday, 30 May 2004 to Saturday, 2 October 2004. Although these stations are all located on national routes, the results can never-the-less be regarded as a barometer of the general extent to which speeds are ignored per Province.

Not to be seen as the one and only contributory factor in road crashes, excessive speed and speed too fast for circumstances however, do play a major role in the occurrence as well as the severity of crashes. Such speeds, brought into context with generally negligent, inconsiderate and aggressive driver behaviour, the presence of pedestrians, with added unfit drivers and vehicles, fatigue and alcohol, illegal and unsafe overtaking; as well as poorly maintained roads and road signs is a recipe for disaster.

The average % of vehicles exceeding the speed limit on a Provincial basis over the 4-month period is reflected in the graph below. Note should be taken that this reflects

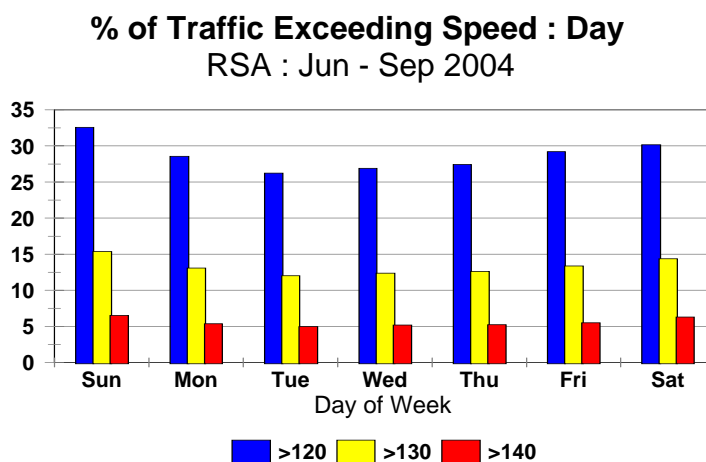
average information only, as average night/day speeds and speeds over weekends, the days of the week and time of the day when about 70% of fatal crashes happen, is generally higher than the average.



**Figure 5: Percent of Traffic Exceeding indicated Speed**

The information in Figure 5 above indicates that the percent (%) of vehicles exceeding speeds of 130 km/h and 140 km/h are generally unacceptably high. The situation in Mpumalanga being the worst where, on average, 48,3% of the traffic exceeded 120 km/h; 28,3% exceeded 130 km/h and 13,6% exceeded 140 km/h. The speed situation is mostly under control in KwaZulu-Natal where 14,4% exceeded 120 km/h; 4,9% exceeded 130 km/h and 1,3% exceeded 140 km/h. The national averages are: 30,4% exceeding 120 km/h, 14,1% exceeding 130 km/h and 5,9% exceeding 140 km/h.

The percentage of traffic exceeding the speed limit over weekends is generally higher over weekends than over weekdays. On average on Sundays 6,25% of the traffic exceeded 140 km/h, while 15,37% exceeded 130 km/h. On Fridays 6,28% exceeded 140 km/h and 14,36% exceeded 130 km/h. These figures are reflected in Figure 6 below.



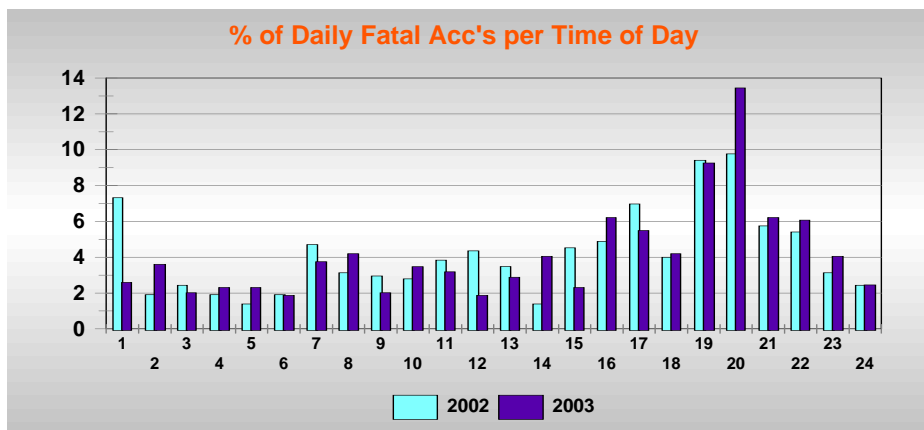
**Figure 6: Percent of Traffic Exceeding the Limit per Day of Week**

It is generally accepted that preferably no more than 15,0% of the traffic should exceed the prescribed limit. The above figures clearly indicate that excessive speed is out of control and should also be addressed as a matter of urgency.

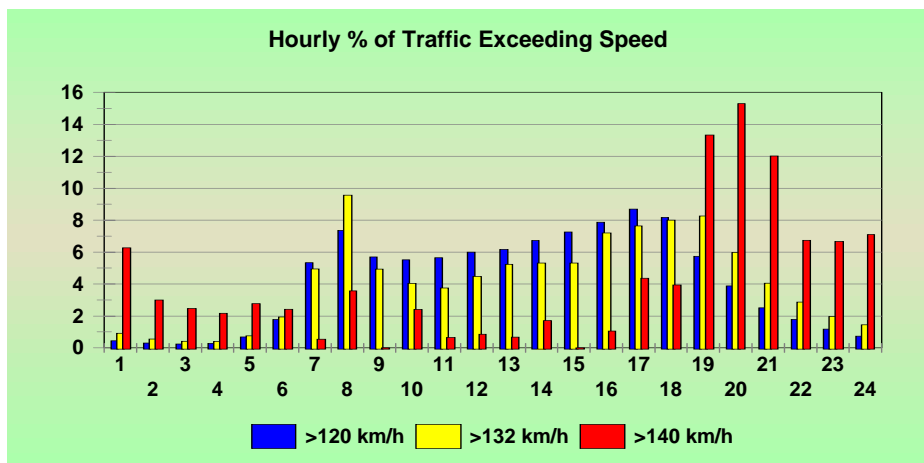
There are generally two schools of thought about the relationship between road traffic crashes and speed – those that say that there is a relationship (“speed kills”) and those that say there is no proven relationship.

Figures 7 and 8 below are respectively based on fatal crash information collected by the National Fatal Crash Centre and speed information collected at various traffic counting stations on national roads collected by MTM on behalf of the South African National Roads Agency Limited (SANRAL).

Figure 7 shows the percentage of the total daily fatal crashes per hour of the day and Figure 8 shows the percentage of traffic travelling within certain speed categories per hour of the day. Both sets of information cover all the days of the week over a period of about four months.



**Figure 7: Percentage of Fatal Crashes per Time of Day**



**Figure 8: Percent of Traffic Exceeding the Indicated Speed per Time of Day**

Although not statistically or scientifically proven, the information contained in the two figures above strongly suggests that there is a very strong possibility that excessive speed do play a major role in the occurrence of road crashes.

#### 4. FATAL ROAD TRAFFIC CRASHES DURING 2004

The number of fatal crashes during 2004 increased by 277 (2,7%) from 10 246 fatal crashes in 2003 to 10 523 fatal crashes in 2004. The number of fatalities increased by 361 (2,9%) from 12 348 fatalities in 2003 to 12 709 fatalities in 2004.

Pedestrian related crashes increased by 29 (0,6%) from 5 115 in 2003 to 5 144 pedestrian crashes in 2004. Overtaking related crashes (head-on, certain sideswipe, single vehicles and fixed object crashes, etc), increased by 192 (6,6%) from 2 898 in 2003 to 3 090 in 2004.

Fatalities resulting from pedestrian related crashes (pedestrian and hit-and-run) decreased 19 (0,4%) from 5 267 in 2003 to 5 248 in December 2004. Fatalities resulting from head-on related crashes increased by 410 (10,0%) from 4 135 in 2003 to 4 545 in 2004.

In 2003 fatalities resulting from pedestrian related crashes was 42,7% of all fatalities and in 2004 it was 41,2% of all fatalities. In 2003 fatalities resulting from head-on related crashes was 33,6% of all fatalities and in 2004 it was 35,7% of all fatalities.

The increase in overtaking related crashes is of great concern, indicating that law enforcement on overtaking related offences, including overtaking across barrier lines (no-overtaking lines) and un-safe overtaking in the face of oncoming traffic should be addressed and increased as a matter of urgency. The fatality figures given above are reflected in Figure 9 below.

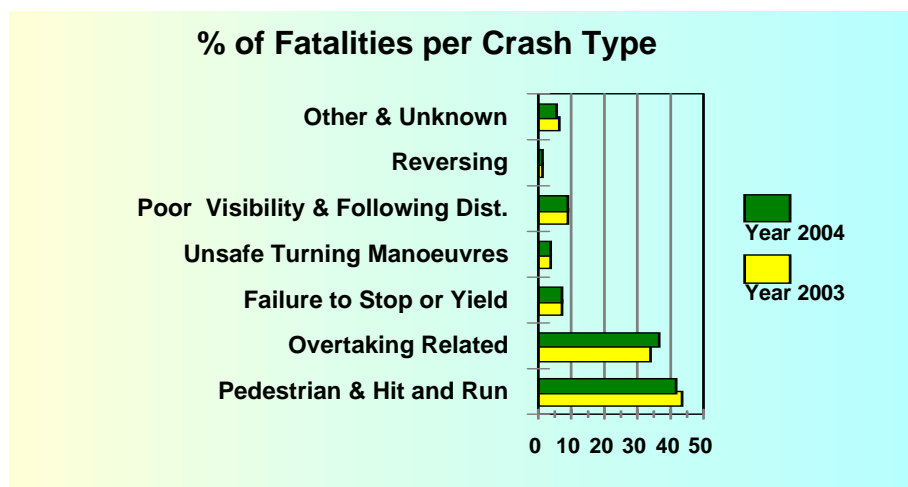


Figure 9: Percent of Fatalities per Type of Accident

#### 5. CONCLUSION

The information given above clearly indicates that a high percentage of road traffic crashes happens as a direct result of a traffic offence. The road crash statistics show a clear link with the identified critical driver and vehicle offences that mostly contributes to the occurrence of crashes.

Authorities involved in traffic management, particularly those with executive functions, have a responsibility to ensure that drivers are adequately educated and trained and that vehicles and roads comply with required minimum standards. The level or degree of traffic

management has an influence on the level of lawlessness which, as indicated above, affects the degree of safety to a great extent.

The current general level of lawlessness is unacceptably high while, on the other hand, the level and quality of law enforcement is unacceptably low. All aspects related to traffic management need to be reviewed and improved in order to effect changes in driver and vehicle owner behaviour.

Traffic authorities at all tiers of Government need to review current procedures and policies with the main objective to address all types of traffic offences. There are many role players and functional areas involved in the total traffic management system, amongst others those responsible for driver testing and licencing; vehicle testing and licencing of vehicles; recording and analysis of traffic information for planning and management purposes, etc. However, possibly most important of all is the law enforcement function. Enforcement, to a large extent control the “work” done and end products of all the other functional areas. Enforcement needs a major review to become much more effective.

## **6. RECOMMENDATION**

Traffic authorities, particularly those at executive level should review and introduce policies and procedures to improve the quality and level of law enforcement. Amongst others, special attention should be given to the following issues:

- 6.1 The total current training course for traffic officers should be reviewed. The syllabi should be extended to more adequately provide officers with the knowledge to plan, schedule and undertake their daily duties and functions. In this regard the development of training, as well as the provision of training should be sought from professional tertiary training institutions;
- 6.2 Officers should be trained to collect and analyse traffic information, to identify hazardous locations on the road and street network, as well as identification of the reasons why these locations are hazardous and plan and undertake enforcement actions accordingly;
- 6.3 More attention should be given to increased enforcement during the days of the week and the times of the day that most fatal and major crashes happen. Increased enforcement from early to late evening, particularly on Fridays, Saturdays and Sundays should be considered as a priority;
- 6.4 More roadblocks should be conducted to detect unfit drivers and vehicles, in particular: drivers driving under the influence of alcohol or without valid driving licences and professional driving permits; and vehicle fitness aspects such as: smooth and damaged tyres, faulty braking systems, faulty front and rear lights, faulty steering mechanisms, etc; and
- 6.5 Certain moving offences such as ignoring red traffic signals and stop signs, illegal and unsafe overtaking manoeuvres, driving at excessive speeds and general reckless, negligent and inconsiderate driver behaviour should also be targeted much more vigorously.

## **7. REFERENCES**

- [1] Department of Transport, Various Annual and Monthly unpublished Road Traffic Crash Statistics and Reports.
- [2] Department of Transport, 2003 Arrive Alive Road Traffic Offence Monitoring Report, August 2003.