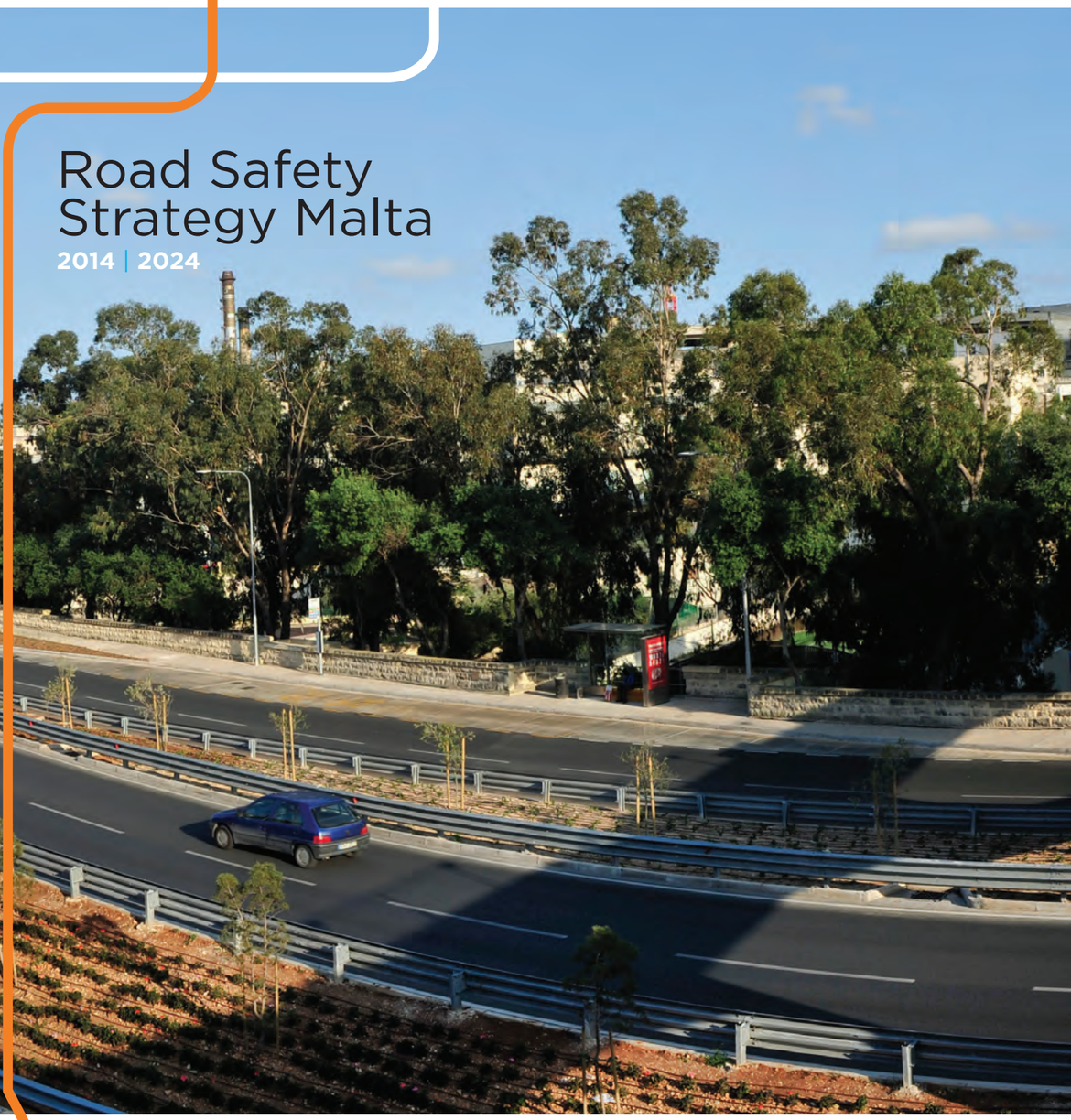
MINISTRY FOR TRANSPORT AND
INFRASTRUCTURE

Road Safety Strategy Malta

2014 | 2024



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MINISTRY FOR TRANSPORT AND
INFRASTRUCTURE

Transport Malta

HON. MR. JOE MIZZI,
Minister for Transport and Infrastructure

ACCORDING TO THE 'ENERGY TRANSPORT AND ENVIRONMENT INDICATORS' (EUROSTAT 2012), MALTA HAS A VERY GOOD ROAD ACCIDENT FATALITY RECORD PER CAPITA.

This is a direct result of a number of road improvements, lower speed limits, improved laws relating to drink-driving, mandatory use of crash helmets and seat-belts, the prohibition of the use of mobile phones during driving and road safety campaigns targeting different road users.

Having said that, there is still room for further improvement.
The life of each and every individual is invaluable for my Government. Each loss of life is a matter of national policy and highlights the urgent need to take all the necessary measures to address the fundamental cause of traffic accidents and hence, avoid more loss of lives.

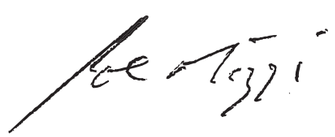
When one considers that Malta does not have any high-speed motorways and highways, and the average driving time and distance is considered to be less than that of other European drivers, we recognize the need to better understand the human, vehicle and environmental circumstances surrounding serious road traffic accidents.

The National Road Safety Strategy document which is being launched today, sets out a 10 year direction for a safer land transport system and it focuses on the main areas where evidently, a sustained and coordinated effort leads to considerable gains and where measures may be implemented so that they will ultimately lead to a long-term improvement with the aim of achieving a 50% reduction in fatalities, 30% reduction in grievous injuries and 20% reduction in slight injuries by the year 2024.
The success of this strategy will be measured by the actual reduction in the number of injuries and fatalities on the roads through the monitoring of identified and established measurable road safety indicators. These indicators will be used to monitor the progress and effectiveness of the strategy in relation to the set targets.

The National Road Safety Strategy (2014-2024) has the necessary tools to achieve the desired road safety benefits for all classes of road users and recognizes that policy decisions and actions will impact the effectiveness of the road safety outcomes. The Strategy will also impact other areas of society because road safety has links with policies on infrastructure, health, police, transport, energy, education, emergency services, research, environment, technology, insurance innovation and trade, amongst others.

The reduction of road traffic accidents is a collective responsibility which also presents a joint challenge not only at national or European level, but equally so for all members of the society- industry, NGO's and also citizens.

With the launching of this document at a national level, I am therefore inviting all stakeholders to come forward and join us through this effort to make our roads safer.



Transport Malta

Mr. JAMES PISCOPO,
Chairman and Chief Executive Officer Transport Malta

ROAD SAFETY REMAINS AN ENORMOUS CONCERN.

The need for action to improve road safety has already been acknowledged in the past but today we are setting up the foundations of a long term plan based on a new Road Safety Strategy.

This is the first Road Safety Strategy for the Maltese Islands which will also see the creation of the first Road Safety Council.

The majority of accident risk factors are well known and are preventable. These include driving under the influence of alcohol, non use of seat belts, excessive speeding, as well as disregard of pedestrians and cyclists. It should not be assumed that such incidents are inevitably caused by vehicle drivers and all members of society have the responsibility to contribute to reduce the risk of road traffic collisions.

The reduction of traffic injuries and fatalities is one of the major objectives of Transport Malta and the authority has committed itself to this aim by embarking on this ambitious strategy with an action plan which will holistically address road safety from the Enforcement, Engineering, Education and Safer Vehicles. This road map will provide a platform for discussion of best practice measures of road safety initiatives.

Through the publication of this consultation document, Transport Malta aims to draw on the experience and expertise of stakeholders, taking onboard their views to promote the creation of the necessary synergies to deliver an effective road safety strategy, to address major issues at stake and to target the right areas in the most effective and efficient manner.

I invite all stakeholders to come forward with suggestions on this consultation document. Your feedback is certainly key in making any change possible. I also encourage initiatives that foster dialogue and collaboration between the Authority and the stakeholders.

Let's work together to make our roads safer.

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LIST OF ILLUSTRATIONS

GLOSSARY OF TERMS

Vehicle

Licensed – Whether vehicle is licensed or not.

Vehicle age – Age of vehicle, if unknown, approximate age.

Motorcycle - Two-wheeled road motor vehicle with or without side-car, including motor scooter, or three-wheeled road motor vehicle.

Car - Road motor vehicle, other than a motorcycle, intended for the carriage of passengers and designed to set no more than 9 persons. This vehicle may be for personal use or for hire.

Agriculture Vehicle - Motor vehicles, normally tractors, designed exclusively or primarily for agricultural purposes. Licensed to use roads open to public traffic.

Bus - Passenger road motor vehicle designed to seat more than 18 persons (including driver) operating on both scheduled and unscheduled services.

Minibus - Passenger road motor vehicle designed to seat up to 18 persons (including driver).

Light Goods Vehicle – Four-wheel road vehicle designed, exclusively or primarily for the carriage of goods.

Heavy Goods Vehicle - Road vehicle designed, exclusively or primarily for the carriage of goods. These vehicles are equipped with a double wheel axle at the back.

Moped – Motor vehicle with two wheels with an engine size of less than 50cc.

Bicycle – Vehicle with at least two wheels, without engine, moved by pedals or hand cranks. With or without a trailer. With or without passenger. Ridden in the carriageway and the pavement.

Taxi – Motor vehicle with four wheels for public use in the transport of people.

Horse drawn cart – Non motorized vehicle being drawn by a horse.

Horse with rider – Rider on horseback.

Classification of Injuries

Fatal – death caused by road accident within 30 days of accident (natural death not included)

Grievous – seriously injured in road accident.

Slight – slightly injured in road accident.

Collision Details

Rear Collision – Collision between two vehicles travelling in the same direction on the same road. First vehicle has a rear collision point, other vehicle has a frontal collision point.

Chain Collision – Collision between more than two moving vehicles in the same direction on the same road.

Frontal Collision – Collision between two vehicles travelling in the opposite direction on the same road. Both vehicles have a frontal collision point.

Lateral Collision – Collision between two vehicles including angle collision. First vehicle has a side collision point, other vehicle has a frontal or side collision point.

Collision with Pedestrian – Collision between moving vehicle and pedestrian.

Collision with Parked Vehicle – Collision between moving vehicle and parked vehicle.

Single Vehicle Accident No Obstacle – Accident in which only one vehicle is involved. Includes vehicle leaving the road or motorcyclist falling.

Single Vehicle Accident With Obstacle – Collision between moving vehicle and obstacle. On or off the road. Fixed or moving obstacle and includes trees, posts, crash barriers.

Collision with obstacle - Collision between moving vehicles and obstacle. On or off the road. Fixed or moving obstacle and includes trees, posts, crash barriers.

Collision with animal – Collision between vehicle and animal.

Side by side collision – Collision between two vehicles, where both vehicles have a side collision point.

Hit and Run – One or more persons and/or vehicles involved in the accident quit after the accident without being recorded on the spot.

Junction Details

Slip Road – Accident occurred in a slip road.

Private Road – Accident occurred in a private road.

Pedestrian Crossing – Position of accident on road at pedestrian crossing.

Pelican Crossing – Position of accident on road at a pelican crossing.

Traffic Lights – Position of accident on road at traffic lights.

Two way – Road has two-way traffic.

One way – Road has one-way traffic.

Not at junction – Position of accident on road away from junction (20m or as determined by police).

SECTION 1

ROAD ACCIDENTS, THE FACTS

Credit: John Pisani

THE SCENARIO IN MALTA

Many severe road accidents are avoidable and research shows that the right interventions can create a position impact. Malta has maintained a relatively constant level of road fatalities over the past years even though there has been a considerable increase in registered vehicles on the road per year.

Over the past decade there has been a total of (164) fatalities as a result of road accidents. The impact on families is devastating, lives are cut short, injuries and disabilities impair the quality of life causing lifelong grief and pain.

The following is an analysis of the road accident data, which raw data is collected by the Malta Police and analyzed by Transport Malta and the National Statistics Office (NSO). This data analysis will lead to a better and more in-depth understanding of the challenges being faced, which will subsequently provide the basis for the actions in this strategy. The data within this document was acquired from the Malta National Statistics Office (NSO).

Table 1:

Number of fatalities, grievous injuries and slight injuries in the last (10) years (NSO)

PERIOD	ACCIDENT SEVERITY			TOTAL
	Slight	Grievous	Fatal	
2002Q1	211	62	2	275
2002Q2	256	75	7	338
2002Q3	290	84	5	379
2002Q4	225	93	2	320
Year 2002	**982**	**314**	**16**	**1312**
2003Q1	174	56	6	236
2003Q2	150	53	6	209
2003Q3	258	69	4	331
2003Q4	232	72	3	307
Year 2003	**814**	**250**	**19**	**1083**
2004Q1	292	59	3	354
2004Q2	242	82	0	324
2004Q3	222	67	5	294
2004Q4	191	50	3	244
Year 2004	**947**	**258**	**11**	**1216**
2005Q1	172	59	3	234
2005Q2	225	70	2	297
2005Q3	232	71	5	308
2005Q4	186	44	7	237
Year 2005	**815**	**244**	**17**	**1076**
2006Q1	166	62	3	231
2006Q2	244	69	1	314
2006Q3	241	73	3	317
2006Q4	256	75	3	334
Year 2006	**907**	**279**	**10**	**1196**
2007Q1	209	57	3	269
2007Q2	256	63	2	321
2007Q3	269	69	4	342
2007Q4	212	62	3	277
Year 2007	**949**	**246**	**14**	**1209**
2008Q1	202	58	3	263
2008Q2	243	67	3	321
2008Q3	256	66	6	328
2008Q4	208	57	3	268
Year 2008	**909**	**248**	**15**	1172
2009Q1	187	39	0	226
2009Q2	242	54	5	301
2009Q3	228	63	9	300
2009Q4	192	43	7	242
Year 2009	**849**	**199**	**21**	1069
2010Q1	226	48	7	280
2010Q2	213	66	3	283
2010Q3	223	51	3	277
2010Q4	191	46	2	239
Year 2010	**853**	**211**	**15**	1079
2011Q1	258	42	1	301
2011Q2	379	72	6	457
2011Q3	383	62	6	451
2011Q4	305	59	4	368
Year 2011	**1325**	**235**	**17**	1577
2012Q1	298	48	1	347
2012Q2	356	80	2	438
2012Q3	332	96	2	430
2012Q4	304	76	4	384
Year 2012	**1290**	**300**	**9**	1599
2013Q1	298	66	3	**367**
2013Q2	355	77	4	**436**
2013Q3	353	61	7	**421**
2013Q4	294	61	4	**359**
Year 2013	**1300**	**265**	**18**	**1583**

Figure 1:

Number of fatalities over the past decade

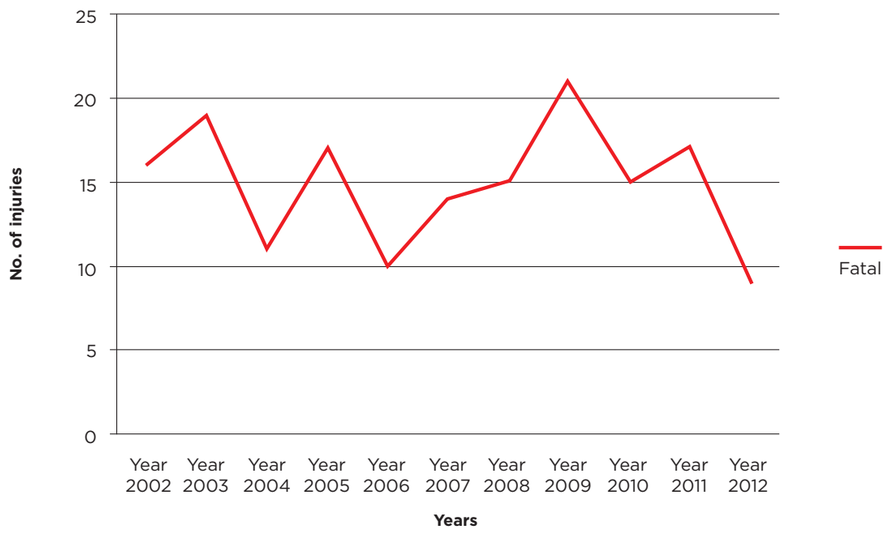
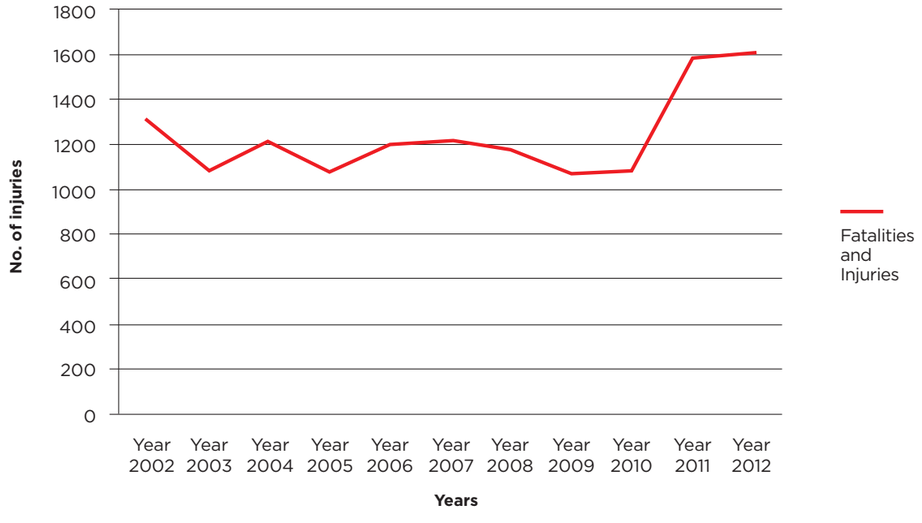


Figure 2:

Number of fatalities and injuries over the past decade



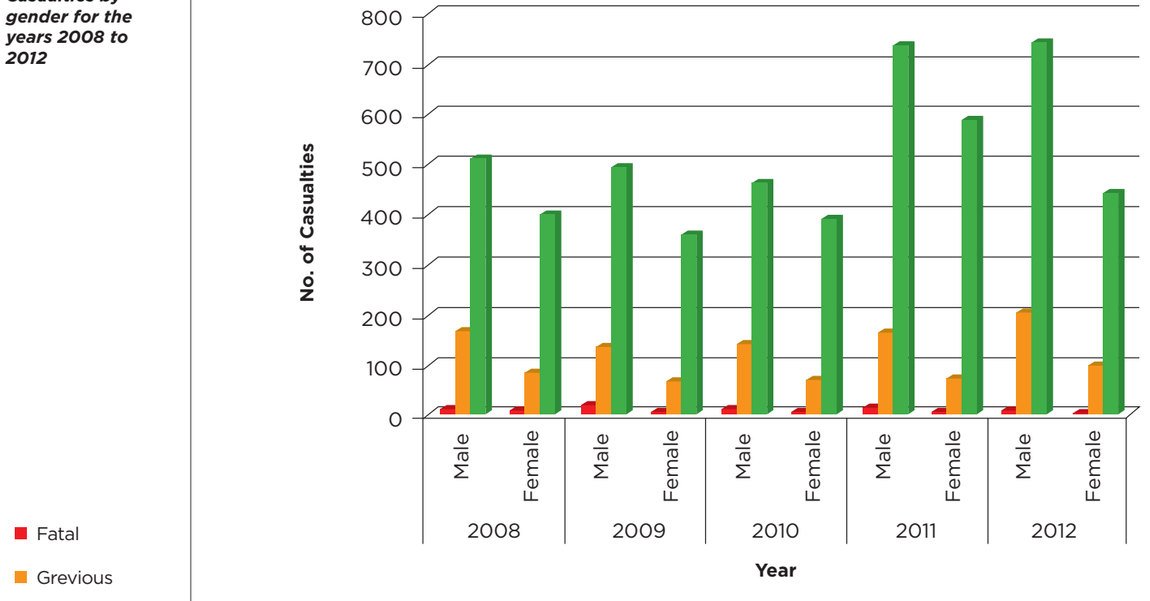
- It should be pointed out that the actual numbers of deaths in Malta are small and therefore percentage-wise subject to substantial annual fluctuations.
- As illustrated in Figure 1 in the last (10) years the number of fatalities has not shown a marked increase. Year 2012 recorded the least number of fatalities, while year 2009 recorded the highest number of fatalities.
- Although the number of fatalities has remained relatively constant throughout the years, Figure 2 shows that collisions with injuries have experienced a substantial increase in the years 2011 and 2012.

CASUALTIES BY GENDER

Table 2: Casualties by Gender for the years 2008 to 2012 (NSO)

	Year 2008		Year 2009		Year 2010		Year 2011		Year 2012	
Injury Type	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**
Fatal	11	4	17	4	10	5	14	3	7	2
Grievous	165	83	134	65	141	70	164	71	204	96
Slight	510	399	491	358	463	390	737	588	743	547
Grand Total	**686**	**486**	**642**	**427**	**614**	**465**	**915**	**662**	**953**	**645**

Figure 3: Casualties by gender for the years 2008 to 2012



The percentage of male casualties in the past (5) years was of 58.7% as opposed to the 41.3% of female casualties. The percentage of male fatalities was of 76.6%, while the percentage of female fatalities was 23.4%. As illustrated in Figure 3, the year 2012 recorded the highest number of male casualties, while the highest number of female casualties was recorded in 2011. This data shows that males are more prone to road injuries/fatalities than females. This may be a direct result of differences in personalities/attitudes of males in comparison to females, related to:

- Speeding
- Drinking and driving
- Road safety awareness

TRAFFIC CASUALTIES AMONGST DIFFERENT AGE GROUPS (NSO)

Table 3:

'Slight' road injuries by age group between years 2008 and 2012

	Year 2008	Year 2009	Year 2010	Year 2011	Year 2012
0 to 14	43	52	46	53	104
15 to 24	228	225	190	302	305
25 to 39	300	227	278	389	391
40 to 59	214	220	219	323	336
60+	105	103	97	249	151
Age unknown	19	22	23	9	3

Figure 4:

Percentage of 'Slight' road injuries by age group for the years 2008 to 2012

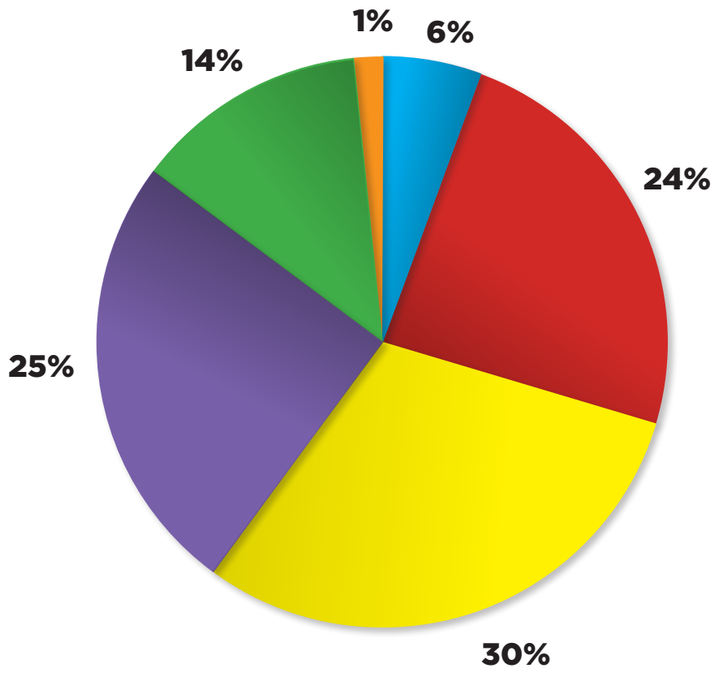


Table 4:

'Grievous' road injuries by age group for the years 2008 to 2012

	Year 2008	Year 2009	Year 2010	Year 2011	2012
0 to 14	12	10	14	11	20
15 to 24	57	51	56	58	68
25 to 39	78	51	66	61	71
40 to 59	59	45	49	51	71
60+	33	39	25	54	69
Age unknown	9	3	1	0	1

Figure 5:

Percentage of 'Grievous' road injuries by age group for the years 2008 to 2012

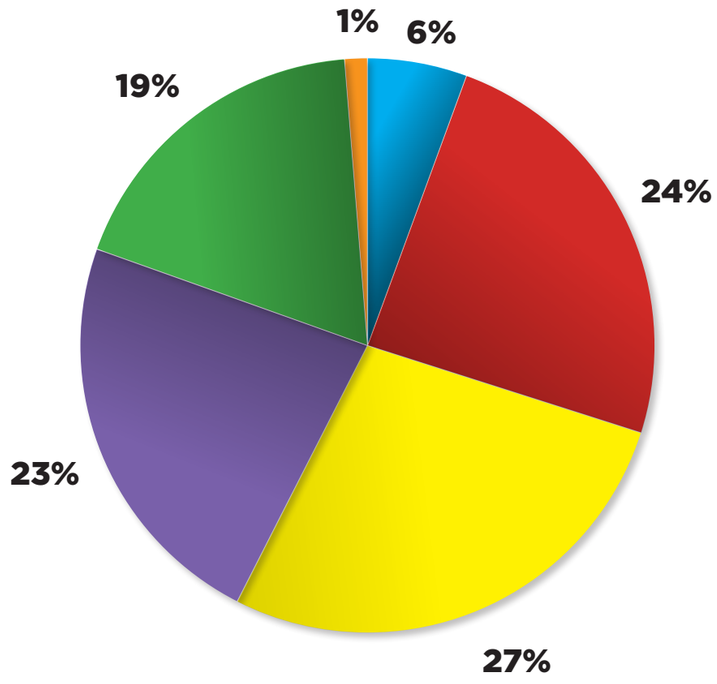


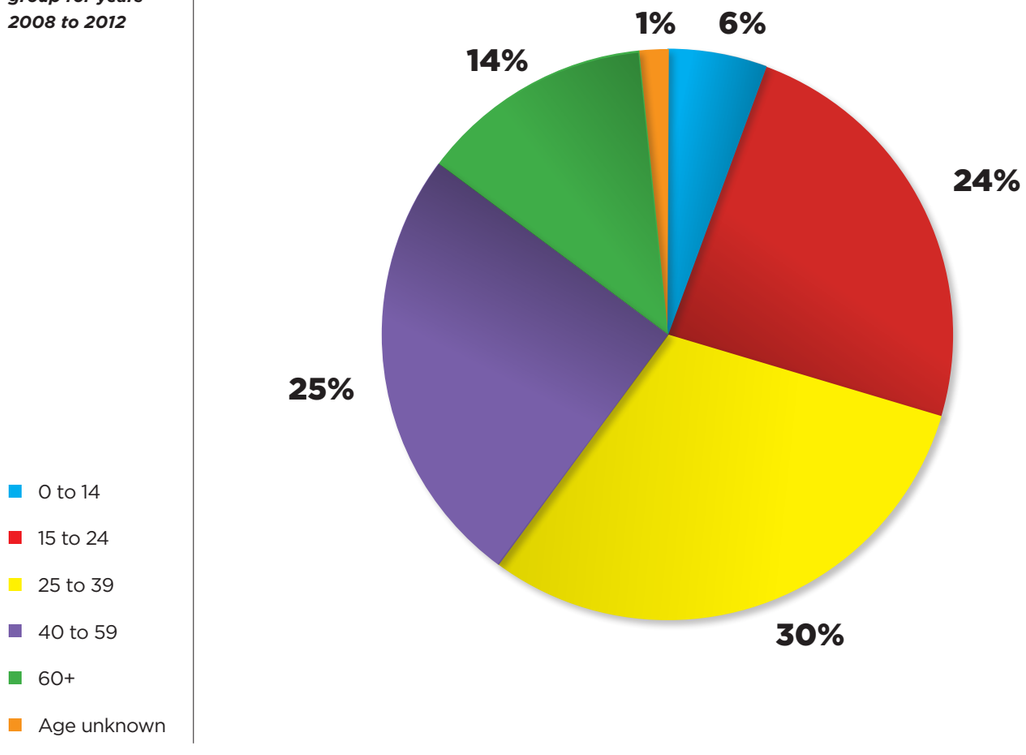
Table 5:

'Fatal' road traffic accidents by age group for the years 2008 to 2012

	Year 2008	Year 2009	Year 2010	Year 2011	Year 2012
0 to 14	1	1	1	0	0
15 to 24	3	4	4	2	2
25 to 39	5	4	6	7	1
40 to 59	3	7	1	1	1
60+	3	5	3	7	5
Age unknown	0	0	0	0	0

Figure 6:

Percentage of 'Fatalities' by age group for years 2008 to 2012



As illustrated in Figures 4-6 above, the majority of casualties were in the '25 to 39' age bracket. The lowest number of casualties was in the '0 to 14' age bracket. Similarly the highest number of fatalities was recorded in the '25 to 39' age bracket, while the lowest number of fatalities was recorded in the '0 to 14' age bracket.

TRAFFIC CASUALTIES BY DAYS OF THE WEEK (NSO)

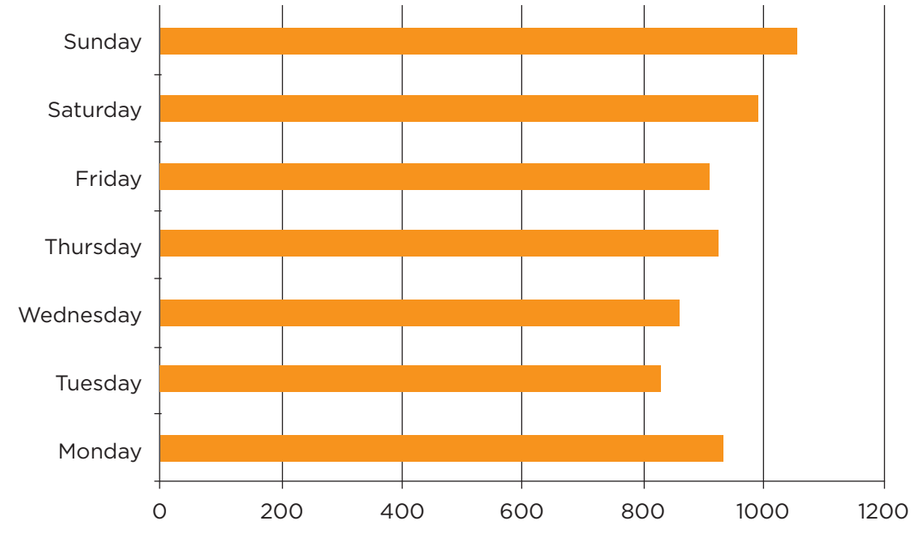
Table 6:

Total number of road casualties by days of the week between years 2008 and 2012

	2008	2009	2010	2011	2012	Total
Monday	183	135	135	240	233	926
Tuesday	161	122	147	196	207	833
Wednesday	143	156	132	195	236	862
Thursday	162	158	148	239	213	920
Friday	156	149	151	239	211	906
Saturday	188	167	177	224	239	995
Sunday	179	182	189	244	260	1054

Figure 7:

Total number of road casualties by days of the week between years 2008 and 2012



As illustrated above the highest number of road casualties in the past (5) years was recorded on Saturday and Sunday. This may be attributed to the fact that during the weekend there is a higher risk of 'drinking and driving' and 'over speeding'.

ROAD CASUALTIES BY VEHICLE TYPE (NSO)

Table 7:

Road casualties by vehicle type between years 2008 and 2012

	2008	2009	2010	2011	2012	Total	% of Total Road Casualties
Motorcycles	143	145	120	222	232	862	13.3%
Passenger cars	912	808	853	1189	1179	4941	76.1%
Coaches and buses	18	22	13	34	60	147	2.2%
Goods vehicles	99	94	93	132	107	525	8.1%
Unknown	0	0	0	0	21	21	0.3%

Figure 8:

Percentage of casualties by type o 2012

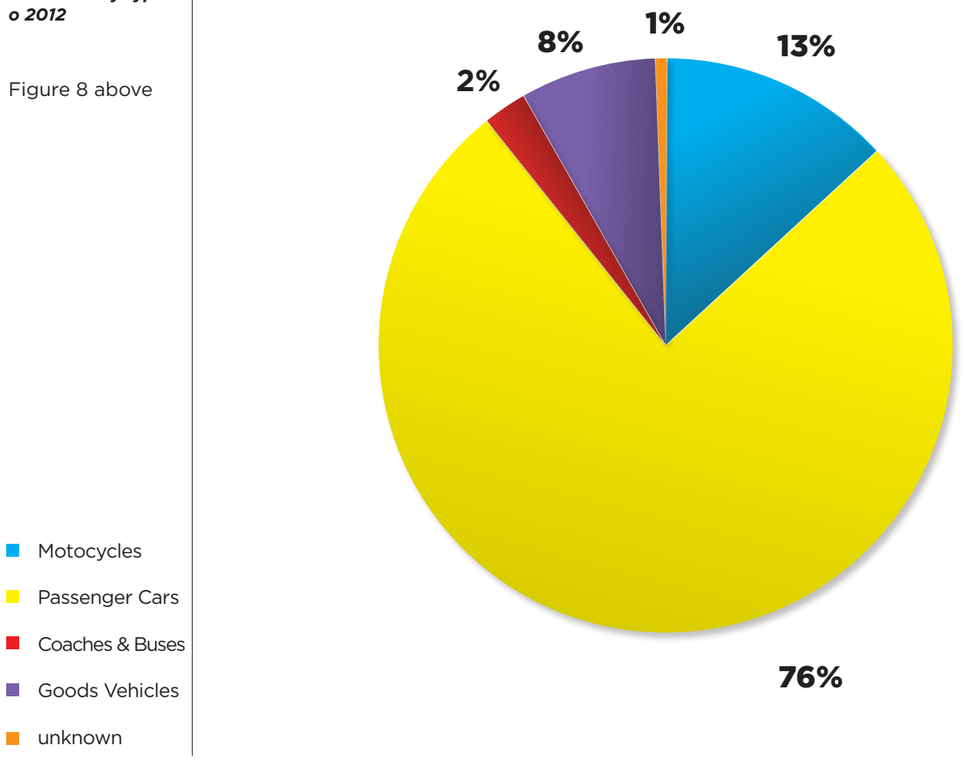


Figure 8 above shows that in the past (5) years 76% of the traffic casualties involved passenger cars, followed by motorcycles at 13%. One needs to take into perspective that as at December 2012, 79.4% of the total licensed vehicles in Malta and Gozo were passenger cars (NSO, Q4/2012).

GEOGRAPHIC DISTRIBUTION OF ROAD CASUALTIES IN MALTA & GOZO (NSO)

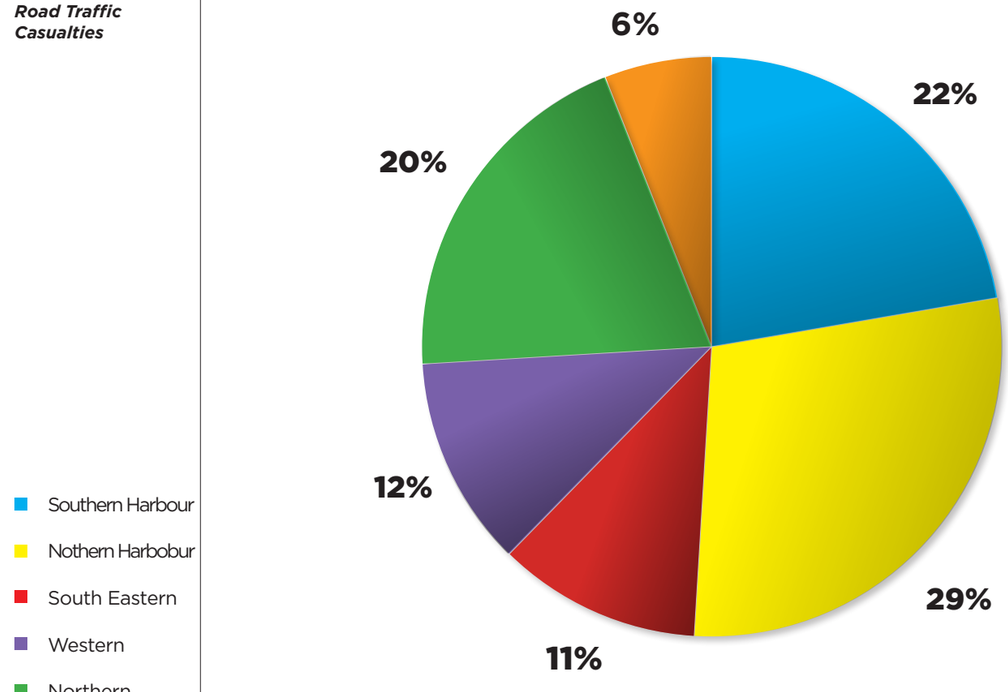
Table 8:

Geographic distribution of road casualties between years 2008 and 2012

	Year 2008	Year 2009	Year 2010	Year 2011	Year 2012
Southern Harbour	259	235	249	336	377
Northern Harbour	378	305	254	447	471
South Eastern	116	117	126	216	155
Western	115	121	129	206	200
Northern	239	214	247	287	307
Gozo & Comino	65	77	74	85	89

Figure 9:

Percentage Distribution of Road Traffic Casualties



THE EUROPEAN SCENARIO

Figure 10:

Top (ten) localities for Traffic Accidents in the year 2012 (NSO)

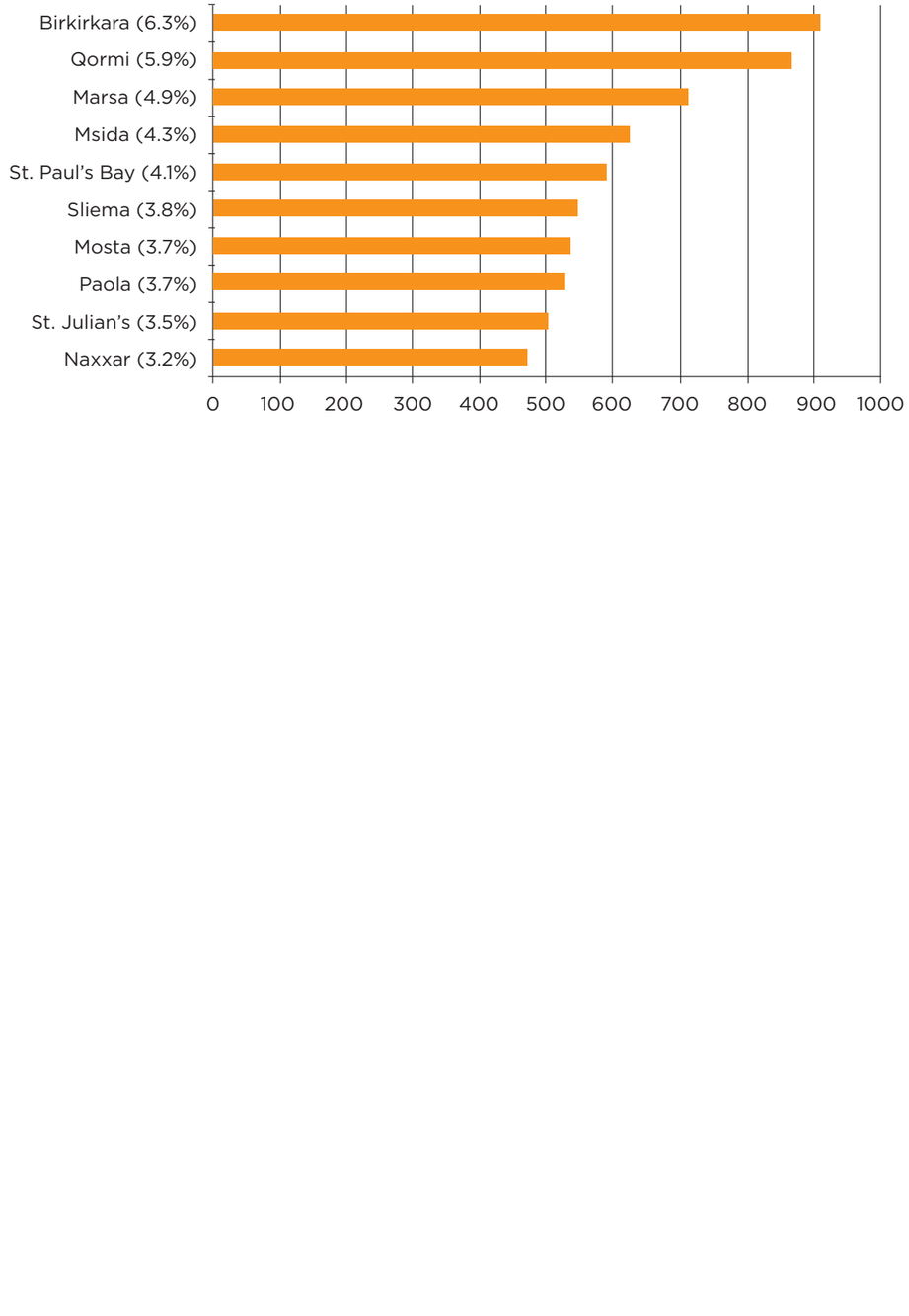
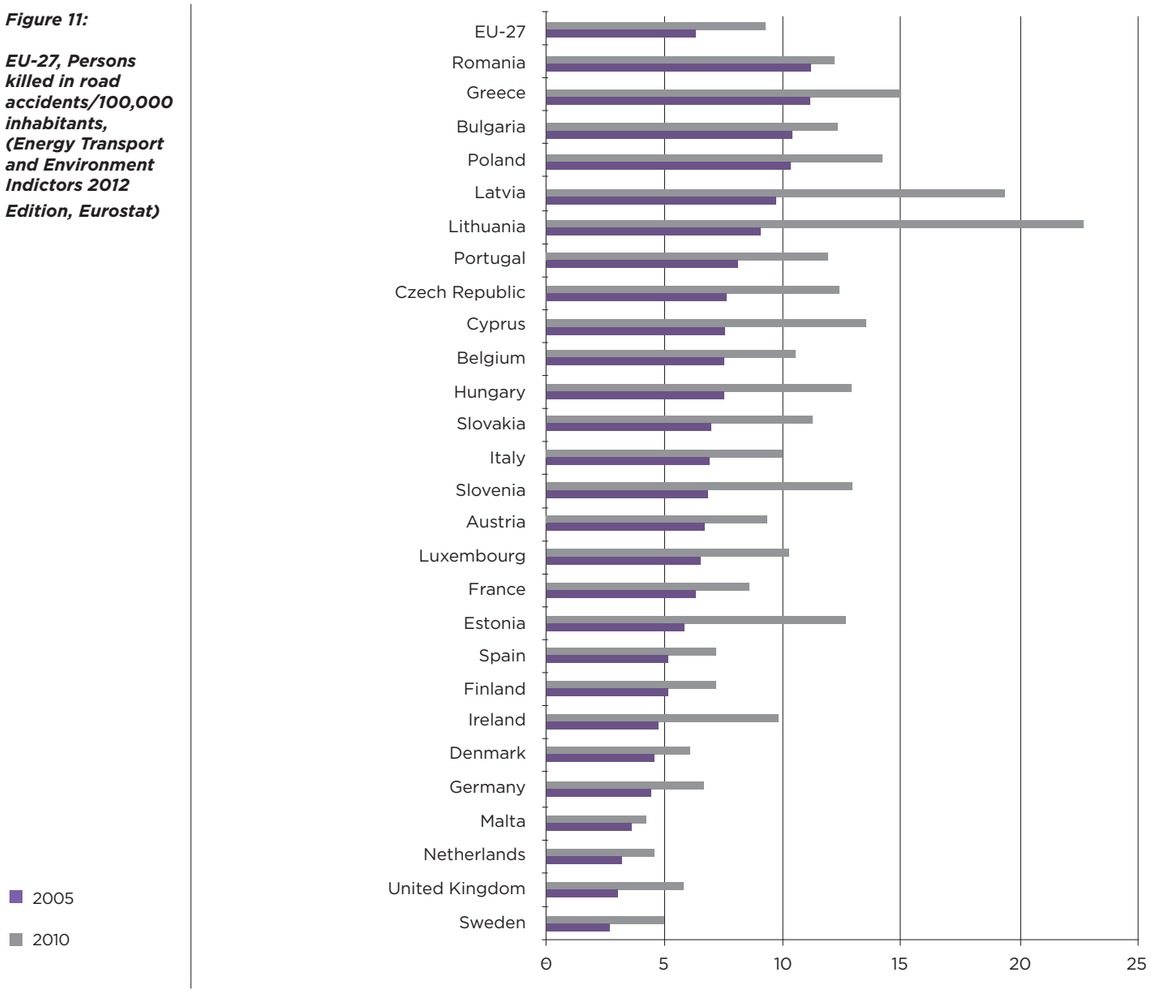


Figure 11:

EU-27, Persons killed in road accidents/100,000 inhabitants, (Energy Transport and Environment Indictors 2012 Edition, Eurostat)



The number of road deaths per 100,000 inhabitants favourably compares with other EU countries.

Over the last decade, despite a 20% increase in the number of registered motor vehicles and higher usage levels, the total number of road accidents has remained at a fairly constant baseline of around 14,500 per year. This probably is a direct result of a number of new legal provisions concerning the roads, drivers and vehicles such as legislation as a result of accession to the European Union on the wearing of seat belts and child restraint devices, vehicle roadworthiness testing, vehicle type-approval standards, driver testing and training and carriage of dangerous goods and also physical, educational and enforcement measures which resulted in better road infrastructure, increased road safety awareness and more effective enforcement of traffic regulations. This strategy document sets out a (10) year direction for a safer land transport system and it focuses on the main areas where there is evidence that a sustained and coordinated effort leads to considerable gains and where measures may be implemented which give long-term improvement with the aim of achieving a 50% reduction in fatalities, 30% in grievous injuries and 20% in slight injuries by 2020.

European Decade Of Action For Road Safety

In March 2010, the United Nations General Assembly unanimously adopted a resolution proclaiming 2011 to 2020 as the Decade of Action for Road Safety. The goal of the Decade is to stabilize and then reduce the forecast level of road fatalities worldwide by 2020 by increasing road safety activities at national, regional and global levels (WHO, 2010).

The resolution invites all member states to set their own road safety measures and actions especially in the areas of road safety management, road infrastructure, vehicle safety, road user behavior, road safety education and post-accident response. These objectives are supported by the Global Plan for the Decade of Action for Road Safety 2011-2020 which provides a framework for an implementation strategy based on safety principles (WHO, 2010).

Background For The Strategy

The main concern of this strategy is to improve road safety. The measures included in the strategy will inevitably impact on other policies such as policies improving health, sustainability and climate changes, environment, local government reforms and economic growth. Travel choices have profound social and personal impacts on wellbeing, health and the environment. Whilst the strategy is to be assessed in the way it impacts these areas and the different sectors of society, the road safety measures proposed must be proportionate in relation to their potential economic and regulatory impacts.
Establishing a sound evidence framework as a basis for this strategy was a crucial element in identifying the key road safety challenges to be addressed. In the development of this strategy, the detailed analysis of the statistics, past experience, sound academic backgrounds and previous research projects played a major role in outlining the way forward.

The Challenges To Improve Road Safety

The analysis of the statistical data for Malta and international good practice guides led to the identification of the following major key challenges which this strategy will aim to address:

1. The reduction of the number of fatalities and injuries
2. Special focus on improving road safety on the arterial and distributor road network
3. Special focus on young drivers and motorcyclists
4. Addressing illegal road user behaviours including drink and drug driving, overspeeding and careless driving
5. Improving our understanding on how to design safer roads.

The challenges outlined seek to consider road users, vehicles and roads together taking into account the sensitive nature of each when operating together within their limitations.

The Way Forward

This strategy embraces the basic concepts of Safety Through Engineering (Inginerija), Enforcement (Infurzar), Vehicles (Ingenji) and Education (Istruzzjoni) which will be the guiding principles throughout this document and which will be referred to thereon as the 4Is Approach. To achieve the target of 50% reduction in fatalities, 30% in grievous injuries and 20% in slight injuries by 2020 a range of strategic interventions and government commitments to this strategy are required to realize the target of this vision.

Death and serious injuries should not be considered as an inevitable cost for travelling by road. Road accidents will continue to occur on the roads because humans will always make mistakes no matter how well instructed and informed they may be, however we do not have to accept a transportation system that allows people to be killed or severely injured.

Through the process of educating road users and the enforcing of road rules to encourage safe behavior, the 4Is approach will demand a more holistic approach to addressing the road safety challenges on the road network. Hence the speeds at which we travel, the safety of the vehicle we use and the level of protection of the roads are to be combined and managed to ensure that when collisions occur these do not result in fatalities or grievous injuries.
The attainment of the 50% reduction in fatalities, 30% reduction in grievous injuries and 20% reduction in slight injuries by 2020 will entail a concerted effort to improve the quality of the roads, to have safer vehicles, to improve compliance with legislation and road rules and to promote a road safety culture at all levels of society.

The 4Is Road Safety System Approach

There are a number of guiding principles to this approach:

1. People make mistakes and will continue to make mistakes and the transport system must be designed to accommodate these mistakes where an accident should not result in fatalities or grievous injuries as a consequence of mistakes on the roads (Australian Transport Council, 2011).
2. The physical limitations of humans are to be understood in respect of the amount of impact which our bodies can withstand before injury occurs (Australian Transport Council, 2011).
3. Forgiving Roads where the impacts of a collision do not exceed the limits of human tolerance. Road design is to be managed such that the human body is not exposed to impacts beyond physical tolerance (Australian Transport Council, 2011).

Shared Responsibility

The individual drivers are expected and are obliged to be responsible for adhering to the traffic regulations and rules and in behaving in a safe and appropriate manner on the road. However road safety is a shared responsibility that requires national and local government entities, as well as the private sector and members of the public, to work in close cooperation to make our roads, vehicles and drivers safer. For this reason, it is being proposed that a National Road Safety Advisory Council will be established comprising representatives from the key Government entities, NGOs and private sector which have a stake holding in road safety.

The Key Target Areas Of This Strategy

As indicated previously, this strategy is based on four target areas which will each be discussed in more detail in the following chapters of this document. The target areas are as follows (WHO, 2010):

ENGINEERING ***Safer Roads*** ***Safer Speeds***	The roads and the sides of the roads are designed and maintained to reduce the risk of collisions and to reduce the severity of a collision when such occurs. Through good design, safer roads encourage the correct use of the road and encourage safe behavior of road users. Posted speed limits are to ensure that collision impacts are within human tolerance and that all road users adhere to the posted speed limits.
ENFORCEMENT	To be addressed as an effective measure to motivate road users to improve their road user behavior
VEHICLES ***Safer Vehicles***	Vehicles which offer the maximum possible protection to occupants and simplify the task of driving.
EDUCATION ***Safer Road Users***	Promote safe road user behavior through road safety education and skills including the driver licensing, enforcement and penalties.

The strategy actions will be developed further through this document and will be classified into short-medium and long-term actions. The short-term strategy actions represent the specific commitments to action in the early years of the strategy. The medium and long-term initiatives will represent measures which will entail more complex interventions which would necessitate wider discussions with stakeholders.

Safety Performance Indicators

The success of this strategy will be measured by the actual reduction in the number of injuries and fatalities on the roads through the monitoring of identified and established measurable road safety indicators. These indicators will be used to monitor the progress and effectiveness of this strategy towards the 50% reduction in fatalities, 30% reduction in grievous injuries and 20% reduction in slight injuries by 2020. The indicators will be:

- Number of fatalities/grievous injuries resulting from road accidents
- Number of road accidents resulting in fatalities/ grievous injuries
- Number of fatalities/grievous injuries per 10,000 licensed vehicles
- Number of fatalities/grievous injuries per million population
- Number of fatalities per billion vehicle kilometers driven
- Compliance rate of wearing of seat belt and use of child restraint devices
- Compliance rate with speed limits
- Compliance rate with wearing of motor cycle helmets

Strategy Discussion

Over the past years, Malta has not seen a reduction in traffic fatalities in spite of the road safety measures which were undertaken. Why is this?

Malta already has a very good road fatality record and it is always more challenging to improve on an already good system. In 2012 there was a huge percentage reduction but small numbers have high statistical variation. The European Union (EU) statistics for road fatalities per million inhabitants for the year 2010 ranks Malta at 4th place which is a very good result (Eurostat 2010).

During the ten year life span of this strategy, decisions may be taken which would have an impact on the strategy itself. Have these been considered?

It is highly probable that future national policy decisions in transport and other areas over the life span of this strategy could have an impact on the strategy itself. Factors may include the future level road infrastructure investment, changes in vehicle and enforcement technology, modal shift from the private car, use of public transport, fuel prices, travel modes of commuters, public transport patronage and number and classes of registered vehicles. Such decisions may pose challenges to the policy makers which might lead to adjustments in the way the strategy is implemented. Such decisions may pose challenges to the policy makers which might lead to adjustments in the way the strategy is implemented.

What were the important road safety initiatives over the past years?

Malta has a good record in road safety and this was a result of various measures which were introduced including front and rear use of seat belts, introduction of speed cameras, introduction of vehicle activated speed signs, breath-testing, improved driving test and the introduction of a theory test, the introduction of a comprehensive speed management policy and continuous road safety skills training in schools.

SECTION 2

INVESTIGATING COLLISIONS AND CASUALTIES

A large amount of road collision data is being collected by the police and is being analyzed by Transport Malta. However there is still not enough information regarding the accident causation itself and the purpose of the journey which was being made.

Strategy Objectives

Objective 1:
To optimize the use of available accident statistics and data to assess problems on the road network

Objective 2:
To improve the accident reporting system

Objective 3:
To address the circumstances which contribute to road accidents through research in road user behavior and road infrastructure

Objective 4:
To measure risk exposure by relating road accidents to accident statistics.

Current System Of Road Accident Reporting By The Police

- Data is collected through the Police Accident Report Sheet designed by Transport Malta to meet EU operational requirements of the Community Road Accident Database (CARE).
- Accident details are then compiled in a database by the police and issued in a monthly report.
- This report is forwarded on a monthly basis to NSO and the Authority for Transport in Malta.

Location Identification

The main problem of data collection is identifying and describing the exact accident location. This problem may be improved using handheld data collection devices with photograph and GPS coordinate taking facilities.

Lack Of Information Concerning Causation Of Accidents

Although the causation of accidents is an important feature of accident investigation, the current Police Accident Report Sheet provides few details of the actual cause of the accidents.

Reporting Of Collisions

Not all the road accidents which occur are reported by the police and hence such do not appear on official statistics. Such accidents are those which result in damages only to the motor vehicles involved where nobody is physically injured, whiplash injuries which may only become evident after the reporting period of the collision has elapsed and injury collisions with cyclists and pedestrians especially on off-road routes. Also we have serious limitations related to the lengthy time of magisterial inquiry and the situation where we are not being allowed access to the court 'process verbale'. As a result of this we do not have traffic accident information related to the wearing of seatbelts, drink driving, drug driving and fatigue.

Damage-only collisions are important to enable a comprehensive overview of the risks involved in a collision. In most cases, it is only through chance that physical injury has been avoided and such might not be the case in future accidents of the same type and at the same location. A potential source of data for damage-only accidents is

insurance company records which would be in a position to provide details such as location of the accidents, time, road and weather conditions, damages to the vehicles, journey purpose and possibly other contributory factors resulting from the insurance processes and reportings.

Exposure To Risk

The assessment of how people are likely to be involved in a collision is the Risk Exposure and this is based on the levels of road use (Welsh Assembly Government, 2003). Road Accidents and Injuries should be expressed as a rate per kilometer or per hour travelled for different groups of people. There is no risk exposure information currently published for pedestrians, cyclists and motorcyclists and there is generally a lack of travel data for these transport modes. To enable the measurement of risk exposure, a complete assessment of progress towards injury targets is to be made since otherwise a reduction in the total number of casualties could simply be attained by reducing these modes of transport (Welsh Assembly Government, 2003).

Collision And Casualty Reduction Studies

A study of road collisions and injuries requires the use of published statistics and accident data to identify clusters of collisions on the road network where there is the tendency for a common cause of a specific accident type (Welsh Assembly Government, 2003). Generally these accident clusters tend to form at road junctions or bends. Various road engineering interventions have been implemented by Transport Malta at such cluster sites and hence it is now becoming more difficult to identify single-site clusters and a large number of collisions are spread across the network and it is hence difficult to identify patterns. In Malta, road collisions involving cyclists and pedestrians do not tend to form clusters.

Urban Safety Management

The Urban Safety Management approach addresses an area-wide problem to prioritize road safety solutions based on:

- The identification of roads to be assessed
- Examining the requirements of all classes of road users with special attention to vulnerable road users
- Consultations with local councils to identify problems
- Determining the function of each road to design a tailor-made solution for the specific scenario and requirements
- Integration of road safety objections with environmental and engineering initiatives
- Monitoring progress through agreed indicators.

Good Practice Urban Safety Management Scheme

Gloucester 'Safer City' was the pilot project that tried out the theory of Urban Safety Management. During a period of five years, a scheme of road safety measures was implemented across the whole of the Gloucester Urban Area and included gateways, antiskid surfaces, speed cameras, provision for cyclists, speed cushions and education and training measures.

The results of the programme were a reduction of killed and seriously injured (KSI) by 38%. Adult pedestrian injuries were reduced by 22% and child pedestrian injuries were reduced by 13%.

Source: Welsh Assembly Government, 2003.

Route Safety Management

The Route Safety Management principle investigates the accident and injury record over a whole route where road length, traffic flow and the requirements of pedestrians and cyclists are also taken into consideration. With this approach it is possible to compare accidents and injury rates on different routes and it is also possible to establish a ranking list based on the following principles:

- Defining the hierarchy of the route itself
- Implementation of the correct posted speed limits
- Encourage safe journeys.

The focus for Route Safety Management is the emphasis of providing the driver with appropriate and consistent information through advance warning and information signs, road markings, lighting levels, changes to road alignment, gateways, provision of pedestrian crossings, use of anti-skid surfaces, Vehicle Activated Sigs and/or Speed Cameras.

Safety Scheme Assessment

Roads are sometimes perceived to be dangerous even where there is not actual collision data to substantiate such perceptions (Welsh Assembly Government, 2003). The lack of recorded accident data is not necessarily evidence that a road is safe (Welsh Assembly Government, 2003). Safety Schemes have long been assessed and prioritized based on recorded road traffic collision data however, to address perceived fears and thus promote walking and cycling, the assessment criteria for Safety Schemes have been broadened to include considerations of pedestrian and cyclist activities, traffic flows, the hierarchy of the road, the percentage of heavy goods vehicles using the road, proximity to schools and shops, the need for pedestrian crossing facilities and the measured speeds (Welsh Assembly Government, 2003).

Table 9:

Strategy Action Plan for Safety Scheme Assessment

Strategy Action	Lead Authority	Supporting Department/ Authority	Timescale		
			S	M	L
Equip Police with GPS enabled hand-held data capture devices for logging road traffic injury accidents	Police	Transport Malta		*	
Improve access to information on the cause of road traffic injury accidents should be provided transport planners and policy makers for future accident prevention	Transport Malta				*
Explore the possibility of collecting collision information from insurance companies	Transport Malta		*		
To base Safety Scheme Assessment Criteria on local priorities and consultation with the local councils	Transport Malta		*		
Address community concerns through Local Road Safety Forums	Transport Malta			*	
Investigate alternative ways, through the use of technology, to obtain real-time traffic information	Transport Malta		*		
Studies are to be furthered to develop and integrated Geographical Information System mapping and database system to display all the necessary road safety information such as accident data and other traffic and transportation data.	Transport Malta				*
The quality of the accident data will be improved and we will seek to expand existing data sources to develop further our understanding of road safety problems and trends.	Transport Malta	Malta Police		*	
To enact legislation which will prohibit the passage of heavy vehicles used for the carriage of other vehicles and/ or equipment and/or any boats, and learner drivers from using the arterial and distributor road network from Monday to Saturday (Except Public Holidays) during peak traffic hours,	Transport Malta		*		

SECTION 3

SAFER ROADS THROUGH ENGINEERING

Road safety upgrading is carried out in two different ways through infrastructure investment hence through:

- Investment in upgrading of existing links and junctions and the treatment of accident black spots and
- Investment in new road construction works and major upgrading projects.

Compared with many other countries, Malta has a relatively small road network serving a very dense population.

Strategy Objectives

Objective 1:
Establish a structured maintenance programme

Objective 2:
All new roads and upgrades are to be designed according to the 4Is of this strategy.

Objective 3:
A reduction in collisions due to run-off road, head-on and collisions at intersections.

Objective 4:
To assess the risks on the road network and focus road investment programmes to address such

First Year Rate Of Return

The approach adopted to estimate the economic benefits of safety measures is based on the human capital method of valuing human life. This technique treats an individual as a productive entity. Its application to transport safety involves estimating the victim's earning profile from the time of premature death to the end of their expected lifetime (Australian Transport Council, 2011).

This system is based on ensuring that value for money is achieved in all the safety schemes where, in addition to a reduction in accidents, the cost of the scheme is recouped within the first year of implementation of the scheme through the reduction in accidents.

The table below illustrates the estimate of statistical life of 'fatalities', 'severe Injuries' and 'slight Injuries' taken from the 'Guidance Manual for Cost Benefit Analysis (CBAs) Appraisal in Malta', May 2013.

Table 10:

Value of Statistical life (€$_{2002}$, factor prices)

Country	Fatality	Severe Injury	Slight Injury
Malta (€$_{2002\ prices}$)	1,205,573	153,918	11,442

The value of statistical life reflects the aggregation of individuals' willingness to pay for fatal risk reduction and therefore the economic value to society to reduce the statistical incidence of premature death, severe injury and slight Injury by one.

A) INVESTMENT IN UPGRADING OF EXISTING LINKS AND JUNCTIONS AND THE TREATMENT OF ACCIDENT BLACK SPOTS

Road Safety Inspections

Road Safety Inspections are now a mandatory measure to be carried out on TEN-T roads in all European Union countries. Road Safety Inspections are designed to identify all defects on TEN-T roads likely to cause danger or serious inconvenience to users. Such defects include those that require urgent attention as well as those where the locations and sizes are such that longer periods of response are appropriate. Transport Malta started carrying out road Safety Inspections in line with the provisions of Directive 2008/96/EC in 2011

Road Maintenance

One of the most under-estimated contributors to road safety is the significant annual investment in maintenance of the road network which operations range from regular road safety checks to identify hazards to substantial re-surfacing and major patching schemes (Mannering et al, 2008). Other lower level activities such as road marking refreshing, the cleaning of road signs, tree pruning and the cleaning of culverts are not carried out in a timely manner, the roads may instantly become more hazardous (Mannering et al, 2008). Hence it is important that maintenance activities are carried out according to best practice standards

Black Spot Treatment

Although Black Spot Treatment is very effective at addressing problems at specific sites with a concentrated accident frequency and occurrence, the reality is that the majority of collision sites are scattered on the road network (Sprassas et al, 2011). A wider and more strategic approach to reducing road accidents on the network can be achieved by treating high-risk sections (Sprassas et al, 2011). These would include lengths of road that have a history of accidents involving fatal and grievous injuries or which have been identified as being high-risk through the Road Safety Inspection Process (Sprassas et al, 2011). The ultimate aim is to improve the road safety performance of the network over time through the researched implementation of effective and appropriate measures.

The expected life span of road infrastructure is twenty-five years, hence the investments in road safety, will not only save lives during the next ten years but will continue to save lives and reduce the severity of accidents well beyond the life of this strategy document.

Road Markings and Road Signs

Road markings are one of the most basic safety measures which ensure that vehicle drivers drive in the correct lane and on the correct side of the road and that they correctly position their vehicles at a junction. Poor visibility of road markings results in a high risk factor by impairing the driver's visibility and positioning of the vehicle leading to increased shunt and head-on crashes between vehicles.

Road signs are an essential tool for road safety. Signs give commands, warning, advice and direction to vehicle drivers and other road users. It is important that a road sign attracts the attention of the driver however attention needs to be given to the amount of signs on the road which may distract the driver. The driver would be taking his eyes off the road and losing concentration.

The proliferation of signs results in a reduction of the effectiveness of the signs whereby the vehicle driver becomes overloaded with information and nurtures excessive familiarity (Welsh Assembly Government, 2003).

B) INVESTMENT IN NEW ROAD CONSTRUCTION WORKS AND MAJOR UPGRADING PROJECTS

Vehicle Speeds and the Function of the Road

The function of a road is a primary consideration when designing a road and identifying infrastructure treatment (Australian Transport Council, 2011). The functions of different roads differ and hence such should be designed to be understood by the road users. Arterial and distributor roads operate at higher speeds while residential roads operate in a completely different speed environment. Infrastructure interventions are determined by the functions of the road. For example, on high speed roads, pedestrians are separated from vehicular traffic whilst in residential roads, where limited vehicle speeds are required, pedestrians benefit from lower travelling speeds through physical measures and lower speed limits.

Speed Policy Recommendations (Speed Management on Maltese Roads Policy and Technical Guidance Manual, 2012)

- Introduce the category classifications of 'Rural and Urban Roads with Linking Function' and TEN-T roads
- Examine the reclassification of certain arterial and distributor roads to better reflect current flow and distribution functions to facilitate clearer application of speed limit principles
- The boundary defining a "built-up area" shall be determined on a case-by-case basis taking into con sideration the number of dwellings with direct access to the road, type and function of road and other safety considerations
- Each 'built-up area' is appropriately signposted on all entry points
- The following categories of vehicles are prohibited from using roads on Arterial roads: horse drawn vehicles, heavy vehicles which have manufactured design speeds of less than 30km/h.
- Prohibit the use of certain industrial, plant or agricultural vehicles such as Fork lift trucks and JCBs on Arterial and Distributor roads
- Better enforcement of the use of the overtaking lane on certain dual carriageway roads
- Better promotion and education of the different national speed limits applied to different vehicle types within and outside built-up areas
- Transport Malta retains regulatory competence for determining the Posted Speed Limits on all categories of road
- Only the following rounded Posted Speed Limits Signs shall be permitted: 10, 20, 30, 40, 50, 60, 70 and 80km/h
- The list of posted speed limits and any subsequent changes to Posted Speed limits shall be discussed between Transport Malta, Police and the relevant Local Council/s (lower category roads 30km/h home zones) and the decision shall be published
- Transport Malta maintains speed limit database and certifies that speed limit decision has been correctly signposted
- Transport Malta should undertake periodic monitoring of speed compliance with Posted Speed Limits and continuous monitoring of road traffic accidents on all stretches of road using a Geographical Information System
- Replace all national speed limit signs with posted speed limits displaying the actual maximum speed as a number
- In speed transition zones use only 'Reduce Speed Now' signs in combination with triangular warning signs and the actual posted speed limit at location where the speed limit actually applies
- Introduce Vehicle Actuated Signs (fixed and mobile) at key locations for example before or after existing fixed speed cameras as an information / educational measure and as a counter measure to the kangaroo effect', on approaches where local speed reduction is required before sharp bends, pedestrian crossings etc. Installation should be accompanied by appropriate public awareness campaigns on the purpose and road
safety benefits of VAS.
- Audit road markings and traffic management and calming measures to verify compliance with government standards
- Introduce greater accountability amongst other entities responsible for undertaking road markings and constructing traffic control measures. All works should be signed off by a warranted Architect and Civil Engineer in the form of a completion certificate.
- Discuss with education authorities the feasibility of establishing Road Safety as part of the national learning curriculum
- Invest further in road safety educational material and tools
- Introduce continued ability test for existing Driving Instructors
- Establish and pilot a safe driving course model for Government employees with transferability potential to private sector
- Carry out pilot study into new driver accompaniment
- Hold information session for media in order to discuss and explain speed policies initiatives and measures (i.e. national speed limits, the setting of local speed limits, use of variable message signs, traffic calming and other engineering measures, speed enforcement through fixed and mobile cameras)
- Appoint media experts to plan a long-term programme of media campaigns relating to speed management and other road safety issues
- Set up the administrative and accreditation framework for mobile cameras
- Carry out further studies on the potential of using Average Speed Cameras on long stretches of road with few intersections (2-5km) such as Coast Road and Burmarrad Road
- Transport Malta to formally permit the deployment of 'dummy' speed cameras in approved locations
- Transport Malta to formally adopt the speed camera site selection criteria and assessment framework contained in Annex 1
- Formally adopt the 10% tolerance for speed enforcement using cameras nationwide
- Amendment to the agreement with the Local Councils' Association to stipulate that Transport Malta (in agreement with the Police) shall determine the site for the installation, operation and/or removal of fixed and mobile speed cameras, based on objective reasoning
- Assess technical feasibility through the VERA system for the correct fine to be applied to Heavy vehicles
- A third tier of speed fines should be introduced into the law for drivers travelling 30km/h over the posted speed limit with a pecuniary fine of not less than €500
- Examine the technical feasibility of extending the driving license penalty point system that is currently applicable to new drivers with probationary driving licenses, to cover drivers with standard licenses
- Discuss new contracting procedures with Local Council Association for camera service provision to be based on fixed annual fee rather than fee per fine payment received
- Improve data collection of road traffic accidents through the use of handheld data capture devices with the facility for logging coordinates of the road traffic accident using GPS and continued development of Transport Malta's road accident GIS database
- Transport Malta to discuss with the Police and respective Local Councils the monitored performance of the listed fixed speed cameras after three years of operation

Land Use Planning

The 4Is Road safety System Approach requires a holistic treatment of the road transport system. Expensive treatments may be avoided by taking into close consideration the road safety implications of land-use planning decisions.

The introduction of new developments, whether commercial or residential, may create a negative impact on the adjoining roads from both an access and a safety aspect (Environmental Services Department Wigan Council, 2006). Planning applications are to be assessed in respect of its impact on the road network and, where necessary, ensure a contribution from the developer to carry out improvements on the network, when necessary, to mitigate the negative impacts of the proposed development. Such improvements may include re-alignment of the road, traffic calming measures, traffic signal junctions, pelican and/or zebra crossings.

Road Safety Assessments and Audits

Road Safety Assessments and Audits are an important procedure for identifying unsafe features during the planning and design of a project on the TEN-T network. Through the process of the systematic Safety Audit trail, all aspects of road safety are given full consideration through the life of the scheme. This ensures that accidents can be prevented from occurring and the safety requirements of all road users can be included in the schemes from the design stages.

Separation of Road Carriageways

Over the past years, there have been a number of road traffic accidents involving head-on collisions with other vehicles, street furniture or trees resulting in death or serious injury. Head-on collisions can occur due to poor overtaking decisions or by straying onto the centerline due to driver inattention, fatigue or vehicle loss of control.

In Malta, a number of serious head-on collisions have occurred over the years on dual carriageway roads which were originally constructed many years ago with narrow carriageways and central reservation widths. These central reservations are often lacking the appropriate type of median barrier. Possible improvements include:

- Tactile line treatments parallel to central strip
- Swedish '2+1' carriageway

Intelligent Traffic Management Systems (ITMS)

There has been a rapid and consistent increase in the deployment of ITMS technology to assist in traffic operations, management and control. Advances in ITMS systems have turned CCTV remote monitoring, real-time optimization of traffic signals, real-time driver information on Variable Message Signs and other technology based integrated solutions into effective and efficient tools to enhance mobility and improve road safety. Real-time monitoring of the existing traffic scenario is important because it enables timely action to be taken to manage congestions or incidents which, if left unattended, may result in secondary collisions many of which might be more serious than the original incident.

Facts about the Road Scenario

- The majority of fatalities and grievous injuries result from accidents occurring on the arterial and distributor road network
- There are many uncontrolled accesses to the arterial and distributor higher-speed road network
- A low percentage of the network has median barriers
- Tactile line treatments are not used on road central strips and hard shoulders.

Improvements to the infrastructure can have a major accident reduction and, in many cases, these interventions are relatively low-cost and can provide a benefit to the community. Examples of treatments significant accident reduction are roundabouts, adding a left-turn lane at an intersection and installation of crash barriers (Mannering et al, 2008).

Run-Off Road Collisions can be prevented or their severity reduced by:

- Infrastructure treatments including crash barriers, tactile edge lines and relocation of roadside hazards and objects (Mannering et al, 2008)
- Establishing posted speed limits according to the methodology outlined in the Speed Management Policy
- Management of road maintenance programmes including tree and vegetation pruning (Mannering et al, 2008).

Head-on Collisions can occur due to poor overtaking decisions or by straying onto the centerline due to driver inattention, fatigue or vehicle loss of control (Lester et al, 2008). Treatment may include:

- Wire rope/crash barriers in the median and on the side of the road (Lester et al, 2008)
- Separation of opposing traffic through wider medians (Lester et al, 2008).

Intersection Collisions can be reduced by:

- Introduction of roundabouts to reduce approach vehicle speeds (Mannering et al, 2008).
- Raised platforms (Mannering et al, 2008).
- Traffic separation through the use of improved lane marking, traffic islands and separate left-turn lanes (Mannering et al, 2008).
- Reduction of speed limit on the approach
- Appropriate provision for pedestrians

Table 11:

Strategy Action Plan for Safer Roads

Strategy Action	Lead Authority	Supporting Department/ Authority	Timescale		
			S	M	L
Plan to complete an average of five safety schemes every year	Transport Malta	Local Councils	*		
Undertake a sample survey to determine the performance of road markings	Transport Malta		*		
Undertake a review of existing signage on the arterial and distributor road network	Transport Malta			*	
Address road safety issues for vulnerable road users	Transport Malta	Kummissjoni Nazzjonali Persuni b'Disabbilta'		*	
Address safety on arterial and distributor roads by prioritizing through historical accident records	Transport Malta	Malta Police	*		
Implement the Road Safety Auditing and Road Safety Inspection programmes as per EU Directive requirements	Transport Malta		*		
Clear road maintenance backlogs on arterial and distributor roads	Transport Malta			*	
Implement innovative infrastructure safety treatments where feasible and cost-effective	Transport Malta			*	
Implement infrastructure measures to separate cyclists and motor-vehicles where this is possible	Transport Malta				*
Introduce motorcycle black spot programmes	Transport Malta			*	
Implement Intelligent Traffic Management Systems on the arterial and distributor road network			*		

Monitoring Progress

Progress will be monitored and assessed through a comparison of

- Number of fatalities and injuries from head-on collisions
- Number of fatalities and injuries from single vehicle collisions
- Number of fatalities and injuries from intersection collisions
- Number of fatalities and injuries from collisions occurring on arterial, distributor and local roads

SECTION 4

SAFER SPEEDS THROUGH ENGINEERING

Speed is generally a main contributing factor to a large proportion of fatal and grievous injuries resulting from road accidents (Lester, 2008). Speed itself contributes to the resulting severity of most accidents irrespective of the cause of the accident itself (Lester, 2008). The problem of speeding is partially a road user behavior issue where vehicle drivers choose to drive at illegal or inappropriate speeds (Lester, 2008).

One of the most frequent complaints from road users is that speed limits are not always consistent from one road section to the next and hence this has the potential to lead to a lack of understanding of the posted speed limits with the result that such may be ignored by the road user (Lester, 2008). The Speed Management Policy for Malta was prepared with one of its aims being to ensure that appropriate posted speed limits are applied and to ensure consistency throughout the road network. Such Transport Malta policy delved in great detail into the methodologies to be adopted to reach these aims.

Strategy Objectives

Objective 1:
To reduce speed related accidents especially those involving fatalities and grievous injuries

Objective 2:
To make the road environment safer thus promoting other modes of transport, such as walking and cycling

Objective 3:
To make speeding a socially unacceptable behavior and to achieve a substantial improvement in compliance with posted speed limits

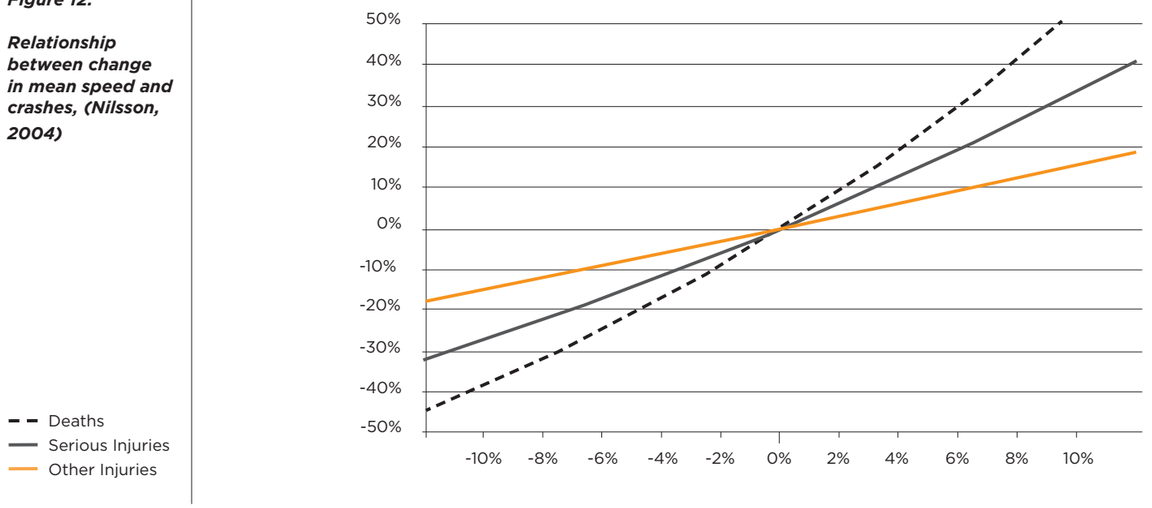
Objective 4:
To ensure that speed limits reflect a balance between safety and travel objectives

Facts about Accident Risks

The likelihood of being involved in a road accidents involving fatalities and/or grievous injuries increases even with a minor increase in speed (Nilsson, 2004). Internationally accepted research has established a relationship between changes in 50th percentile speed and the result of a road collision (Nilsson, 2004). As shown in the figure below, a 5% increase in speed results in a 15% in grievous injuries and a 22% increase in fatalities. Also, for a 5% reduction in the 50th% speed there are about 15% less grievous accidents and 20% less fatalities.

Figure 12:

Relationship between change in mean speed and crashes, (Nilsson, 2004)



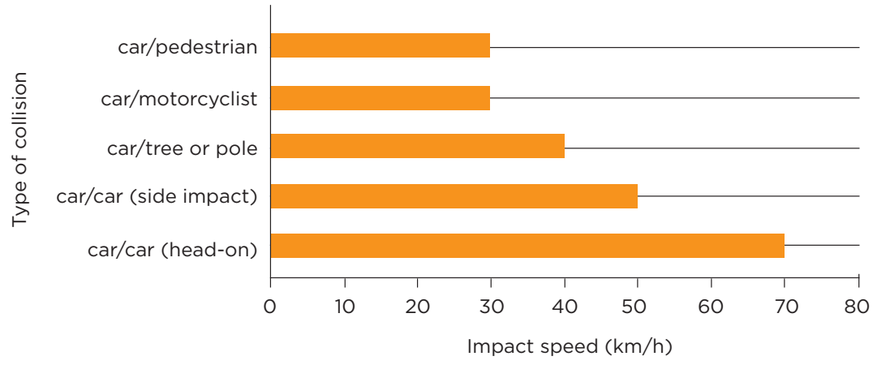
Chances of Surviving an Accident

The chances of surviving an accident decrease substantially above certain impact speeds depending on the nature of the collision (Austroads, 2005):

- Car colliding with a pedestrian: 30km/h
- Car colliding with a motorcyclist: 30km/h
- Car colliding with a tree or pole: 40km/h
- Car colliding with another car (side impact): 50km/h
- Car colliding with another car (head-on): 70km/h.

Figure 13:

Survivable impact speeds for different crash scenarios, (Austroads, 2005)



Adherence to Posted Speed Limits

When posted speed limits are not adhered to such results in a large amount of grievous injuries (Nilsson, 2004).

Speeding up to 15km/h over the speed limit contributes to a large number of grievous injuries (Nilsson, 2004). Whilst speeding in this range does not pose the same risk as for higher speeds, however, such behavior is more common with drivers (Nilsson, 2004).

Whilst fixed speed cameras are a cost effective measure to reduce grievous injuries and fatalities at high accident risk locations, however a larger reduction of grievous injuries and fatalities through enforcement programmes which are targeted at improving speed compliance more holistically across the road network (Nilsson, 2004).

Intelligent in-vehicle Speed Adaptation systems incorporate digital speed limit maps and satellite navigation technology and have been proved effective in improving driver compliance with posted speed limits by warning drivers when they are speeding or by actually controlling the speed of the vehicle (Prassas et al, 2011). Studies have shown that speed limiting systems result in considerable accident reduction (Prassas et al, 2011). More work needs to be done in Malta to enable the uptake of this technology such as the development and maintenance of digital speed limit maps.

Community Acceptance

The community at large understands that speed is an inevitable consideration of any road safety strategy, however there tends to be reluctance by a minor sector to accept the concept that lower speed limits are necessary to improve road safety. Cyclists and pedestrians support lower speed limits because they understand the risks involved when sharing the road space with motor vehicles and are also aware that their road use experience would thus become less stressful and public amenity would improve within the urban community (Lester et al, 2008).

There are mixed opinions to proposals of reductions in the posted speed limits on the arterial and distributor road network (Mannering et al, 2008). Although research has shown that travel times are only increased by seconds on typical urban roads and less than two-and-a-half minutes for every half hour trip on the open arterial and distributor road network, the public tends to be concerned that reducing the posted speed limits will increase travel times (Mannering et al, 2008).

Case Studies

Case Study 1: Chicanes		
Location	Pinehurst Road, Swindon	 
Site	Straight urban tree-lined road with residential frontages, little on-street parking, bus route, traffic calming over 1.5km	
Problem	Child pedestrian accidents	
Aims	To reduce accidents, reduce speeds and reduce through traffic	
Treatment	Four chicanes, two pedestrian refuges and build-outs at pelican crossings	
Accidents	48% reduction	

Case Study 2: Gateways		
Location	Sanquhar	 
Site	Large Village on main road	
Problem	Local concern about speeding in area of pedestrian activity connected with school	
Aims	To reduce accidents and excessive speeds	
Treatment	Gateway preceeded by bar and school markings before start of 50km/h limit and roundels	
Mean speed	Reduction from 56km/h to 51km/h	
Accidents	75% reduction	

Case Study 3: Gateways		
Location	Craven Arms	
Site	Large village on main road with straight approaches	
Problem	Volume and speed of traffic, heavy goods vehicles, perceived danger to pedestrians and cyclists	
Aims	To reduce accidents and excessive speeds	
Treatment	Gateway preceded by Dragons' Teeth markings, red surface, 30 speed roundels, mini roundabout, speed cushions, pedestrian refuges and centre hatching	
Mean speed	Reduction from 45km/h to 31km/h	
Accidents	52% reduction	

Case Study 4: Speed Cushions		
Location	Ocean Road, South Shields	
Site	50km/h Shopping Street	
Problem	Pedestrian accidents due to inappropriate speeds	
Aims	Change the environment and reduce speeds	
Treatment	Installation of speed cushions	
Accidents	100% reduction	

Table 12:

Strategy Action Plan for Speed Limits

Strategy Action	Lead Authority	Supporting Department/ Authority	Timescale		
			S	M	L
Implement the Speed Management Policy	Transport Malta		*		
Implement Vehicle Activated Signs to improve compliance with posted speed limits by educating the driver	Transport Malta	Local Councils	*		
Continue to research and implement innovative solutions at locations where lower speed limits need to be posted for safety reasons	Transport Malta			*	
Establish more 30km/h speed limit zones in urban areas where applicable	Transport Malta	Local Councils	*		
Promote the concept of traffic calming measures other than the typical round topped road hump	Transport Malta	Local Councils	*		
Ensure that information on speed management are provided on the Transport Malta website	Transport Malta		*		

MONITORING PROGRESS

Progress will be monitored and assessed through the monitoring of road fatalities and grievous injuries where speed was likely to be the contributory factor.

SECTION 5

ENFORCEMENT

Enforcement may be addressed as an effective measure to motivate road users to improve their road user behavior if they understand the improper behavior (Australian Transport Council, 2011). This motivation is based on the perceived probability of being 'caught in the act' and the effectiveness of the actual penalty involved (Australian Transport Council, 2011). Many drivers tend to believe that their risk of a collision is low and hence it is the penalty itself which deters the driver (Australian Transport Council, 2011). Although the penalty is a deterrent however this alone is not sufficient. Information and education about the reality of risks involved are necessary to ensure improvement to road user behavior (Australian Transport Council, 2011).

Innovations in vehicle technologies offer important opportunities for road safety improvement by potentially addressing illegal road user behavior in relation to drink driving, speeding, non-use of seatbelts, driver fatigue and distraction (Australian Transport Council, 2011).

Strategy Objectives

Objective 1:
To establish social intolerance for overspeeding and for drink driving, seat belt wearing / child restraint devices (especially young children), failing to stop at red lights

Objective 2:
To eliminate drink driving and drug driving

Objective 3:
To eliminate illegal use of the mobile phone whilst driving

Objective 4:
To reduce the number of drivers without a valid driving license

Objective 5:
All vehicle occupants use seatbelts

Objective 6:
To eliminate habit of failing to stop at red lights

Facts about Various Enforcement Measures

Compliance with Posted Speed Limits

The risk and severity of road collisions increases with speed where the travel at illegal or inappropriate speed is considered as one of the most important road user behavior issues (WHO, 2010). The enforcement of speed limits in Malta is carried out by the Local Wardens for fixed camera installations and by the Malta Police for the mobile camera installations.

Safety cameras (speed and red-light cameras) are one of the many tools to reduce the number of accidents and the severity of such accidents. The justification for the installation of safety cameras is based on extensive research which shows that the reduction of excessive and inappropriate vehicle speeds on the roads can reduce the number of accidents and the severity of the injuries (WHO, 2010).

A common misconception of safety cameras is that they are intended as a source of revenue generation and, for this reason, safety camera installations are based on visible enforcement allowing vehicle drivers the maximum opportunity to adhere to the posted speed limit. The reality is that safety cameras reduce road accident fatalities by reducing the speed of drivers who would otherwise continue to break the law (Australian Transport Council, 2011). Such safety cameras are located at road locations which have a history of speed-related collisions and the assessment of such sites is carried out according to an established and approved procedure which is outlined in greater detail in the Speed Management Policy.

Monitoring of the speed camera sites has shown a decrease in the 85th Percentile Speeds of the road after the speed cameras were installed as follows:

Table 13:

Existing Speed Cameras in the Maltese Islands

Existing Speed Cameras								
Site and Fixed Speed Camera Details				2010		Before and After[1]		
Locality	Street	Installed	Speed Limit	Average Tickets / Day	AADT[2]	85th Percentile Speed (Before)	85th Percentile Speed (After)	Highest recorded speed offence on camera
St. Julians	Regional Road	Dec-04	60	5.3	58,984	73km/h	66km/h	138km/h
Qormi	Mriehel Bypass	Dec-05	80	1.1	26,202	87km/h	72km/h	169km/h
Zebbug	Mdina Road	Jan-06	70	4.8	19,213	89km/h	76km/h	163km/h
Attard	Not Zarb Street	Jun-06	50	13.5	26,703	64km/h	54km/h	123km/h
St. Paul's Bay	Burmarrad Road	Jun-06	70	2.5	20,682	88km/h	62km/h	172km/h
Pembroke	St. Andrew's Road[3]	Jan-07	70	5.5	26,134	N/A	66km/h	144km/h
Birzebbugia	Hal Far Road	Feb-08	60	22	14,298	82km/h	63km/h	194km/h
Birkirkara	Birkirkara Bypass	Mar-09	60	20.8	21,430	70km/h	58km/h	188km/h
Santa Venera	Tunnels	Mar-09	60	10.8	18,763	74km/h	67km/h	159km/h
Zejtun	Tal-Barrani Road	Mar-09	60	9.3	32,486	80km/h	48km/h	175km/h
Qormi	Imdina Road	Apr-09	60	11.3	22,427	66km/h	63km/h	123km/h

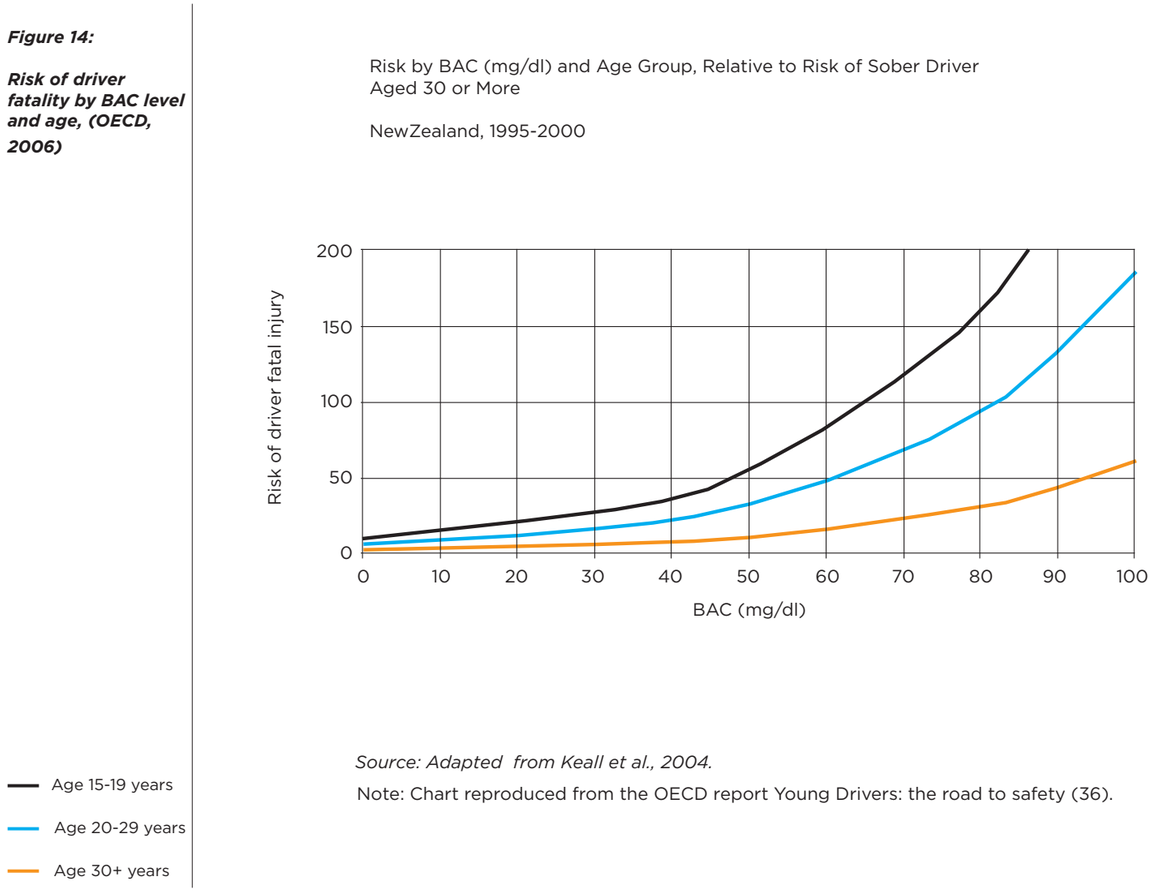
[1] 85th percentile speed indicates the faster direction of the two directions (measurement taken 400m downstream of camera)
[2] AADT – Annual Average Daily Traffic (both directions)
[3] Operated only in the month of December 2010

Drink Driving

Alcohol-related collisions continue to be a serious factor and research evidence shows that the risk of involvement in a fatal or injury collision increases sharply with increases in Blood Alcohol Concentration (BAC) levels (WHO, 2010). In the year 2010, 146 alcohol roadside police tests were carried out, 68 of which resulted to be positive. The number of roadside alcohol tests carried out in Malta is considerably low, compared with other EU countries.

Figure 14:

Risk of driver fatality by BAC level and age, (OECD, 2006)



Source: Adapted from Keall et al., 2004.

Note: Chart reproduced from the OECD report Young Drivers: the road to safety (36).

Under current Maltese drink driving legislation, it is an offence for any vehicle driver to drive with a BAC of 0.08mg/l or greater. Various arguments have been brought forward favouring the lowering of the legal BAC levels. Studies on the effects of Sweden's lowering of the BAC limit have resulted in a 10% reduction in fatal collisions related to drink-driving (Borschos, 2000). Other arguments are in favour of prescribing zero BAC limits which has the advantage of not relying on the perception of drivers of how much alcohol they can consume to stay within the legal BAC limits (Dawson and Reid, 1997). As well as providing the driver with a greater certainty, the zero BAC limit would reinforce the message that drinking and driving are to be kept separate (Dawson and Reid, 1997).

Table 14:

BAC Levels across EU countries

Road Transport - Speed Limits, Blood Alchohol Limits				Blood alchohol limit, grams of alchohol in 1 litre of blood
	Speed Limit, Cars (In General), Km/h			
	Built-up areas	Outside built-up areas	Motorways	
BE	30-50	90-120	120	0.5
BG	50	90	130	0.5
CZ	50	90	130	0.0
DK	50	80	110-130	0.5
DE	30-50	100	(130)	0.5
EE	50	90-110	110	0.0
IE	50	80-100	120	0.8
EL	50	90-110	130	0.5
ES	50	90-100	120	0.5
FR	50	80-110	110-130	0.5
IT	50	90-110	130	0.5
CY	50	80	100	0.5
LV	50	90	110	0.5
LT	50	70-90	110-130	0.4
LU	50	90	130	0.5
HU	50	90-110	130	0.0
MT	50	60-80	-	0.8
NL	30-50-70	80-100	100-120	0.5
AT	50	100	130	0.5
PL	50-60	90-110	130	0.2
PT	50	90-100	120	0.5
RO	50	90-100	130	0.0
SI	30-50	90-100	130	0.5
SK	50	90	130	0.0
FI	40-50	80-100	100-120	0.5
SE	30-50	70-90	100-120	0.2
UK	32-48	96-112	112	0.8
HR	50	90-100	130	0.0
MK	60	80-100	120	0.5
TR	50	90	130	0.5
IS	30-50	80-90	-	0.5
NO	30-50-70	80	90-100	0.2
CHI	30-50	80	120	0.5

Note: UK, IE, CY and MT drive on the left hand side of the road, the other Member

As illustrated in the table above, Malta's BAC levels are much more lenient than in most of EU.

Alcohol Interlocks

An alcohol interlock is a vehicle electronic device that detects alcohol levels through breath samples. If alcohol is detected the vehicle does not start. Data relating to vehicle use, alcohol readings and violations are also recorded by the device.

A large proportion of drink drivers are generally not effected by usual alcohol deterrent measures due to a severe alcohol abuse and social issues (Dawson and Reid, 1997).

It has been observed that alcohol interlock initiatives have had a positive impact on serious drink driving offenders (Dawson and Reid, 1997). The application of alcohol interlocks might be an area of further in-depth consideration in relation to repeated offenders and higher-risk groups such as new drivers. Companies and employers in some countries have taken the initiative to support the introduction of alcohol interlocks by introducing them in vehicles fleets, in public transport, taxis and trucks as part of their quality assurance policies (Australian Transport Council, 2011).

Drug Driving

Increased risk of collision has been linked to certain illegal and prescription drugs however alcohol still remains the principal cause of serious injuries (Borschos, 2000).

Recently roadside drug testing has been introduced in many countries and there is scope to develop further a consistent national approach to roadside testing for drug abuse together with a national approach towards impaired driving due to medical conditions or the use of prescribed medication (Borshos, 2000).

Use of Mobile Phones Whilst Driving

Epidemiological studies and other research has led to evidence showing that the use of mobile phones, irrespective of whether it is hand-held or hands-free, results in increased risk of collisions involving injuries (McEnvoy et al, 2005). Using the mobile phone to write or read text messages whilst driving has even further increased risk factors and such risks are even higher for novice drivers than for experienced drivers (McEnvoy et al, 2005).

Naturalistic driving studies have strengthened the concerns related to mobile phone dialing and texting however such studies suggest that the accident risks related to talking or listening may be comparable to other common driver activities (VirginiaTech Transportation Institute, 2009). Further investigation is necessary to better comprehend the exact extent of the impact of the use of mobile phones to be in a strong position to propose the development of actions to address the problem.

Use of Seat Belts

A large number of Maltese actually make use of the seat belt whilst travelling in a motor vehicle. Unfortunately a significant minority still do not use seat belts, which poses a significant risk. For instance the number of seatbelt contraventions in the year 2010 amounted to 6,423.

Evidence shows that seat belt alerts in vehicles improves seat belt wearing rates (Australian Transport Council, 2011). Public acceptance and understanding of the importance of the use of seat belts, including properly sitting child restraints, necessitates a co-ordinated approach between enforcement and education (Australian Transport Council, 2011).

Table 15 -

Strategy Action Plan for Enforcement measures

Strategy Action	Lead Authority	Supporting Department/ Authority	Timescale		
			S	M	L
Implement recommendations on enforcement contained in the 'Speed Management on Maltese Roads' Policy	Transport Malta	Regional Committees		*	
To improve compliance with posted speed limits through the adoption of best practice enforcement	Transport Malta	Regional Committees		*	
Strategic safety camera installations are preceded by the installation of Vehicle Activated Signs at identified sites	Transport Malta			*	
Manage educational programmes to promote the understanding of the public of the provisions of the law	Transport Malta	Malta Police	*		
Work to strengthen random breath testing and random roadside drug testing programmes and improve public awareness of these programmes	Malta Police	Transport Malta		*	
Promote the application of alcohol interlocks to convicted drink driving offenders	Transport Malta	Malta Police			*
Encourage voluntary use of alcohol interlocks for professional drivers	Transport Malta	Transport Malta		*	
Promote a PHONE-OFF policy or use of hands-free device when driving	Transport Malta	Malta Police	*		
Address the risk of unlicensed drivers and unregistered vehicles through increased traffic surveillance	Malta Police		*		
Carry out consultation with stakeholders and the community at large to investigate the scope of reducing the legal blood alcohol concentration (BAC) for all drivers	Transport Malta	Transport Malta and Malta Police		*	
Support police to procure hand-held breath testing kits for Final Test on the Road	Malta Police	Transport Malta			*
Establish automated channels of communication with other countries to gather information on foreign registered vehicles for the purpose of enforcement	Transport Malta			*	

Monitoring Progress

Progress will be monitored and assessed through the monitoring of:

- Road fatalities involving unlicensed drivers
- The number of grievous injuries and deaths involving occupants not wearing car restraints
- The Blood Alcohol Concentration (BAC) of drivers involved in accidents with grievous and fatal injuries.
- Compliance rate for wearing of seat belt and use of child restraint devices
- Compliance rate with speed limits
- Compliance rate with wearing of motor cycle helmets

SECTION 6

SAFER VEHICLES

The importance of vehicle safety is to be recognized in achieving reductions in traffic injuries and fatalities through the protection of occupants and in assisting drivers to drive more safety. The past ten (10) years has seen great developments by vehicle manufacturers in making vehicles safer for all road users.

This is mostly due to various EU Directives and requirements which have been strengthened year after year, and are imposed on vehicle manufacturers and local Authorities that register vehicles for the first time in any Member State. In fact, within the Maltese context since manufacturing of vehicles does not feature, Transport Malta does not register any vehicle for the first time, unless this complies with all the vehicle standard requirements which include the main safety components of the vehicle, apart from other components that have an impact on the environment.

Road accident severity has been significantly reduced through the introduction of improvements in the vehicle (Australian Transport Council, 2011).

Most of the vehicle safety technology over the past ten (10) years has focused on the area of secondary safety, hence protection in the event of a collision. Such improvements include developments in life-saving safety features such as airbags and seat belts and developments in vehicle safety design features such as occupant protection such as crumple zones, front under-run protection and electronic stability control, braking, handling and lighting (Australian Transport Council, 2011). At a European Level, although for example air bags are not yet mandatory, they still need to be constructed according to set standards. Furthermore, there have been improvements in the standards for various safety components of vehicles including braking systems, steering systems, bodywork and chassis construction including frontal protection systems, tyres and wheels, and field of vision.

Advances in the use of vehicle computing to prevent accidents occurring are being developed and these include voluntary intelligent speed adaptation devices, speed limiters, cooperative and advanced driver assistance systems including systems which take control of the vehicle in emergency situations, in-vehicle smart technology such as vehicle-to-vehicle and vehicle-to-infrastructure communication and emergency communication systems (DOE, 2010). Advances in sensor technology have led to the development of other road safety features in the vehicles which include lane departure warning devices, collision avoidance warning, advanced braking and driver management systems (DOE, 2010). There are other vehicle safety technologies which are designed and implemented in vehicles to target illegal behavior and these include alcohol interlocks, seat belt reminders and intelligent speed adaptation (DOE, 2010).

Future progress will be achieved through a synergy of the evolving designs by manufacturers, consumer information and other non-regulatory measures such as industry code of practice and fleet purchasing policies (Australian Transport Council, 2011). There are more than fifty (50) design rules relating to vehicle safety which are generally harmonized with United Nations Economic Commission for Europe (UNECE) vehicle regulations and Global Technical Regulations (GTR) which are the international standards. The European New Car Assessment Programme (EuroNCAP) provides start rating for vehicles up to a maximum of five stars. These ratings are based on crash testing and inclusion of safety features.

The Maltese Vehicle Fleet has an average age of about twenty (20) years and hence new vehicle safety improvements may take a number of years to infiltrate into the fleet. Improved vehicle safety will be supported through promoting marketing measures, providing consumer information, raising public awareness of the choices available and by introducing regulations where appropriate. Transport Malta has direct control over the safety of vehicles on the roads through its regulations and policies and through enforcement activities. Given the proportion of injuries and fatalities involving motorcyclists, Malta is keen to promote and support technologies to improve motorcyclists' safety.

Strategy Objectives

Objective 1:
To improve the regulatory systems related to untaxed and uninsured vehicles

Objective 2:
To increase the random enforcement and roadside vehicle checks to encourage continuous vehicle maintenance and ensure roadworthiness

Objective 3:
To promote a greater penetration of five star EuroNCAP vehicles in the general fleet

Objective 4:
To promote a reduction in the age of the vehicle fleet

Objective 5:
To promote a substantial increase in the proportion of heavy vehicles with advanced braking systems and of the safety features

Objective 6:
To enforce the use of set standards where vehicles that would have been involved in grievous accidents must adhere to before being put back on the road.

Facts on the Effect of Vehicle Design on Road Safety

- Malta has a relatively high average vehicle age being in the region of (20) years
- There has been an increase in the purchase of second-hand vehicles with higher engine capacity
- There is a tendency that older vehicles and second-hand vehicles are used by new drivers who are considered as being the higher-risk driver
- The risk of grievous injury or fatality in a collision is lower for newer vehicle models; the risk in a vehicle manufactured in 1987 is twice the risk in a vehicle manufactured in 2007 (Newstead et al, 2009)
- It has been calculated that if all drivers drove the safest car in its category, accident injuries and fatalities involving light passenger vehicles potentially could be reduced by 26% (Newstead et al, 2004).
- Passenger vehicle safety has been developed much more than safety in light commercial vehicles in relation to EuroNCAP star ratings and the incorporation of safety features. Light commercial vehicles are used both in the family environment and in businesses.
- Extensive research and development is being invested in vehicle-to-vehicle and vehicle-to-infrastructure communication and a frequency for these communications has already been reserved (Australian Transport Council, 2011).
- Extensive research is being carried out on vehicle safety internationally on intelligent transport systems including the development of guidelines for in-vehicle information systems (DOE, 2010).
- Whilst the number of unlicensed and uninsured vehicles is being reduced through various schemes made available by Government, the number needs to be reduced further to ensure that all vehicles on the road are licensed, roadworthy and insured.

Table 16:

Strategy Action Plan for Vehicles on the road network

Strategy Action	Lead Authority	Supporting Department/ Authority	Timescale		
			S	M	L
Improve on the existing initiatives to reduce the average age of the vehicle fleet in Malta	Transport Malta	Ministry of Finance	*		
Investigate fiscal registration and insurance-based incentives to promote the purchase of safer vehicles	Transport Malta	Ministry of Finance, Malta Insurance Association	*		
Investigate incentives to promote new drivers purchasing safer new or used vehicles	Transport Malta	Ministry of Finance	*		
Review of the vehicle roadworthiness test (VRT) to improve its effectiveness further, including further training for testers and possible more frequent tests for older vehicles	Transport Malta			*	
Introduce the obligation to test motor-cycles' roadworthiness	Transport Malta			*	
Promote the introduction of automatic collision notification of the European eCall system	Transport Malta	Malta Police and Depart-ment of Health			*
Publish material to highlight the importance of regular basic safety checks of the vehicle	Transport Malta		*		

Given the significant proportion of our fatalities that involve motorcyclists, we are particularly keen to work with partners in promoting work on technologies to improve motorcyclists' safety.
We will also seek to support better vehicle safety through considering, supporting and promoting marketing measures, exploring better provision of consumer information, raising public awareness of the choices available and, where appropriate, introducing regulation.

We will encourage and support advances in designs to yield better occupant and pedestrian/cyclist protection and in seeking to have collision avoidance technologies such as Electronic Stability Control included in the scoring scheme.

Where we do have direct control over safety of vehicles on our roads is through the introduction of regulations or policies addressing how our responsibilities are to be delivered and through enforcement activities. Among these measures, we will include more random enforcement and roadside vehicle checks, to encourage continuous vehicle maintenance to ensure road worthiness.

Monitoring Progress

Progress will be monitored and assessed through the monitoring of:

- The average age of the Maltese vehicle fleet
- Percentage of newly registered new vehicles sold
- Percentage of newly registered used vehicles sold
- Injury and Fatal accident statistics.

SECTION 7

SAFER ROAD USERS

The majority of road users abide by legislations and traffic regulations and are aware of safety best practice. However, even these road users invariably make mistakes which may sometimes result in grievous injuries or fatalities. Improvements in road safety systems can be developed to reduce the potential for error by the road users and to provide improved forgiveness or protection in the chance of a collision.

However, there are road users who frequently break the traffic regulations and legislation resulting in a level of unacceptable risk to themselves and to other road users. It is important that poor road user behavior is reduced through the enhancement of enforcement measures and by ensuring that the related penalties are effective.

One of the most important elements of road safety is driver education since driver behaviour is one of the main causes of road accidents. This is even more important due to the high percentage of licence holders in Malta - more than 56% of the population - coupled with the high amount of vehicles per capita in Malta.

This requires an effective regulatory framework, and a proactive educational approach. The road user is the first link in the road safety chain. Whatever the technical measures in place, the effectiveness of a road safety policy depends ultimately on the users' behaviour. For this reason, education, training and enforcement are essential. Education covers all road user groups (including pedestrians), however the main form of education should be directed towards existing drivers and prospective drivers. This includes:

- Attitude towards safe driving;
- Behaviour in society in general;
- Acceptance and abiding by regulations.

Accident statistics in Malta show that a degree of success in changing dangerous road user behavior has been reached through a combination of enforcement and education. Education has helped to shift the social norms in relation to drink driving and seat belt use. The aim is to increase the support for responsible road users whilst toughening the action towards irresponsible road users. There is a need to keep the concept of deterrence because many responsible drivers are kept responsible by the risk of detection and sanctions (Luna et al, 2004).

Driver Training, Testing and Licensing

The traditional method of instruction, focusing primarily on practical driving techniques, has proved to be inadequate. This has led to the acceptance of the Goals for Driver Education (GDE) Matrix by driver training professionals, as a model for effective training, mainly because it incorporates not only driving skills, but other levels of knowledge, including driving behaviour, driver attitude, and also eco-driving.

It covers those competencies related to the knowledge and practical ability to drive a vehicle, and also other cognitive processes such as attitude, emotion, attentive processes, motivation, planning and decision making. It also includes behavioral competences such as propensity towards violations and driving style.

Table 17:

GDE Matrix – Goals for Driver Education

Levels / Area	Knowledge and Skill	Risk Increasing Aspects	Self Assessment
Goals for life and skills for living	Lifestyle, age, group, culture, social position,	Sensation seeking, risk acceptance, group norms, peer pressure	Introspective competence, own preconditions, impulse control
Goals and context of driving	Modal choice, choice of time, role of motives, route planning	Alcohol, fatigue, low friction, rush hours, young passengers	Own motives influencing choices, self-critical thinking
Driving in traffic	Traffic rules, coopera-tion, hazard perception	Disobeying rules, close-following, low friction, vulnerable road users	Calibration of driving skills, own driving style
Vehicle control	Car functioning, protection systems, vehicle control, physical laws	No seatbelts, breakdown of vehicle systems, worn-out tyres	Calibration of car-control skills

The lower levels of the matrix (in green) represent the traditional training normally given in driving schools in Malta. Whereas many other countries have moved, or are moving from this traditional training model, Malta has still to introduce the higher levels of the model.

The European Commission promotes a wider approach to driver education, and views education and training as an overall process, a lifelong 'educational continuum'. Interactive methods and the acquisition of autonomy should be encouraged, while taking duly into account the need to keep the cost to obtain the licence at a reasonable level. The objective is to encourage practice before the test under maximum conditions of safety.

The driving licence test should not be restricted to checking the candidate's knowledge of the Highway Code or the ability to carry out maneuvers. Over the past eight years, new drivers have undertaken a licence acquisition process based on EU standards, which is difficult to reconcile with that of their parents. This has created perceptions such as *'examiners are there to fail you'* or *'it's only about passing your test'*.

The challenge for regulators and the driver training profession is to communicate driving as a 'lifelong skill' encouraging new and existing drivers to self evaluate their performance against a clearly defined safe driver standard. Many recognize the need to raise standards in regard to sharing the road space within Malta as vehicle volumes increase, as practically every young adult will seek to obtain their driving licence when they turn 18.

It is important to continue at the same time with work on rehabilitating people who commit serious driving offences. A study on the rehabilitation programmes which exist in some Member States shows that some of them are remarkably effective, achieving a high reduction in the number of re-offenders. It would therefore seem promising to link a point based licensing scheme to the rehabilitation courses whereby offenders may seek to attend a training event as opposed to receiving penalty points. There already is a probationary drivers' licence subject to penalty points for the first three years in Malta, however no retraining is currently required although one must sit for the full tests if his or her licence is withdrawn as a result of accumulated points.

Throughout Europe and beyond, some countries have developed second phase driver training with a view to having a positive impact, particularly in regard to the 'at risk' novice driver. This training normally takes place in the initial months after passing the licence acquisition test. The issues with implementing a second phase training intervention are varied and complex. What is clear however, is that new drivers must be trained appropriately before they gain their category licence to drive independently. Second phase training can then be used to re-visit and consolidate the learning outcomes.

One may also consider imposing a requirement on new drivers to undergo a minimum amount of time accompanied by an experienced licence holder after they obtain their driving licence. This approach would also require extensive research on its effectiveness.

Strategy Objectives – Drivers and Prospective Drivers

Objective 1:
To reduce injuries and fatalities for drivers and passengers in motor vehicles

Objective 2:
To improve the effectiveness of driver training

Objective 3:
To improve the effectiveness of the assessment of new drivers

Objective 4:
To extend the existing penalty points system to all drivers and not just novice drivers

Objective 5:
To identify and address accident black spots

Over-speeding, drink driving, drug driving, unlicensed driving and the use of mobile phones whilst driving are serious driver distraction offenses which have been addressed in detail in a previous chapter. However, there are other aspects related to vehicle drivers which are generally unintended but which pose a serious safety risk to the vehicle driver and to other road users.

Professional Drivers

Research carried out by the Transport Research Laboratory has found that mile for mile, company vehicles have rates of collisions which are 30% to 50% higher than private vehicles (TRL, 1999). It resulted that improvement can only occur by an introduction of integrated measures based on a strong safety culture (TRL, 1999).

Other surveys and research further found that only 12% of drivers in work had received formal training in safe driving and/or health and safety (RAC, 2001). Also, a quarter of drivers stated that pressure from their employers to arrive at destinations on time had made them drive whilst tired (RAC, 2001).

Transport Malta has, in line with EU Directives, implemented various improvements in the training and testing requirements for professional drivers of passenger and goods' carrying vehicles, and also that of the operators themselves. This is being followed with new obligatory periodical training provided by approved training providers.

Young Drivers

Statistical data issued by the Malta Police shows that, for the years 2008 to 2012, an average of 26% of all traffic injuries and fatalities were by persons aged 18 to 26 years of which an average of 59% were males. Of all driver injuries and fatalities, an average of 28% were drivers within the 18 to 26 year age group. An average of 23% of all driver fatalities were for this same age group.

The three main factors which result in youths between the ages 18 to 26 years having a higher risk of traffic collisions and injuries and fatalities are gender, lack of experience and age (YOURS, 2011). Such factors are in additional to the other factors, common to all the age groups, namely lack of adherence to road regulations, more need for improved law enforcement, road condition and vehicle condition (YOURS, 2011). The environmental context also affects the risks when the road design does not cater for the needs of all road users and where pedestrians and cyclists need to share the road with motorized traffic (YOURS, 2011).

During the teenage years, the human body undergoes many changes due to growth. Moreover, young people are less able to assess risk, they tend to experiment the limit of their boundaries more than for other age groups, they tend to overestimate their physical and mental capabilities, they are influenced by their peers and they have a high level of sensation seeking behavior (YOURS, 2011). Through research, there are indications that those parts of the brain which are responsible for decision making may be still under development well beyond the teen years (YOURS, 2011). Such developmental factors greatly affect road user behavior. These factors, together with the use of alcohol and/or drugs, not wearing the seatbelt or helmet and driving at excessive speeds makes younger people more vulnerable (YOURS, 2011). Thus, the high road accident risk level of younger people are a direct result of who they are and the environmental scenario in which they act (YOURS, 2011).

Given that new young drivers have limited driving experience they tend to think more about their driving actions than the more experienced drivers (YOURS, 2011). Such constant thinking can cause mental overload and be a source of distraction (YOURS, 2011). Also, young people are less able to perceive risks; they have less control over the vehicle and do not have confidence to make driving decisions (YOURS, 2011). This results in a higher risk of accidents.

Social norms, which include peer pressure and youth rebellion, can influence the behavior of youths when on the road as drivers, as passengers, as cyclist or and pedestrians. Teenagers and young people tend to behave according to which is perceived as been 'cool' and this is not necessarily safe (YOURS, 2011). Peer pressure can result that young people are more likely to adopt high risk behavior in any of the four categories of road user.

Statistics show that across the world male road users tend to take more risk and seek more sensation than females (YOURS, 2011). Statistics for the Maltese Islands reflects this inclination and there was a gradual increase in male casualties from 59% in 2008 to 60% in 2012. Males overestimate their abilities as road users and hence are more likely to be killed or injuries than females. Young males have shown to take more risks in cases such as driving at excessive speeds, not use the seatbelt and are less inclined to wear helmets (YOURS, 2011). The different road user behavior between young men and women is also partially explained by the different testosterone levels present in their bodies (YOURS, 2011).

Table 18:

Strategy Action Plan for Road Safety Education

Strategy Action	Lead Authority	Supporting Department/ Authority	Timescale		
			S	M	L
Develop a public information campaign about community safety benefits of complying with posted speed limits	Transport Malta	Malta Police			
Publish a Safe Driver Standard to enable driving instructors and examiners to align their training and assessment strategies towards one coherent standard. This Safe Driver Standard is based on a competence framework which sets out what an individual needs to know, understand and demonstrate to be safe and responsible drivers for life.	Transport Malta	Police, Motoring Schools	*		
Publish a Standard for professional driving instructors to have the knowledge and skills necessary to guide and assist the candidate towards becoming a safe driver.	Transport Malta	Motoring Schools	*		
Review the minimum age to start training, from 18 to 17 to encourage a longer learning period, and also reduce the urgency of obtaining a driving license within weeks from turning 18.	Transport Malta	Motoring Schools	*		
Improve the requirements to become a licensed driving instructor, including minimum level of education and experience, and more effective theoretical and practical assessments	Transport Malta	Motoring Schools	*		
Strengthen the initial and periodical training for driving examiners covering test control, vehicle and driving standards, assessment and marking, conflict management and customer service	Transport Malta	-	*		
Introduce ongoing assessments of driving instructors	Transport Malta	Motoring Schools		*	
Introduce accreditation of motoring schools and instructors to encourage them to improve their level of training, and to be recognized for such improvement.	Transport Malta	Motoring Schools		*	
Introduce more training for existing instructors	Transport Malta	Motoring Schools		*	
Review and update the highway code and introduce better training material for instructors and prospective drivers	Transport Malta	Motoring Schools, Police		*	
Organize information campaigns directed towards those attending educational institutions and secondary schools in preparation for obtaining their license in the years to come	Transport Malta			*	
Develop a road user awareness information campaign	Transport Malta	Transport Malta		*	
Start an awareness campaign on driver fatigue and how to relieve it	Transport Malta	Police, Health Department		*	
Review the current theoretical and practical tests for prospective drivers to align with the Safe Driver Standard, and including case studies, hazard perception techniques to simulate real driving scenarios and more independent driving	Transport Malta	Motoring Schools			*
Conduct research on post-license acquisition training and accompanied driving	Transport Malta			*	
Publish a set of guidelines for medical practitioners on the importance of medical fitness to drive	Transport Malta	Health Department, Medical Profession, KNPD	*		
Investigate the possibility of extending the penalty points system to all drivers to discourage repeat breaches and encourage re-training	Transport Malta	Police			*
Apply regular and more effective medical checks on license holders	Transport Malta				*

Monitoring Progress

Progress will be monitored and assessed through the monitoring of:

- Number of injuries and fatalities in general
- Number of injuries and fatalities (novice drivers)
- Reduction in road safety related infringements
- More use of seat-belts
- Number of collisions by novice drivers

Vulnerable Road Users

Pedestrians and cyclists are considered as being the 'vulnerable road users' because in the event of a collision with a motor vehicle they invariably run a greater risk of injury or fatalities.

The measures to manage speeds will improve safety for pedestrians and cyclists both in relation to injuries and also in relation to perceived danger. However, vehicles travelling at appropriate and legal speeds still potentially pose a hazard. Thus there is the need to promote safer journeys on the road, footways and cycle lanes and also promote further training for cyclists, educate people on how to deal with motor traffic and instill road safety skills and habits in children. Motorcycling is often perceived as being the most vulnerable of all the motorized transport modes. Such perception is the result of a combination of the fact that motorcyclists ride only on two-wheels, the lack of rider protection and the potential of these vehicles to reach high speeds.

This vulnerability has, in the past, been one of the reasons that policy did not generally include provision for motorcyclists. However, the increase in urban traffic congestions and the fact that motorcyclists provide a flexible and efficient means of transport had led to increase in their use in recent years (Dahl, 2008).

Strategy Objectives – Vulnerable Road Users

Objective 1:
To reduce injury and fatal accidents involving vulnerable road users

Objective 2:
To improve the standard of cycling for all age groups

Objective 3:
To ensure that safe design for pedestrians and cyclists are included in new transport schemes

Objective 4:
To give elderly people and people with disabilities the opportunity to walk and cycle in a safe environment

Objective 5:
To change the mentality of vehicle drivers in relation to pedestrians, cyclists and motorcyclists.

Objective 6:
To introduce cycle design features at major junctions.

Objective 7:
To reduce all child injuries and fatalities

Objective 8:
To address the specific road safety needs of children in different age groups through education and training

Objective 9:
To actively promote the Safe Routes to School Programmes with the Education Department and with Local Councils.

Objective 10:
To increase awareness regarding increased Safety for Horse Riders

Objection 11:
To address the problem of driver fatigue

Facts about road casualties in Malta and Gozo

Table 19:

Driver, Pedestrian and Passenger casualties in the past (5) years

Year	Road Casualties (Years 2008 to 2012)		
	Drivers	Pedestrians	Passengers
2008	699	166	307
2009	616	139	314
2010	648	147	284
2011	986	232	359
2012	933	314	352

Figure 15:

Percentage of Driver, Pedestrian and Passenger casualties in the past (5) years

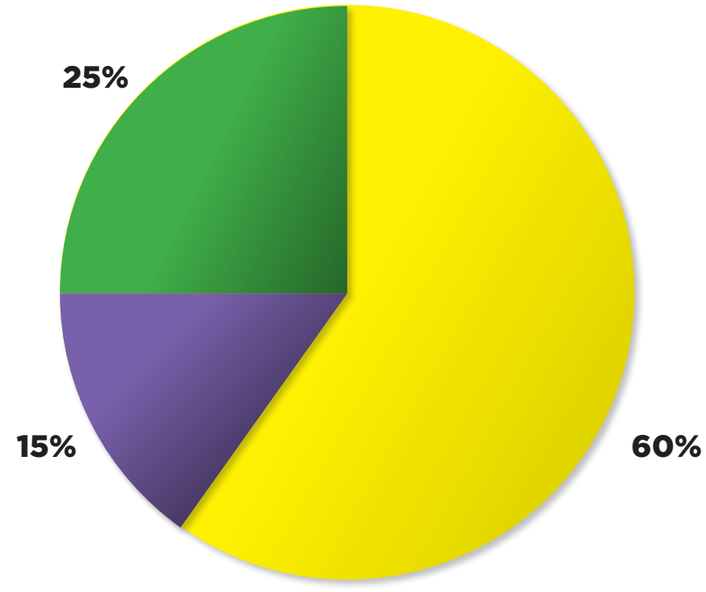


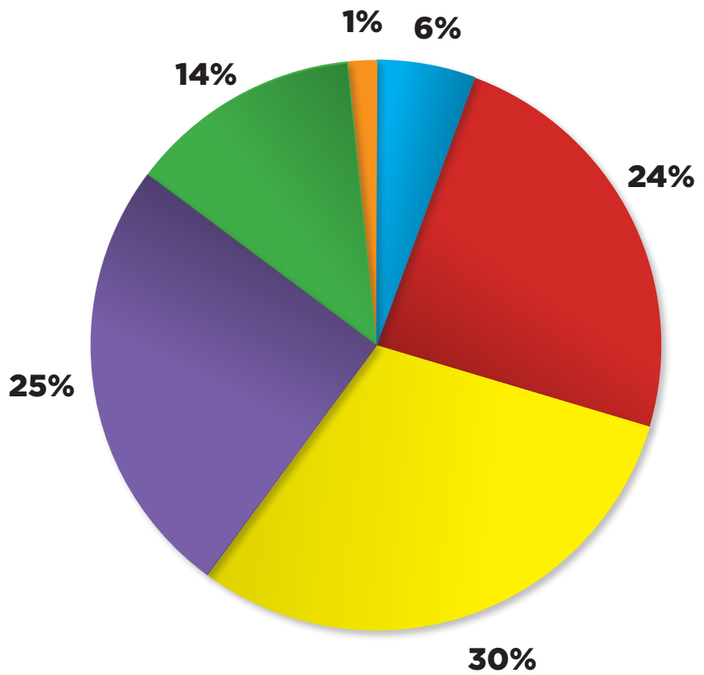
Table 20:

Casualties by age group in the past (5) years

	Year 2008	Year 2009	Year 2010	Year 2011	Year 2012
0 to 14	56	63	61	64	124
15 to 24	288	280	250	362	375
25 to 39	383	282	350	457	463
40 to 59	276	272	269	375	408
60+	141	147	125	310	225
Age unknown	28	25	24	9	4

Figure 16:

Percentage of casualties by age group in the past (5) years



Children

As illustrated in Figure 16, 6% of the overall traffic casualties between years 2008 and 2012, involved children aged '0 to 14 years'. In order to address the problem related to accident risks for child pedestrians and cyclists, the tasks which children undertake need to be examined. It is important to understand the skills and strategies required to interact with traffic and identify the issues which need to be addressed.

It is not possible to fully segregate children from traffic and moreover segregation will not promote the development of child pedestrian and cyclist road safety skills. If these skills are not developed in the child, then the road use and crossing decisions of a child will be inadequate and collisions will occur (Welsh Assembly Government, 2003).

Many of the risk factors for child pedestrians are related to geographic and land use characteristic of the road and traffic scenario which include (Welsh Assembly Government, 2003):

- High traffic flows in dense residential areas
- High traffic speeds
- High residential density and streets with narrow footways
- Lack of appropriate safe routes leading to play areas
- Child injury accidents tend to cluster around schools
- Most child injuries do not occur on the journey to school

Pre-school children are supervised when using the roads and parents and carers should use this time as an opportunity to develop the basic road safety skills of the child (Bedfordshire County Council, 2010).

Road Safety Education for Primary School Children tends to focus on teaching children to comprehend the road risks when walking or cycling. Unfortunately this promotes only negative messages and deters parents from allowing their children to walk and cycle. The role of the authorities and the schools is to focus on developing good Road Safety Skills in children by promoting practical skills whilst ensuring that children are streetwise and remain aware of the potential risks if the safe skills are not followed. The Cycling Proficiency Training Sessions and Testing should be made more widely available in schools. Secondary School Children tend to be more independent in terms of travel. Initially travel would be on foot and increasingly on a bicycle (Welsh Assembly Government, 2003). Peer group pressure plays an important role as children get older and are more likely to take risks. Children at this age would be aware that the particular activity is dangerous and would have the basic road safety skills however they might choose to adopt a risky behavior (WHO, 2010). As a result there is the need that Secondary School Children distinguish between cycling as a means of travel which requires riding skills in traffic and cycling as a sport where cycling with a degree of excitement from risk is catered for in a controlled environment. Safe cycling in traffic is about adopting sensible techniques for basic cycling maneuvers and being in control of the bicycle and reading and responding to the actions of other road users (Dahl, 2008).

Children also travel as passengers in vehicles. Although the focus of reducing road collisions will reduce the number of child casualties in collisions however there needs to be special focus on reducing the number of child casualties resulting from motor vehicle collisions. Most road safety strategies focus on the need for the use of child restraints. Although research shows that the proper use of child restraints is one of the most important factors to increasing safety for the child as a passenger however there is no collision information as to whether the child restraints were properly used or if the behavior of the child was a contributory factor (Welsh Assembly Government, 2003).

Pedestrians and Cyclists

Pedestrians and cyclists need the provision of safe and convenient facilities which give these two transport modes priority over motorized traffic (WHO, 2010). However, there are potential conflict areas between these two modes and road planning and design for these two groups needs to consider different issues. Also, there has been the tendency for the provision of on-road facilities for pedestrians and cyclists to be piecemeal with the result that there is no continuous network of safe and convenient routes for travel.

New road design includes the provision for cyclists where the site constraints permit to do so to raise the profile of cycling as an environmentally friendly mode of transport. Cyclists are encouraged to use roads where it is considered that the traffic flows and general road conditions are appropriate and safe. However, on roads with high volumes of traffic

and/or high 85th Percentile Speeds where the potential of conflict is likely, it is considered safer for cyclists to be provided with separate routes where it is possible to provide these within the highway boundary.

Continuous and practical routes are important for cyclists and Transport Malta strives to provide these within new road designs. Cyclists are particularly vulnerable at junctions and, through the adoption of good design practices at junctions, the safety at junctions can be improved (Bedfordshire County Council, 2010).

It is important that safer facilities are provided for pedestrians and cyclists and road design and traffic management schemes should take the following into consideration:

For Cyclists:

- Cycle lanes to be provided on the road to allocate space for cyclists, where the 85th percentile dry weather speed does not exceed 60km/hr
- Advisory cycle lanes to be introduced at major junctions (where space permits) to warn drivers of the presence of cyclists
- Road closures which provide exemptions for cyclists
- Advance stop lines at traffic light junctions.

For Pedestrians:

- Footways should be 1.3m wide to allow for two pedestrians to pass each other or walk abreast
- Provision of dropper kerbs
- Implement tactile paving to assist partially sighted people.

Home Zones

Home Zones are residential streets in which the road space is shared between drivers of motor vehicles and other road users with the wider needs of residents being accommodated.

Potential Benefits:

- Foster a sense of community
- Reduce social exclusion
- Increase the natural surveillance

- Reduction in traffic congestion
- Reduction in noise pollution
- Improved air quality
- May reduce demand for housing in rural areas

Basic Planning Principles for a Home Zone:

- To fit the character of individual streets
- Support of the existing residential community re quired from the outset
- For all types of residential areas/types
- Vehicle travel distance <400m in Zone
- Afternoon peak traffic <100 vehicles/hour
- Vehicle speeds not to exceed 20km/h
- 3m minimum width for vehicle route
- Some parking is to be permitted
- Design is to encourage vitality and social interaction in a safe environment

Case Study: Home Zones

South West Burnley

Home Zone was implemented in the most deprived area and centered on eighty (80) densely constructed terraced houses. The spine road in the area is used as a rat run and accident rate is high.

Before Implementation

After Implementation

Scheme Objectives:

- To reduce traffic speeds
- To re-organize parking and calm traffic
- Enhance the local environment
- Re-route health centre traffic
- To create open spaces linked to the street
- To improve lighting

Safety for Elderly and Disabled Persons

Elderly people are less likely to be involved in a collision however, when they are involved in a collision, they are more likely to be grievously injured or killed. Very little research work has been done to analyze elderly pedestrian collisions and hence it is difficult to discuss contributory factors related to age. There is even less information on injuries involving disabled persons. However we know that elderly and disabled persons need more time to carry out basic maneuvers such as crossing the roads and it is more difficult for them to judge factors such as seed of traffic and relative distances (Welsh Assembly Government, 2003).

Dropper Kerbs and Dropped Crossings

Where dropper kerbs are not provided, movement for elderly and disabled persons is obstructed unnecessarily and people may try to cross the road at unsafe locations. Dropped kerbs at crossings and corners facilitate travel for wheelchair users, people with pushchairs or luggage, elderly and persons with mobility impairment disabilities. Also, high kerbs and poor road surface create problems for visually impaired persons making it very difficult for them to travel.

Tactile Paving

Tactile Paving has been used at bus stops in many localities in Malta to benefit partially sighted persons. However, tactile paving may also cause difficulties for other road users including those with other disabilities or medical conditions and it is important that such is implemented according to best practice and according to UK design guidelines for accessible public transport infrastructure.

Motorcyclists

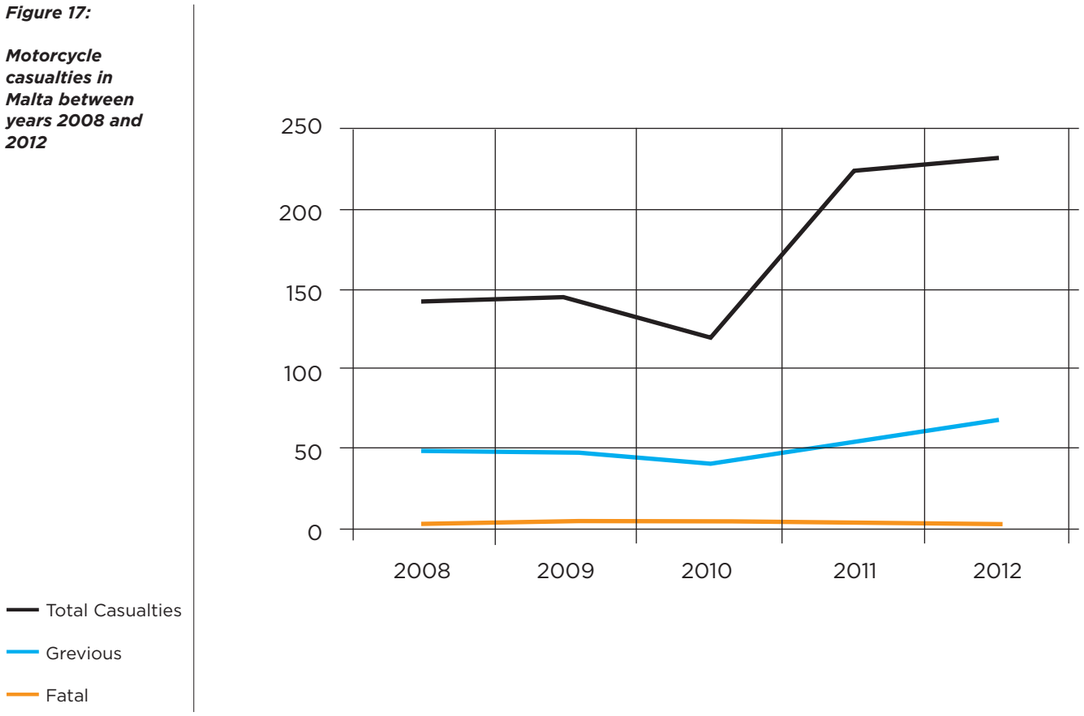
Figure 17 shows that motorcycle casualties in Malta have increased over the last two years. The number of grievous injuries has also increased, while the number of fatalities has recorded a decrease in the year 2012. In some cases, motorcyclist collisions are a result of other road users not appreciating the presence of a motorcyclist or due to riders overestimating their machines and their own abilities (Bedfordshire County Council, 2010).

On the arterial and distributor road network motorcyclist collisions often involve only the motorcycle and are often

the result of the rider carrying out dangerous behavior such as speeding around bends and overtaking (Welsh Assembly Government, 2003). In local roads, motorcycle accidents are more likely to be involved in a collision with pedestrians and other vehicles (Welsh Assembly Government, 2003).

Figure 17:

Motorcycle casualties in Malta between years 2008 and 2012



Another problem lies with young and inexperienced motorcycle riders on local roads. This category of riders lack additional training once they pass the basic motorcycle test and hence they are less able to control their machines when riding through the hazardous conflicting road uses in urban areas (Welsh Assembly Government, 2003). It is to be noted that in the UK the minimum driving age for low powered motorcycles is 16 years old while in Malta it is 18 years.

The reason for a number of collisions between a vehicle driver and pedestrians with a motorcycle are that the former road users do not see the motorcyclist especially on roads where traffic flows are high (Welsh Assembly Government, 2003). The tendency of motorcycle riders to wear black leather make them less visible especially at night and hence it is important for motorcyclists to wear high visibility clothing to make it easier for other road users to see them. Furthermore a high proportion of Maltese motorcyclists do not wear protective clothing and a large number of motor cycle helmets are not 'ece' standard. A motorcycle is about one-third the width of a motor vehicle and hence other road users need to be more alert and observant to see the motorcyclist (Welsh Assembly Government, 2003).

A number of collisions occur when motor vehicles emerging from side roads and fail to see the motorcyclist travelling on the main road (Welsh Assembly Government, 2003). 'Blind Spot' collisions occur where motorcyclists travelling on the outside of the traffic flow collide with a motor vehicle turning right and hence awareness needs to be promoted on this matter. It is also important to note that since motorcycles can travel at higher speeds than cyclists, the reaction time for the motorcyclists is much less (Welsh Assembly Government, 2003).

The most important design features which can improve safety for motorcyclists from the motor vehicle are the use of bus lanes and advance stop lines at traffic signals (Welsh Assembly Government, 2003). The use of bus lanes by motorcyclists will place motorcyclists in a lane with less traffic and this should reduce the risk of side collisions with other motor vehicles. Advanced stop lines at traffic light junctions and the use of daytime running lights also reduce the vulnerability of motorcyclists by increasing their visibility. These are three features which can be incorporated with the design of the existing road network with minimal impact.

Transport Malta has implemented a number of improvements in the theory and practical tests to obtain motorcycle licenses in 2013 in accordance with Directive 2006/126. This includes additional maneuvers that are aimed at assessing the rider's ability to handle motorcycles depending on the power and weight of the motorcycle. Furthermore, the minimum age to obtain such licenses has been increased depending on the power to weight ratios of the motorcycles. This includes minimum experience when progressing to larger motorcycles.

It is important that Transport Malta works more closely with the expert motorcyclists of the police and other motorcyclist groups to better understand some potential road safety issues facing this road user group.

Driver Fatigue

Driver fatigue is a problem which accounts for 10% of all collisions in the United Kingdom (Welsh Assembly Government, 2003). Accident data related to driver fatigue is not collected in Malta. The relatively short distances travelled on the island result in a general under-estimation of the problem of driver fatigue. Research, undertaken in this area of driver fatigue concludes that fatigue related collisions are (Dawson, 1997):

- Most likely to occur during the time periods from 0200-0700 and 1400-1600 hours
- More likely to result in a grievous injury or a fatality because the driver did not attempt to brake
- Often work-related
- Generally predictable because the driver would be aware that he/she is tired before the collision

To address fatigue, drivers need to be more aware of the most likely times when the problem occurs, to recognize the warning signs on the onset of fatigue and to make effective action to relieve fatigue during the journey.

Equestrians

Horses are large and very strong animals and a collision with one poses considerable risk to the motor vehicle and its occupants. Horses are frightened easily and are subject to panic especially in close proximity of speeding vehicles and abrupt loud noises. Unfortunately, accidents involving horses occur on our road where, with due diligence by the motor vehicle driver and by the horse driver, such accidents may be avoided.

- **Riding on the Road**

  Riders are to ensure that they can control the horse which they will be riding on the road and that the saddle and all the other equipment fits well and is in good condition. Where a horse is nervous of traffic or does not have experience in riding on the road, such horse should be ridden by experienced riders and are to be accompanied by other less nervous horses.

  Horse riders are obliged to follow the traffic regulations and obey all road signage, road markings and traffic signals. Riding horses two abreast may be necessary where the other rider or horse is inexperienced, however riders are to ride in single file where the road narrows and on the approach to bends in the road.

  Riders are not to carry passengers when riding on the road and nor carry any other item which can impair their balance or become tangled in the reins. The riders are to keep both hands on the reins at all times, except when signaling. Both feet are to be in the stirrups at all times.

  Horse riders are to avoid roads with heavy traffic volumes and high posted speeds. Also, riders should avoid difficult junctions such as roundabouts.

- **Helmets**

  Horse riders should seek to wear protective helmets when riding on the road. Helmets are to be the correct size for the rider and are to be worn correctly. Other protective wear includes body protectors.

- **Visibility**

  All horse riders should wear fluorescent and reflective clothing when riding on the road. Fluorescent and reflective angle bands and stirrup lights are very effective in attracting the attraction of motor vehicle drivers.

It is advisable that horse riders avoid riding on the road during the night. Riders who must use the roads during the night are to equip the horse with reflective bands above the fetlock joints and carry a light which shows white to the front and red to the rear.

- **Motor Vehicle Drivers**

Riders and horses are considered as vulnerable road users and the motor vehicle driver is to appreciate this important point. Motor vehicle drivers are to be courteous towards horses and their riders.

Vehicle drivers should be careful and keep an eye for horses on the road especially when approaching bends and on narrow rural roads. Drivers should reduce their speed on approaching a horse and are to pass the horse slowly and at a distance. Drivers are never to rev the engine and nor sound the horn I proximity of horses.

Motor vehicle drivers are to note that when horse riders need to turn right, the horse will not move to the centre of the lane but will keep to the left until they reach the point where they intend to turn right. Also, vehicle drivers are to appreciate that the behavior of horse riders differs from all other traffic at roundabouts. Horse riders will not generally signal on approach but will keep to the left within the roundabout gyratory until they reach the roundabout exit and then they will signal left.

Horse riders are generally seated higher than a vehicle driver and hence the eye level of the horse rider is in an advantageous position to be aware of impending hazards. Hence, vehicle drivers should take note of any signals given by horse riders.

Public Transport

Increase in road traffic makes it important to increase public transport patronage and to maximize the use of the bus network. Public transport is vital to the mobility of those without access to a car. The inherent advantages of public transport in helping to reduce traffic congestion, environmental pollution and road accident rates, means that its potential as an alternative to travel by car must be promoted and encouraged (Salford City Council, 1995).

Statistics in Malta show that the average number of accidents between 2008 and 2010 involving injuries and fatalities was 1106 and the average number of accidents between 2011 and 2013 involving injuries and fatalities was 1586. This shows an increase of 43% in road injuries and fatalities which occurred during the period where the public transport service saw a decrease in patronage following the Public Transport Reform of 2011.

Although accidents involving public transport vehicles attract far more publicity than car accidents, public transport has much lower accident rates. The use of public transport is beneficial to promoting road safety because such use is safer than driving overall (Victoria Transport Policy Institute, 2013).

Table 21:

Strategy Action Plan for Motorcyclists, Pedestrians, Children and the Elderly

Strategy Action	Lead Authority	Supporting Department/ Authority	Timescale		
			S	M	L
Study of accidents involving motorcyclist collisions on arterial/distributor roads and local roads in consultation with user groups and design protective measures	Transport Malta	Transport Malta, Malta Police and Motorcyclist Groups			*
Promote high visibility clothing for motorcyclists	Transport Malta	Transport Malta/User Groups	*		
Introduce advance stop lines at traffic light junctions	Transport Malta	Transport Malta		*	
Promote the Safe Routes to School Programmes with the Education Department and with Local Councils.	Transport Malta	Transport Malta		*	
Develop a programme to increase awareness of the Cycling Proficiency Training and Testing and make the training more widely available in schools	Transport Malta	Transport Malta	*		
Strive to increase awareness on the causes and implications of driver fatigue	Transport Malta			*	
Intensify the Road Safety Skills Programme in schools	Transport Malta	Transport Malta	*		
Consider the pedestrian needs of elderly and mobility impaired persons within local road safety strategies.	Transport Malta	Transport Malta			*
Increase the use of protective equipment by motorcyclists by increasing awareness	Transport Malta	Transport Malta and Malta Police	*		
Address footway clutter and the need for footway upgrading including improved lighting on walking routes	Transport Malta	Transport Malta and Local Councils			*
Produce a Guidance Document for Child and Adult Pedestrians	Transport Malta	Transport Malta			*
Encourage Educational Institutions to include behavioural and attitude aspects of Road Safety in their Curriculum by using more road safety examples as part of their every day educational programmes, both in primary and secondary schools	Transport Malta	Education Division			*
Introduce warning signage on routes frequented by horse riders	Transport Malta	Transport Malta		*	
To enact legislation to prohibit animals from using the arterial and distributor road network from Monday to Saturday (Except Public Holidays) during peak traffic hours with the exception of the Policy Cavalry, national parades and horse-drawn cabs for work purposes	Transport Malta		*		

Monitoring Progress

Progress will be monitored and assessed through the monitoring of:

- Number of injuries and fatalities involving motorcycles
- Number of injuries and fatalities involving motorcycle riders
- Number of cyclist injuries and fatalities
- Number of pedestrian injuries and fatalities
- Number of injuries and fatalities occurring between 0200-0700 and 1400-1600 hours.

SECTION 8

IMPLEMENTING THE POLICY

This Road Safety Strategy has the necessary tools to achieve the desired road safety benefits for all classes of road users. The potential for this strategy to succeed is to be supported by government commitment to enable the implementation of the actions outlined in the strategy and by non-governmental organizations to influence change to achieve the road safety outcomes.

This strategy is intended to provide direction for road safety policy and action for the next ten years. The Strategy recognizes that policy decisions and actions will impact the effectiveness of the road safety outcomes and will also impact other areas of society because road safety has links with policies on infrastructure, health, police, transport, energy, education, emergency services, research, environment, technology, insurance, innovation and trade amongst others (WHO, 2010).

The road safety performance will be affected by future economic conditions, environmental priorities and other societal developments which will pose new transport and road safety challenges. The road safety actions proposed in this strategy can also be considered as a means to support the following (Australian Transport Council, 2011):

- A way of life which is more sustainable and active
- Reduced energy consumption and reduced greenhouse gas emissions
- Reduced trauma and substance abuse will reduce the work load on the health systems
- Safety at the workplace for professional drivers will be improved
- Land use planning will be improved and community severance will be reduced
- A reduction in traffic collisions will improve the productive economy due to less queues and delays resulting from collisions.

Co-ordination

Road safety has been addressed in a rather fragmented manner by the stakeholders responsible for various aspects related to it. This strategy document shifts the focus towards the integration of the various authorities involved in road safety to enable the National Advisory Safety Council to carry out the following:

- The identification of possible areas of conflict or inconsistencies at the decision-making stage
- To maximize the use of the limited existing resources
- To achieve the multiplier effect when one action can contribute to meet the demands of other issues.

This is important because further progress and development in road safety depends on establishing strong working relationships across all sectors in government, community, business and industry. It is important that key government bodies are well synchronized with this strategy and policy document to ensure effective implementation.

Health

Approaching road safety from a public health perspective allows for stronger synergies with a broader spectrum to address and manage issues related to alcohol and drug abuse. The impact of roads and transport on health is not only related to injuries and fatalities but it is also related to other health problems such as traffic noise, air pollution, likelihood of greenhouse emissions and reduce physical activity whereby the use of the motor vehicle is preferred over walking and cycling (WHO, 2011).

Funding

Sufficient resources will be required to meet the objectives outlined which will require reallocation or reprioritization of resources throughout the life of the strategy. Some interventions may be significant however many others are low-cost which give considerable results.

Education

Ultimately, the success of this strategy depends on the community acceptance of the strategy and the support of the various organizations which are required to bring about the necessary social and cultural changes. The concept of a shared responsibility for road safety needs to be embraced and hence public understanding of the strategy and key policy directions are important to encourage the necessary public discussion about new road safety proposals.

Accountability

Central Government, through Transport Malta, has the responsibility for the planning, design, construction, maintenance and regulation of roads and vehicles and the managing of the operation of a safe road transport system. Hence government is expected to contribute leadership and resources to improving road safety, to develop and enforce legislation, to set standards, to provide a safer road environment and inform the public about road safety issues.

The most important measure of success of this strategy will be the actual reduction of grievous and fatal accidents on the roads. This is the primary measure which will be used to monitor progress.

Table 22:

Strategy Action Plan for Policy Implementation

Strategy Action	Lead Authority	Supporting Department/ Authority	Timescale		
			S	M	L
Assess the structures and staff complement within Transport Malta to ensure that an appropriate team of professionals is in place to manage the implementation of the strategy	Transport Malta	Transport Malta	*		
Consider adopting and promoting the standard for road traffic safety management systems ISO 39001	Transport Malta	Transport Malta		*	
Establish the National Road Safety Council to raise the profile of road safety and to bring together the main national stakeholders in a close alliance to support the strategy	Transport Malta	Transport Malta	*		
Develop and maintain a National Road Safety Website to share road safety information and report on progress	Transport Malta	Transport Malta	*		
Ensure that education campaigns are all aligned with the objectives of the strategy	Transport Malta	Transport Malta	*		
Work with local councils to promote the development and implementation of local road safety measures	Transport Malta	Local Councils	*		
Review the training of road safety specialists and the value of additional formal training in road safety	Transport Malta	Transport Malta		*	

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