3

Urban Road Safety Master Plan

Support guide for local action

Strategic Road Safety Plan
2005-2008

MINISTERIO DEL INTERIOR

DGT Dirección General de Tráfico

Observatorio Nacional de Seguridad Vial

Strategic Road Safety Plan
2005-2008

1 Special Road Safety Measures 2004-2005

2 Key Strategic Action Plan 2005-2008

3 Urban Road Safety Master Plan
Support guide for local action

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Introduction

The number of victims of road traffic accidents in urban areas of Spain has, encouragingly, dropped in the period between 2000 and 2005, with the figure falling by around 3% each year. However, if the Spanish situation is taken within a European context and if a relative measurement such as the number of road traffic related fatalities per million inhabitants is considered, Spain still occupies the thirteenth place in the Europe of the 25 Member States. One must also take into account that 52% of accidents with victims currently take place on local roads.

In this scenario, the improvement of urban road safety can only be tackled with the combined participation of the Public Administrations and the collaboration of all of the involved social and economic agencies. Each organization and sector must intervene from their particular territory, fulfilling the responsibilities that are assigned to them through actions of many diverse types –education, training, technology, regulations, road design, environment, town planning, etc.,- in order to find solutions to the complex question of road traffic accidents at a local level, since it is the local administration that plays a decisive role in reducing the number of accidents.

The Urban Road Safety Master Plan (Plan Tipo de Seguridad Vial Urbana) presented in this document attempts to move forward using a two-pronged attack, in accordance with the objectives set down in the Strategic Road Safety Plan (Plan Estratégico de Seguridad Vial) 2005-2008. On the one hand, those people responsible for the municipal governance of mobility issues will be provided with the resources and instruments necessary for them to move forward in urban road safety planning. On the other hand, common objectives will be defined and procedures and methodologies which allow the problems of road safety affecting a particular municipality to be analysed will be established and agreed upon, comparing the situation of one area with that of others and deciding upon common and homogenous measures and courses of action.

Therefore, this guide is an attempt to create a tool which facilitates the work of the politicians and municipal technicians responsible for road safety and sustainable mobility. Likewise, it aims to aid the implementation of new intervention strategies and action proposals whose application allows us to move forwards together towards the prime objective: reducing urban road traffic accidents and their consequences. Only with the commitment and the active participation of all of us will it be possible to make this wish a reality.

Pere Navarro Olivella

Director General for Traffic (Director General de Tráfico)

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Urban road safety: from concept to action

1.1 Road safety and the city

For its inhabitants, the city is a space for interaction, where contact, coexistence and communication constitute the essence of society. Throughout history and in every civilisation, towns and cities have always been the driving forces of social and economic development.

Traditionally, major cities concentrated the activities and services they offered – commerce, housing, leisure, education, health...– within a more or less reduced area in order to avoid the need for their citizens to travel large distances to satisfy their needs; in other words, in order to be more efficient and effective. This model of urban organization is known as the compact city, in comparison with the decentralized city, where the activities and the uses of the city are spread out over greater distances, therefore obliging people to invest more time and effort in their daily journeys.

The progressive introduction of the decentralized city, witnessed over recent decades and due to diverse causes which are not the object of this document, together with the growing use of private motor vehicles, has changed the appearance of the landscape and has brought about the introduction of a mobility model which, however you look at it, is unsustainable because of its associated environmental and social effects: pollution, noise, fossil fuel consumption, traffic accidents, lost time, social exclusion, etc.

The economic costs arising from these negative effects, many of which are still conveniently externalized in the overall financial balances of the regions, have risen to the point where the unsustainable nature of the system has become evident. As a result, the debate about the urgent need to move towards a more sustainable mobility model has arisen. Such a model would aim to satisfy the needs of today's society but only as long as such needs do not adversely affect those of future generations.

However, in order for a mobility model to be sustainable, is it not only necessary for motor vehicles to be used conscientiously, for energy to be used efficiently or for harmful emissions and noise to minimized; it is also necessary to achieve a low level of road accidents, therefore reducing their associated injuries and fatalities. A sustainable mobility model must, by definition, also be a safe mobility model.

With regards urban mobility, sustainable culture emphasizes the peaceful coexistence of all means of transport and the fair distribution of public space. Numerous Spanish cities which have initiated Agenda 21 procedures have already incorporated this sustainable point of view into the social-environmental forecast for their municipalities, in consideration of the relationship between the region, the urban system and mobility.

In a sustainable scenario, support for non-motorized means of transport and public services and the application of measures which maximize the safety of people as they move around the streets of the city must be the prime objectives of both local and regional policies. For this to be possible, the active participation of the citizens is vital, moving towards a wide-reaching consensus which allows sustainable and safe mobility to be made the backbone of all policies and plans of action.

In the end, practically all journeys start and end within the urban road space, and so it is the city that must be the stage upon which the most urgent road safety initiatives take place.

Hierarchy of priority within public urban spaces

Pedestrians and persons with limited mobility	Maximum priority ↓ ↓ ↓ ↓ Minimum priority
Public transport	
Cyclists	
Goods vehicles	
Two-wheeled vehicles	
Private automobiles	

↘ The prime objective of those actions taken with regards urban mobility is not the flow of traffic but the safety of all users of the public space, in accordance with this priority hierarchy.

Urban roadways typology

	Type	Purpose	ADT (Average Daily Traffic) in each direction	Speed limit
CITY STREETS	Pedestrianized	Access for residents, services and incoming traffic	< 1,000 vehicles per day	10 km/h
	Zone with pedestrian priority	Incoming traffic	< 2,000 vehicles per day	20 km/h
	30 zone	Through and/or incoming traffic	< 5,000 vehicles per day	30 km/h
CONNECTING ROADS	Zone with vehicle priority (basic network)	Connection between zones and with the intercity network	Varies according to location	30-50 km/h

Source: Royal Catalonian Automobile Club (Real Automóvil Club de Catalunya - RACC)

Analysis of road traffic accidents

Injuries caused by road traffic accidents constitute one of the problems with the greatest impact upon Spain's morbility and mortality rates and are also the cause of a serious number of physical disabilities. As such, road traffic accidents are, without a doubt, a question of public health and should be treated as such.

However, for many years the problem of safe travel has been repeatedly underestimated or ignored, particularly within urban areas, where the frequency of accidents resulting in serious injury or death is lower. The sudden and random nature of accidents led people to think, for many years, that it was impossible to take action against them. And when action was taken, the problem of road safety was tackled using a model which sought out a guilty party, and the analysis of an accident focussed on finding a directly responsible party, generally the driver of one of the vehicles. This model, based solely on control and penalization, has shown itself to be ineffective in reducing accidents.

Road traffic accidents: a global problem

Road traffic accidents are a global public health problem. Each year, 1.2 million people die, and more than 20 million people are injured, as a result of road traffic accidents.

According to the World Health Organization (WHO), in the pages of their *World report on road traffic injury prevention*, approximately 85% of road traffic related deaths are concentrated in those countries of low- or mid- level incomes, where suitable medical centres for the treatment of those people who are disabled as a result of accidents are also lacking.

According to the WHO, evaluating the health, social and economic costs of road traffic accidents can help to understand the seriousness of the problem and the advantages of investing in preventative measures.

It is estimated that the cost of these accidents in low-income countries equals 1% of their gross national product, whilst in mid-income countries this figure is 1.5% and in high-income countries it is 2%.

However, what do we mean when we talk about a road traffic accident, anyway? The concept of a road traffic accident is inevitably connected to an incident involving one or more vehicles and/or pedestrians and to the damaging consequences that this has upon those involved. Its effects can range from a simple disturbance in the flow of traffic to the temporary or even permanent damage to the health of those involved. Historically, motor vehicle "accidents" were considered to be random, hazardous events which always happened to other people and which were an inevitable consequence of transport. In particular, the term “accident” can give the impression of something inevitable and unpredictable, that is of an event which is impossible to control. But crashes caused by the flow of vehicles are, on the contrary, occurrences which can and should undergo rational analyse and corrective measures.

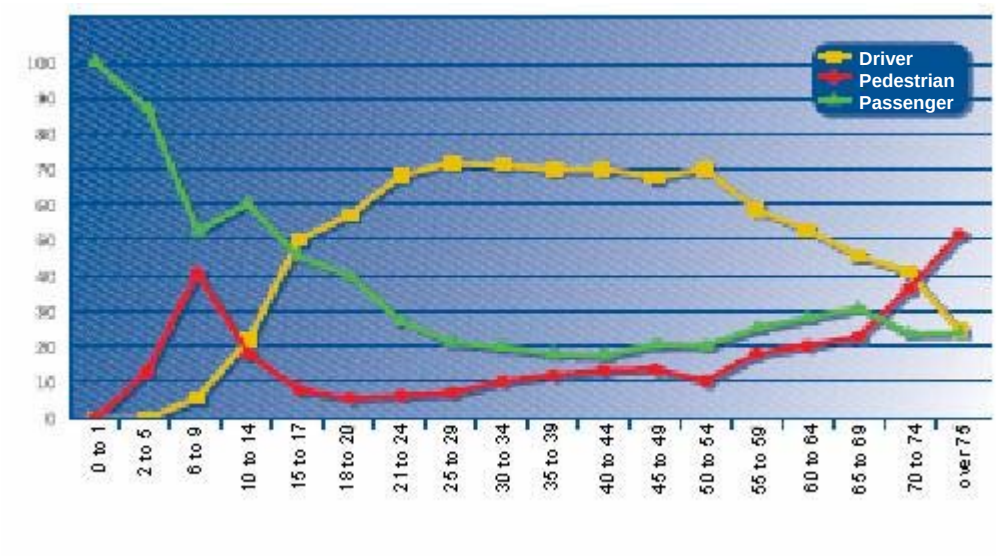
The concept of road traffic accidents

In 1985, JA Waller defined an “accident” as a “Sudden event characterized by the abrupt and uncontrolled transfer of energy –mechanical, thermal or chemical” (JA Waller, 1985). Moreover, Haddon defined an injury as “Acute exposure to physical agents such as mechanical energy, heat, electricity, chemical products or ionizing radiation which interact with the body in quantities or at rates which exceed the threshold of human tolerance” (Haddon, 1963)

Some years ago, a systematic and dynamic model which takes into account the interaction between individual, vehicle and social-economic environment was adopted. At the end of the 1960s, William Haddon described road transport as an ill-conceived “man-machine” system whose resulting dysfunctional relationship was inevitable. He came up with what is now known as the Haddon Matrix. In this matrix, the risk factors are analysed and road safety policies directed at the individual, vehicle, infrastructure or environment (regulatory or social-economic) are structured according to the nature of their relationship with the precise moment of the collision –that is to say whether they act upon the phase prior to the collision, during the collision or after the collision.

With these phases in mind, there are different acts of intervention which can be carried out. In the phase prior to the collision, any intervention is aimed at preventing accidents from occurring. If, despite all efforts to the contrary, an accident occurs, measures to reduce the seriousness of any injuries should be taken. And, finally, if an accident occurs and there are resulting injuries, interventions aimed at reducing as far as possible the possibility the chance of death or disability must be carried out. An adapted version of the Haddon matrix is presented at the end of chapter one, including the determining factors in the appearance of injuries caused by road traffic accidents.

Risk factor according to age (Distribution of type of user according to age group)



Source: Health Education Department. General Directorate of Public Health of the Autonomous Community of Valencia (Unidad de Educación para la Salud. Dirección General para la Salud Pública de la Generalitat Valenciana).
Prepared using data on the total number of accidents from the General Directorate of Traffic (Dirección General de Tráfico - DGT) (2001).

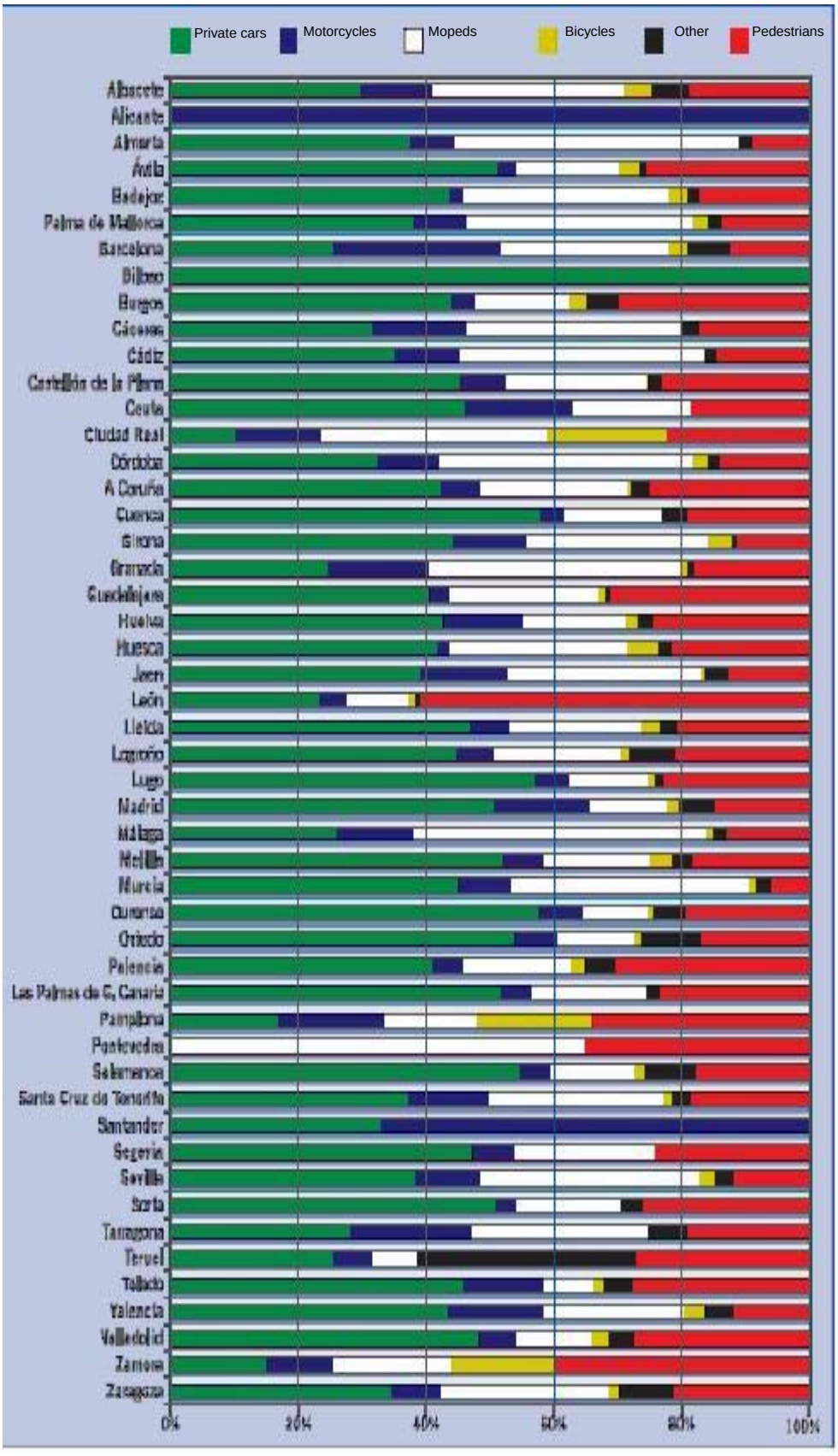
Change in rank order of DALYs for the ten leading causes of the global burden of disease.

1990		2020	
Rank	Disease or injury	Rank	Disease or injury
1	Lower respiratory infections	1	Ischaemic heart disease
2	Diarrhoeal diseases	2	Unipolar major depression
3	Perinatal conditions	3	Road traffic injuries
4	Unipolar major depression	4	Cerebrovascular disease
5	Ischaemic heart disease	5	Congenital abnormalities
6	Cerebrovascular disease	6	Lower respiratory infections
7	Tuberculosis	7	Tuberculosis
8	Measles	8	War
9	Road traffic injuries	9	Diarrhoeal diseases
10	Congenital abnormalities	10	HIV
DALY: Disability-adjusted life year. A health-gap measure that combines information on the number of years lost from premature death with the loss of health from disability.			

Source: “World report on road traffic injury prevention” WHO

↘ The World Health Organization predicted that injuries caused by road traffic accidents will become the third largest cause of sickness by the year 2020. In 1990 it was in ninth place.

Distribution of road traffic accidents in the provincial capitals of Spain according to means of transport. 2005 (%)



Source: Barcelona Public Health Agency (Agència de Salut Pública de Barcelona), using data from the General Directorate of Traffic.

Risk factors

Although the majority of road traffic accidents are the result of an unfortunate combination of multiple factors coinciding at a certain moment and in a certain place (that is to say, they are multi-causal), they are also closely related to the risks associated with the habitual use of a motor vehicle and mobility within an urban environment. The risks increase when mechanical elements such as an automobile enter the equation, since its use in unsuitable conditions or its poor working condition generate an added danger.

The Haddon Matrix and risk factors

	Person	Vehicle	Infrastructure	Social-economics
Pre-collision	Factors which influence the exposure to risk Factors which influence involvement in the collision			
Collision	Risk factors which influence the seriousness of the collision			
Post-collision	Risk factors which influence the seriousness of post-collision injuries			

Source: Barcelona Public Health Agency

Therefore, owing to the high number of journeys which take place in urban areas on a daily basis, the city is naturally more likely to be the backdrop to road traffic accidents of one kind or another. Pedestrians, cyclists, private cars, goods vehicles and public transport vehicles all have to share a limited space. This space, despite being planned out and legally regulated, even by the municipal bylaws which developed it, has one particular risk factor which explains the high number of accidents: the natural and inevitable convergence of many different events.

The risk factors which have a bearing on road traffic accidents can be put into four groups:

- The factors which influence the **exposure to risk**: economic, demographic, town planning, etc.
- The factors which influence the **lead up to a collision**: excessive speed, consumption of alcohol, fatigue, weather conditions, etc.
- The factors which influence the **seriousness of the collision**: tolerance to the impact, failure to use a helmet or a seat belt, insufficient protection, etc.
- The factors which influence the **seriousness of the injuries**: inadequate health services, insufficient hospital care, obstacles hindering the evacuation of victims, etc.

However, aside from these influential factors, a vital step towards confronting the risks of accidents within the city, associated with the current mobility model, and towards doing so with a greater guarantee of success, consists in recognising that these safety problems are considerably different to those which occur on intercity roads. The failure to distinguish between urban safety concerns and intercity safety concerns has meant that, until now, all laws and regulations have been developed and approved according to the second, more general, set of concerns, leaving aside the particular case of the cities. As a result, most of the studies and investigations carried out by the public administrations miss out an important fact which is evident every single day in Spain's municipal areas: urban road traffic accidents require a different treatment to those which occur on the rest of the roadways.

Having said this, it must be added that one cannot talk of cities in general, either. Instead, the particular characteristics of each different municipality must be taken into account when tackling road safety problems. The type of landscape surrounding the city –coastal, inland, mountainous...,- its shape and size, the compactness or spread of its uses and amenities, its social-economic level, the specific details and composition of its vehicle population and in particular the number of two-wheeled motor vehicles are the main issues which affect road traffic accidents and their associated risks.

And so, when it comes to characterizing and carrying out a diagnostic for an area, these aspects should be considered before identifying the problems or defining any proposed courses of action.

Risk factors which have a bearing on road traffic accidents

Factors which influence in the exposure to the risk
- Economic and social factors. - Demographic factors. - Planning of the creation and use of roadways and of the selection of the means of transport. - Coexistence of vulnerable users on high-speed roadways. - Lack of road integration with regards decisions about speed limits, distributions and design. - Driver's experience. - Lack of road safety training for users of the roadway.
Factors which influence in the lead-up to a collision
- Excessive speed. - Consumption of alcohol, medicine or other psychoactive substances. - Fatigue. - Impaired vision. - Driving in darkness. - Factors related to vehicle maintenance. - Defects in the design or maintenance of the roadways. - Inadequate visibility on roadways. - Inappropriate behaviour on the part of the driver, pedestrian, etc...
Factors which influence the seriousness of the collision
- Human tolerance to impact (age, state of health...). - Excessive or inappropriate speed. - Failure to use seat belts or child safety seats. - Failure to wear a helmet. - Insufficient protection of the occupants or pedestrians on the part of the vehicle.
Factors which influence the seriousness of the injuries
- Delay identifying the collision. - Leak of dangerous liquids or gases. Vehicle catches fire. - Difficulty in rescuing occupants from a vehicle involved in a collision. - Difficulty in evacuating occupants of bus or car involved in a collision. - Lack of fast and adequate pre-hospital care. - Lack of suitable emergency hospital care.

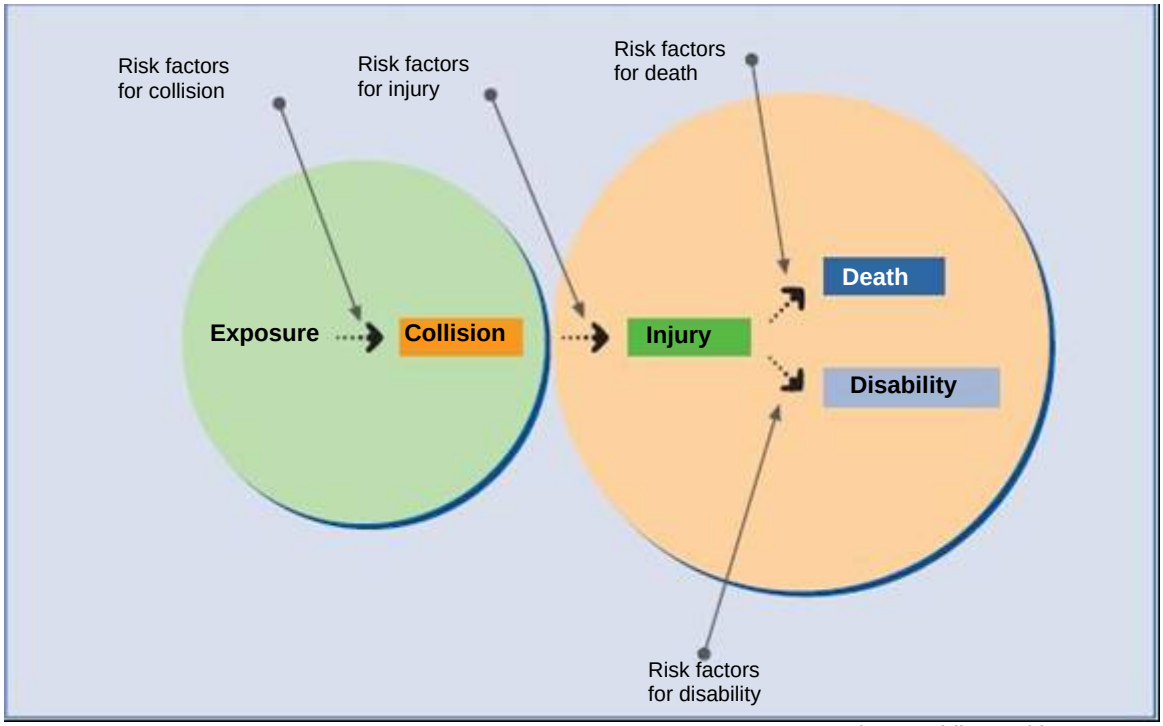
Adapted from: M Peden, et al, 2004.

The Haddon matrix applied to urban road safety

		FACTORS		
PHASE		HUMAN BEING	VEHICLES AND EQUIPMENT	ENVIRONMENT
Pre-crash	Crash prevention	Information Attitudes Impairment Police enforcement	Roadworthiness Lights Brakes Maneuverability Speed controls	Design and layout of road Speed limit Pedestrian areas
Crash	Injury prevention during crash	Use of seat belts Impairment	Use of seat belts within vehicle Other safety measures Designed to protect against accidents	Crash barriers
Post-crash	Life conservation	Primary health care Access to medical attention	Ease of access Fire risk	Rescue services Traffic congestion

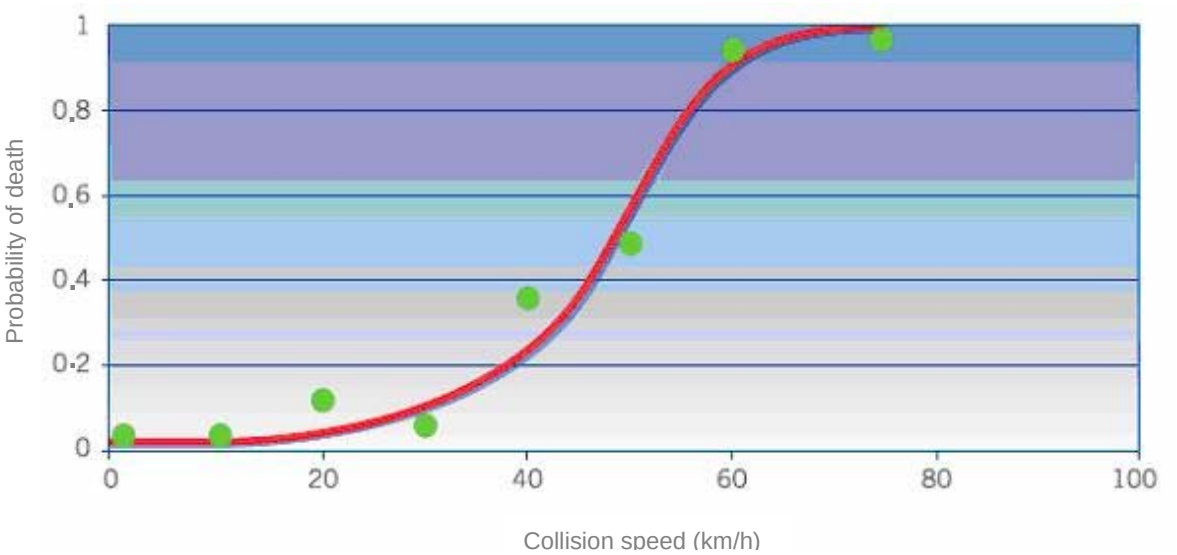
Source: "World report on road traffic injury prevention" WHO

Schema of the risk factors which have a bearing on a road traffic accident



Source: Barcelona Public Health Agency

Risk of death for a pedestrian according to the speed of a vehicle upon collision



Source: “World report on road traffic injury prevention” WHO

Urban road traffic accident data

Urban road traffic accidents are considered to be those which have taken place in or immediately around urban areas. The victims of such accidents are considered to be those people who are entered into the records as being involved in the incident and as having received either slight or serious injury or as having lost their life due to the incident.

In Spain, the trend in the total number of deaths related to urban road traffic accidents since 1980 has dropped in recent years. The number has fallen continuously from 2000 to 2005 at a rate of around 3% per year.

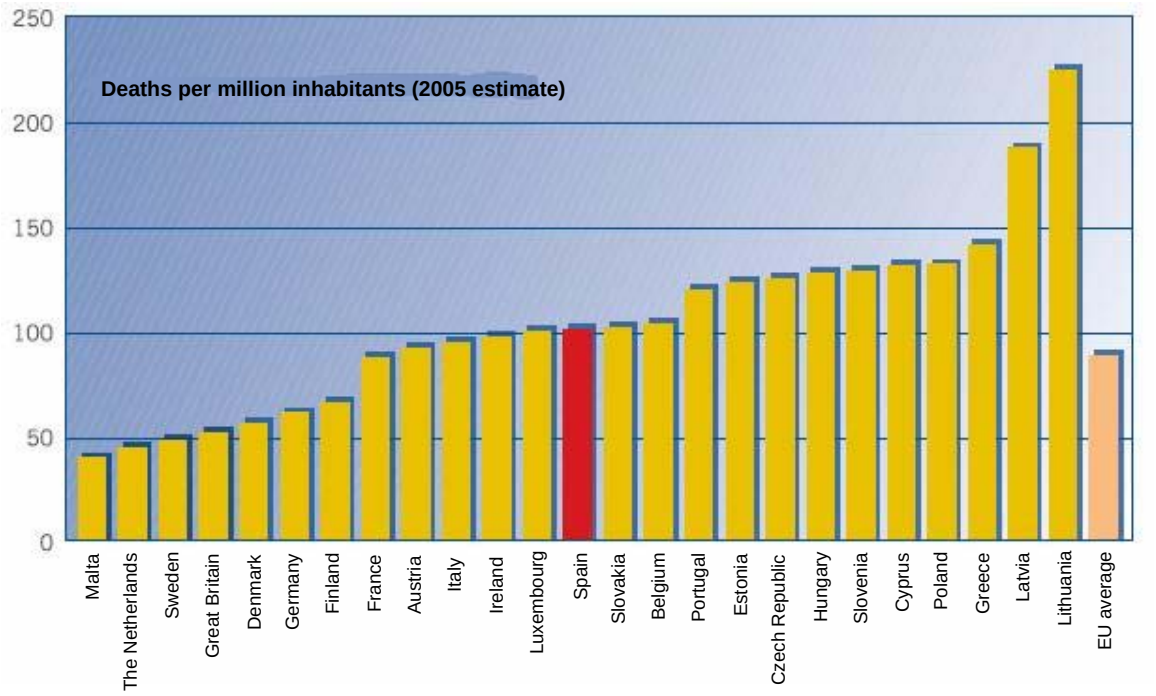
However, it must be added that, if one looks at the Spanish situation in the wider context of Europe as a whole, referring to the total number of deaths (in both urban areas and on major roads) and bearing in mind a relative measurement such as the number of deaths per million inhabitants, Spain still occupies the thirteenth place among the 25 European Union member states (pre-2007). Spain's value, 102, is above the European average and is considerably higher than that of countries such as the United Kingdom, Holland, Sweden, Denmark and Finland. This data therefore corroborates the statement that road traffic accidents remain a public health problem which must be dealt with at all levels and with the active participation of all social agencies.

Evolution of the number of deaths related to urban road traffic accidents (1980-2005)

Deaths are calculated as those which occur within 24 hours of accident

Source: General Directorate of Traffic (DGT)

Number of deaths per million inhabitants in the EU of the 25 Member States



Source: European Commission

According to data from the General Directorate of Traffic, 48,563 accidents with victims (53% of the total, 91,187), 64,020 injuries (48% of the total, 132,809) and 790 fatalities (18% of the total number of deaths, 4,442) occurred in urban areas in 2005.

Road traffic accidents with victims on Spanish roads and in urban areas (2005)

	Major roads	Urban areas	TOTAL
Accidents with victims	42,624	48,563	91,187
Fatalities	3,652	790	4,442
Injuries (serious and slight)	68,789	64,020	132,809
Fatalities per 100 accidents	8.6	1.6	4.9
Fatalities per million inhabitants			102

Source: General Directorate of Traffic (DGT)

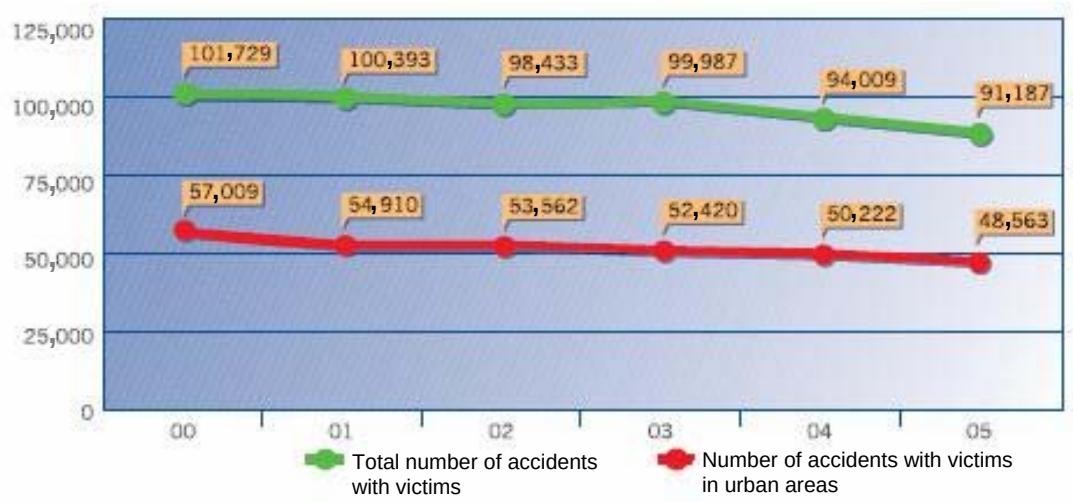
The evolution in the number of accidents with victims in urban areas in recent years has been encouraging, with a 15% reduction (from 57,009 to 48,563 accidents) between 2000 and 2005, representing an annual reduction of 3%. The percentage of victims has also been reduced by 15% (from 76,500 to 64,810) and the number of casualties has fallen by more than 25% (from 1,070 to 790). As a result, the death rate (per 1,000 victims) has been reduced by 1.8 points.

Road traffic accidents with victims in urban areas in Spain (2000-2005)

	2000	2001	2002	2003	2004	2005
Accidents with victims	57,009	54,910	53,562	52,420	50,222	48,563
% of accidents at junctions	49.3	47.0	48.7	47.2	47.4	48.5
Victims	76,500	75,416	73,747	72,082	68,193	64,810
Fatalities	1,070	974	912	919	900	790
Death rate (per 1,000 victims)	13.99	12.92	12.37	12.75	13.20	12.19

Source: General Directorate of Traffic (DGT)

Number of road traffic accidents with victims in Spain



Source: General Directorate of Traffic (DGT)

The 16 to 29 age group (particularly among men) is the worst affected by urban road traffic accidents, representing more than 40% of the total. In recent years, however, an encouraging trend has been observed and this percentage has been reduced by more than 5 points (nearly 9,000 victims less). However, the number of victims belonging to the 30 to 44 age group -and, to a lesser degree, those belonging to the 45 to 59 age group,- has risen where the figure in the other age groups has fallen.

Children, young people up to approximately 16 years of age and also elderly people are those who most often tend to be involved in road traffic accidents as pedestrians or passengers of vehicles. From the age of 16 and upwards, however, the victims tend to be largely the drivers, given that they are able to access two-wheeled vehicles first – mopeds,- and later cars and more powerful motorcycles.

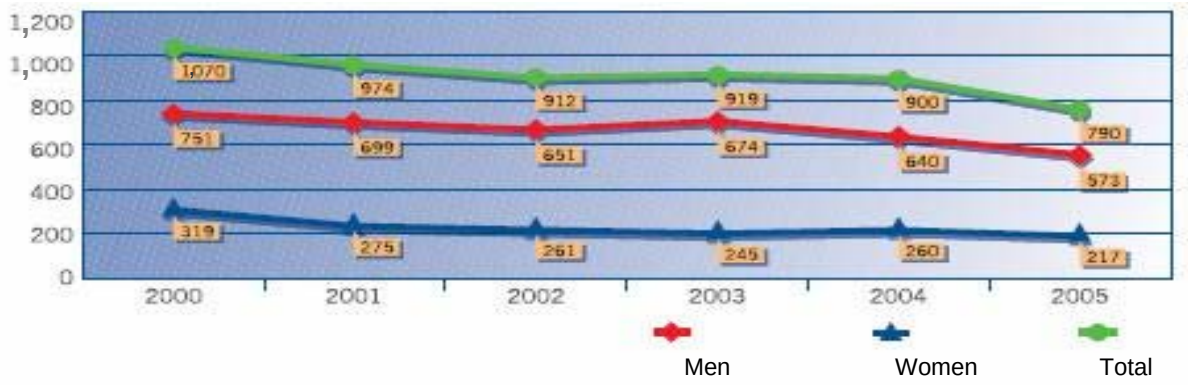
Age of victims in urban areas in Spain (2000-2005)

Age group	2000		2001		2002		2003		2004		2005	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
< 16	4,851	6.3	4,604	6.1	4,108	5.6	4,098	5.7	4,002	5.9	3,970	6.1
16-29	35,540	46.5	34,227	45.4	31,378	42.5	29,935	41.5	27,630	40.5	26,813	41.4
30-44	14,534	19.0	15,397	20.4	15,768	21.4	15,986	22.2	15,428	22.6	15,955	24.6
45-59	6,905	9.0	7,414	9.8	7,561	10.3	7,572	10.5	7,373	10.8	7,692	11.9
60-74	4,358	5.7	4,455	5.9	4,431	6.0	4,208	5.8	4,015	5.9	3,947	6.1
> 74	2,436	3.2	2,368	3.1	2,184	3.0	2,129	3.0	2,231	3.3	2,106	3.2
Unknown	7,876	10.3	6,951	9.2	8,317	11.3	8,154	11.3	7,514	11.0	4,327	6.7
Total	**76,500**	**100.0**	**75,416**	**100.0**	**73,747**	**100.0**	**72,082**	**100.0**	**68,193**	**100.0**	**64,810**	**100.0**

Source: General Directorate of Traffic (DGT)

In 2005, 62% of accidents with victims in urban areas involved men (40,292 out of a total of 64,810). With the exception of the over 74 age group, it is men who suffer the greatest number of road traffic accidents and, between the ages of 16 and 44, the number of male victims doubles the number of female victims. With both men and women, this is the age group which is involved most often in road traffic accidents with victims in urban areas.

Fatalities of urban road traffic accidents in Spain (2000-2005)
Total number of cases and cases according to gender



Source: General Directorate of Traffic (DGT)

Age and sex of victims in Spanish urban areas (2005)

Age group	Men		Women		Unknown		Total	
	No.	%	No.	%	No.	%	No.	%
< 16	2,492	6.2	1,468	6.5	10	0.5	3,970	6.1
16-29	18,112	45.0	8,677	38.3	24	1.3	26,813	41.4
30-44	10,486	26.0	5,451	24.1	18	1.0	15,955	24.6
45-59	4,601	11.4	3,082	13.6	9	0.5	7,692	11.9
60-74	2,115	5.2	1,829	8.1	3	0.2	3,947	6.1
> 74	949	2.4	1,154	5.1	3	0.2	2,106	3.2
Unknown	1,537	3.8	996	4.4	1,794	96.4	4,327	6.7
Total	**40,292**	**100.0**	**22,657**	**100.0**	**1,861**	**100.0**	**64,810**	**100.0**

Source: General Directorate of Traffic (DGT)

Pedestrians are the worst affected by urban road traffic accidents with victims if we consider the percentage of fatalities, which is over 40% of the total. The percentage of motorcyclist fatalities has also risen, increasing nearly 5 points between 2000 and 2005. As for injuries, car and moped users are the worst affected, although, in the case of the latter group, the figures have improved by nearly 7 points since the year 2000.

Number of victims according to means of transport in Spanish urban areas (2000-2005)

Vehicle	2000	2001	2002	2003	2004	2005
Injuries (%)						
Car	37.8	40.6	42.3	43.0	41.3	39.3
Motorcycle	10.3	10.4	10.0	10.0	10.9	13.7
Moped	31.4	28.6	26.7	25.6	25.5	24.8
Other	6.0	6.1	6.2	6.8	7.1	7.0
Pedestrian	14.5	14.4	14.7	14.6	15.1	15.2
Fatalities (%)						
Car	25.4	25.2	26.6	26.1	25.1	18.7
Motorcycle	9.6	11.0	11.8	11.0	10.7	14.4
Moped	18.5	19.9	19.0	18.6	19.4	17.6
Other	4.7	5.2	4.9	4.8	6.7	7.2
Pedestrian	41.8	38.7	37.5	39.5	38.1	42.0

Source: General Directorate of Traffic (DGT)

In urban areas, side and front/side collisions are the most common types of accidents (42%), followed by collisions with pedestrians (nearly 19%). 41% of fatal accidents were collisions with pedestrians, 23% were side and front/side collisions and 18% were cases where the vehicle veered off the road.

Type of accident with victims according to the presence of fatalities in urban road traffic accidents in Spain (2005)

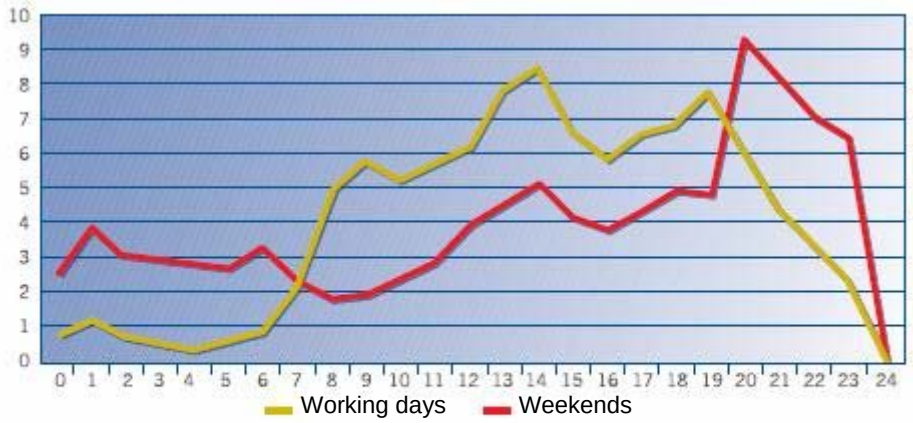
	Accidents without fatalities		Accidents with fatalities		TOTAL	
	No.	%	No.	%	No.	%
Head-on collisions	1,422	3.0	34	6.0	1,456	3.0
Front/side collisions	15,271	31.8	93	16.5	15,364	31.6
Side collisions	5,098	10.6	28	5.0	5,126	10.6
Rear-end collisions	7,371	15.4	16	2.8	7,387	15.2
Multiple collisions	1,680	3.5	11	2.0	1,691	3.5
Collisions with fixed roadside objects	1,758	3.7	25	4.4	1,783	3.7
Collisions with pedestrians	8,893	18.4	231	41.0	9,070	18.7
Overturned vehicles	2,041	4.3	14	2.5	2,055	4.2
Veered off road to left	1,003	2.1	39	6.9	1,042	2.1
Veered off road to right	1,600	3.3	61	10.8	1,661	3.4
Other	1,916	4.0	12	2.1	1,928	4.0

Source: General Directorate of Traffic (DGT)

Road traffic accidents in urban areas are more frequent on working days, mainly between 9 o'clock in the morning and 10 o'clock at night. The peak times, with regards accidents, are at 1:00 PM and 7:00 PM.

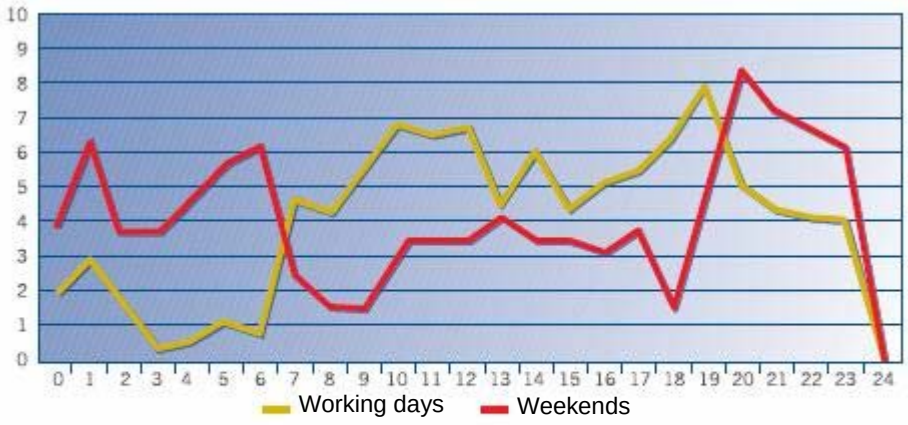
In urban areas, quite unlike what happens on major roads, the least number of accidents occur at the weekends. However, the severity of accidents actually increases on Saturdays and Sundays.

Day of the week and time of accident. Accidents without fatalities in urban areas of Spain (2005)



Source: General Directorate of Traffic (DGT)

Day of the week and time of accident. Accidents with fatalities in urban areas of Spain (2005)



Source: General Directorate of Traffic (DGT)

With regards the level of use of safety measures by those involved in urban road traffic accidents, the following tables show that the percentage of injured parties who were wearing seat belts or helmets or using child restraint systems is still low. Therefore, the negative effects of the accidents were not reduced and were able to cause serious harm to the victims. In the case of the motorcyclists, 77% of injured motorcyclists were wearing a helmet at the moment of the accident, making this group the one with the highest percentage use of safety measures.

In the case of fatalities, such safety measures were less often used. This very likely worsened the effects of the accidents. Only 47%, for example, of moped riders killed in urban road traffic accidents were wearing a helmet at the time of the accident and only 27% of car passengers over the age of 12 killed in accidents were wearing seat belts.

If the fatalities under the age of 13 are analysed, it is clear that the use of seat belts and child protection systems significantly reduces the death rate. We can also see that whilst the use of safety measures has increased in recent years and the percentage of victims not using any form of protection has decreased.

Use of safety measures in road traffic accidents with victims in urban areas of Spain (2000-2005)

Seat belt used (> 12 years of age)	2000	2001	2002	2003	2004	2005
Injuries (%)						
Yes	43.7	35.8	35.0	42.4	44.4	45.1
No	14.7	13.8	13.3	13.5	12.0	11.1
Unknown	41.6	50.4	51.7	44.1	43.6	42.9
Fatalities (%)						
Yes	20.2	22.3	21.4	23.4	33.7	27.1
No	44.3	40.4	38.5	43.1	44.7	50.8
Unknown	35.5	37.3	40.1	33.5	21.6	22.0

Source: General Directorate of Traffic (DGT)

Safety system or seat belt used (< 13 years of age)	2000	2001	2002	2003	2004	2005
Injuries (%)						
Seat belt	24.7	17.4	20.2	24.1	32.5	29.6
Child restraint system	5.3	2.6	4.1	5.7	7.3	16.9
Nothing	24.3	24.6	19.7	18.8	15.0	13.9
Unknown	45.7	55.4	56.0	51.4	45.2	39.6
Fatalities (%)						
Seat belt	-	-	-	-	-	-
Child restraint system	-	16.7	-	-	-	100.0
Nothing	-	66.7	80.0	100.0	100.0	-
Unknown	100.0	16.7	20.0	-	-	-

Source: General Directorate of Traffic (DGT)

Helmet used whilst on motorcycle	2000	2001	2002	2003	2004	2005
Injuries (%)						
Yes	81.4	71.8	72.3	76.6	76.5	76.8
No	4.6	3.8	3.4	3.4	3.1	3.6
Unknown	13.9	24.5	24.3	20.1	20.5	19.5
Fatalities (%)						
Yes	64.7	68.9	64.0	55.4	66.7	66.7
No	21.2	21.1	28.1	20.5	18.7	21.1
Unknown	14.1	10.0	7.9	24.1	14.7	12.2

Source: General Directorate of Traffic (DGT)

Helmet used whilst on moped	2000	2001	2002	2003	2004	2005
Injuries (%)						
Yes	61.5	56.6	56.9	59.9	64.1	64.9
No	12.7	11.5	10.8	11.3	9.4	8.8
Unknown	25.8	31.9	32.3	28.8	26.5	26.3
Fatalities (%)						
Yes	44.1	36.8	43.2	46.3	44.5	47.3
No	35.3	40.6	37.3	29.3	39.1	40.9
Unknown	20.6	22.6	19.5	24.4	16.4	11.8

Source: General Directorate of Traffic (DGT)

Seriousness of victim's condition according to means of transport in accidents with victims in urban areas of Spain (2005)

	2000	2001	2002	2003	2004	2005
Cars (%)						
Slight	91.5	92.5	92.8	93.2	93.6	94.2
Serious	7.6	6.6	6.5	6.1	5.6	5.2
Fatality	0.9	0.8	0.8	0.8	0.8	0.6
Motorcycles (%)						
Slight	86.9	88.6	87.0	87.6	86.4	86.5
Serious	11.8	10.0	11.6	11.0	12.3	12.2
Fatality	1.3	1.4	1.5	1.4	1.3	0.9
Mopeds (%)						
Slight	83.2	83.2	83.6	84.1	86.7	86.3
Serious	14.9	15.1	15.0	14.8	12.3	12.8
Fatality	1.9	1.7	1.4	1.1	1.0	0.9
Pedestrians (%)						
Slight	74.3	77.2	77.5	77.6	76.4	76.3
Serious	21.8	19.4	19.4	19.0	20.3	20.4
Fatality	3.9	3.4	3.1	3.4	3.3	3.3

Source: General Directorate of Traffic (DGT)

Part of the body affected according to means of transport in accidents with victims in urban areas of Spain (2005)

	Cars		Motorcycles		Mopeds		Pedestrians		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%
Head	2,018	13.6	221	5.3	950	9.5	1.333	20.9	5,000	13.1
Face	661	4.5	107	2.6	425	4.2	295	4.6	1,653	4.3
Neck	6,628	44.7	197	4.7	682	6.7	190	3.0	8,189	21.4
Chest	971	6.5	88	2.1	198	2.0	105	1.6	1,473	3.9
Back	1,321	8.9	312	7.4	498	4.9	303	4.7	2,680	7.0
Abdomen	225	1.5	72	1,7	158	1.6	125	2.0	630	1.6
Upper limbs	1,136	7.7	840	20.0	1,832	18.1	745	11.7	4,931	12.9
Lower limbs	1,020	6.9	1,908	45.5	4,123	40.8	2,569	40.3	10,113	26.5
Entire body	848	5.7	447	10.7	1,251	12.4	717	11.2	3,515	9.2

Source: General Directorate of Traffic (DGT)

Road traffic accidents in urban areas of Spain: Summary

- Those road traffic accidents with victims which occurred in urban areas represented 53% of the total number of road traffic accidents with victims in 2005.

- The number of accidents with victims in urban areas between 2000 and 2005 has been reduced by 15%, at a rate of 3% per year. The percentage of victims has been reduced by 15% whilst the percentage of fatalities has dropped by more than 25%.

- The age group worst affected by road traffic accidents in urban areas, representing more than 40% of the total, is that of 16 to 19 year-olds. However, this percentage has experienced an encouraging trend in recent years, dropping by more than 5 points.

- Children, young people approximately up to the age of 16 and also the elderly, are frequently involved in road traffic accidents as pedestrians or passengers in vehicles. From 16 years of age and upwards, however, the victims largely tend to be the drivers.

- In 2005, 62% of accidents with victims in urban areas (40,292 out of a total of 64,810) involved men.

- For both men and women, the 16 to 29 age group is that which is most often involved in road traffic accidents with victims in urban areas.

- Pedestrians are those at most serious risk from road traffic accidents in urban areas if the percentage of fatalities is considered, with over 40% of these cases resulting in a fatality.

- The percentage of motorcyclists killed has risen by almost 5 points since 2000 whilst the percentage of motorcyclists injured has risen by 3 points.

- Road traffic accidents in urban areas are most frequent on working days, largely between 9:00AM and 10:00PM. The peak times, in so far as accidents are concerned, are 1:00PM and 7:00PM.

- In urban areas, head-on and front/side collisions are the most frequent (42%), followed by collisions with pedestrians (almost 19%). 41% of fatal accidents are collisions with pedestrians, 27% are side and front/side collisions and 18% involved the vehicle coming off the road.

1.2 The reference framework

Road traffic accidents have become a social problem which can only be tackled with the combined participation of Public Administrations: European institutions, Spanish State Administration (Administración General del Estado), Autonomous Communities, Local Administrations and public bodies connected to or dependent on any of the previous institutions. It is vital that every organization intervenes, from its own area of expertise, and contributes urbanistic, educational, technical, legislative, police or control measures in order to find possible solutions to the complex question of urban road traffic accidents.

The institutional, social and economic collaboration should be permanent and dynamic with regards everything concerning road traffic safety, since the current legal framework provides regulatory and administrative skills at every level of the administration: European, state, regional and local. However, with regards road safety, institutional relationships must move on from mere cooperation to a situation where decisions and action can be taken at a more local level. The challenge is to move from a bureaucratic system of administration, based on responsibility, to the management of public policies aimed at effectively combating the real-world problems of road safety.

As such, the role played by the local administration should receive the support it needs to carry out its responsibilities in this area.

The European strategy

In the Europe of the fifteen Member States, there are 375 million road users, 200 million of which hold a driving license, and 400 million kilometres of roads over which more than 200 million vehicles travel. With this in mind, the European Commission proposes combining forces in order to reach the target of reducing, from now until the year 2010, the number of road traffic accident related deaths by 50% (each year, 40,000 deaths and 1,700,000 injuries occur on the roads of the European Union).

In consideration of the policies set down in the white paper, "*European transport policy for 2010: time to decide*" –approved in 2001,- the European Commission elaborated, in 2003, the "European Road Safety Action Programme", the objective of which is to half the number of road traffic accident victims by 2010.

Within the pages of this document, as well as establishing a methodological framework within which to study road traffic accidents and define a set of best practices, a diagnostic of the problem is carried out. The causes of the most common accidents and physical injuries, the groups at most risk of suffering an accident and the countries where, to date, the road safety policies have been applied most successfully are all detailed.

In general, the risk factors leading to road traffic accidents are seen to be common throughout all of the Member States: excessive or insufficient speed, driving under the influence of alcohol or drugs, fatigue, the existence of "black spots" on the roads, etc. The risk factors leading to injury are, above all, due to the failure to use seat belts or helmets and the low level of protection offered by vehicles. The age group most at risk is that of 15 to 24 year olds and the most vulnerable users are pedestrians, cyclists and the drivers of two-wheeled vehicles.

Working from a thorough knowledge of this data, the European Commission has set out six areas of action within which to move forwards towards the proposed targets. They are as follows:

1. Improve the behaviour of road users through a combination of legislative action with educational and informative action and police control.
2. Improve the safety of vehicles.
3. Improve the infrastructures and traffic management.
4. Increase the safety of professional goods and passenger transportation.
5. Improve the aid offered to victims and first-line help.
6. Carry out the systematic collection, analysis and publication of road traffic accident data.

The comparative analysis of the actions carried out to the present day in the different countries has also shown that the member states which have achieved the best results –Sweden, Great Britain and Holland,- have been able to do so because they use more effective control systems and because they act in a coordinated manner across all levels, once more demonstrating that isolated initiatives very rarely work.

These countries have adopted quantitative measure to reduce the number of accidents and of victims, and have concentrated their efforts on questions such as speed, the vulnerability of users, infrastructures, alcohol abuse, the use of seat belts and helmets, etc. They have also integrated their road safety plans with their mobility plans and have decentralized responsibilities towards regional and local authorities, with central financial backing.

"Vision Zero"

"Nobody should die or be seriously injured on Sweden's roads". This is the objective set down by the Swedish authorities in 1997 with the so-called "Vision Zero". At that time, the number of road traffic related accidents and deaths was very high (13.4 deaths per 100,000 inhabitants in 1997).

"Vision Zero" is based upon four fundamental principles: human life and health cannot be put at risk in order to benefit mobility or road system targets; politicians and the private sector have the responsibility to ensure that the road network is safe and that citizens follow road use regulations; the road traffic system must take into consideration that humans make mistakes, that we are not perfect (this point must be considered when designing road infrastructures) and the main driving force to reduce injuries and fatalities should be the citizen himself and, therefore, road safety should be demanded as a right by each and every citizen.

Examples of current fatality reduction targets in use*

Country or area	Base year for target	Year in which target is to be realized	Target reduction in the number of road traffic fatalities
Australia	1997	2005	-10%
Austria	1998-2000	2010	-50%
Canada	1991-1996	2008-2010	-30%
Denmark	1998	2012	-40%
European Union	2000	2010	-50%
Finland	2000	2010 2025	-37% -75%
France	1997	2002	-50%
Greece	2000	2005 2015	-20% -40%
Ireland	1997	2002	-20%
Italy	1998-2000	2010	-40%
Malaysia	2001	2010	< 3 deaths / 10,000 vehicles
Netherlands	1998	2010	-30%
New Zealand	1999	2010	-42%
Poland	1997-1999	2010	-43%
Saudi Arabia	2000	2015	-30%
Sweden	1996	2007	-50%
United Kingdom	1994-1998	2010	-40%
United States	1996	2008	-20%

*It should be noted that some of these targets also include reductions in serious injury and are supplemented by other targets, e.g. to reduce the numbers of casualties among children.

Source: "World report on road traffic injury prevention" WHO

DECLARATION ON THE PRINCIPLES FOR AN URBAN ROAD SAFETY POLICY
Annex to the European Road Safety Charter. Polis and ACCESS-Eurocities SAFE Campaign

We, the undersigned, agree to develop an urban road safety policy and recognize the importance of the principles set out below:

General Principles

Local authorities have a key role to play in reaching the target, set by the European Road Safety Action Programme, to halve the number of road accidents victims by 2010. The measures taken in favour of road safety shall be a central element of the urban and regional transport policy and a priority on the political agenda of cities and regions.

Urban road safety policy principles

Local authorities can contribute to road safety by implementing measures in line with the following policy principles:

1. Speed has an important influence on accidents and the severity of accidents. Speed control and speed management policies are thus important for road safety.

2. Special attention should be paid to the safety of more vulnerable persons such as children, elderly people and people with disabilities.

3. Education and training are important. Local safety campaigns are necessary and tend to have more significant results than national campaigns.

4. The success of the road safety policy depends on the ability of the authorities to enforce legal measures. Thus enforcement of rules on drinking and driving, helmet and seat belt wear, as well as on speed limits is necessary.

5. The design of roads and their environment can help to reduce the number of accidents on roads.

6. It is worth targeting some actions towards reducing accidents in places and neighbourhoods with high accident rates, the so-called black spots or black zones.

7. Road safety audits and accident and casualty databases are important tools for road safety policies.

8. The identification of performance indicators for reducing fatalities and injuries is an important element of a successful road safety policy.

9. The use of technology in transport can improve road safety.

10. The improvement of road safety should address all modes of transport, motorised or not.

11. Safety of non-motorised modes of transport and, more generally, of vulnerable road users should be strengthened. This can be done through improved legislation, training and education, and better transport infrastructure meeting cyclists' and pedestrians' needs. The reduction of risk and the improvement of accident rates will remove barriers for using non-motorised modes of transport and can thus lead to an increased use of these types of transport within cities.

12. Orientating road safety policy towards public transport and non-motorised modes of transport can help to increase road safety.

13. This list of policy principles is not exhaustive. Their relative importance also depends on the specifics of each local environment. Their efficiency would be reinforced by the implementation of safety policies which integrate a complete set of measures.

Good Governance

Good governance tools, such as efficient management structures and procedures, and a knowledge-based approach are required to accomplish a successful local road safety policy. Integrated impact analysis and urban safety management, such as a structured safety approach that integrates different policies and disciplines, are a prerequisite.

Cooperation with other authorities and policy levels, with juridical and police services and effective partnerships with schools and different traffic user groups, should make sure that the safety issue is dealt with in an integrated way and that the needs of different road users are taken into account. The commitment to make streets safer for the citizens' needs to be reflected in the city's budget. The city's urban safety policy should be in line with its social and environmental concerns.

The Spanish strategy

In Spain, with close to 5,000 deaths a year, around 100,000 accidents with victims and more than 150,000 injuries, road traffic accidents are the principal cause of death in the 25 to 34 age group. They are also the main cause of potential years of life lost for men and the second for women as well as being the main cause of serious disabilities.

According to the white paper, "*European transport policy for 2010: time to decide*", it is the state and local authorities who must adopt the proposed measures. Therefore, the European Commission recommends the preparation of strategic plans and establishes the guidelines which should be followed when drawing them up. These recommendations, together with the Spanish government's and the involved social agents' political commitment to reduce the number of road traffic related deaths by 40% by 2008, have been the driving force behind the development of the "*Strategic Road Safety Plan 2005-2008"*.

The plan has been developed using the analysis of existing documentation, from interviews with the main agents, associations and bodies which work within the area of road safety and from investigations into international best practices and models. The content of the plan is comparable to that of those produced in other European countries, and so Spain must strive to obtain similar results to these other countries.

The process of implementing the objective of the plan is based on three lines of action, the last of which focuses on the planning of urban road safety. They are as follows:

1 **Special Road Safety Measures (Medidas Especiales de Seguridad Vial) 2004-2005**	**8 Special Road Safety Measures** aimed at achieving rapid results
2 **Key Strategic Action Plan (Plan de Acciones Estratégicas Claves) 2005-2008**	**Key Strategic Action Plan 2005-2008**, in which the civil and other administrations play a key role, both in its preparation and in its launch and monitoring
3 **Urban Road Safety Master Plan (Plan Tipo de Seguridad Vial Urbana)**	As an attempt to tackle road traffic accidents in urban areas comes the **Urban Road Safety Master Plan**, designed to define a methodological base to promote municipal commitment in road safety policy

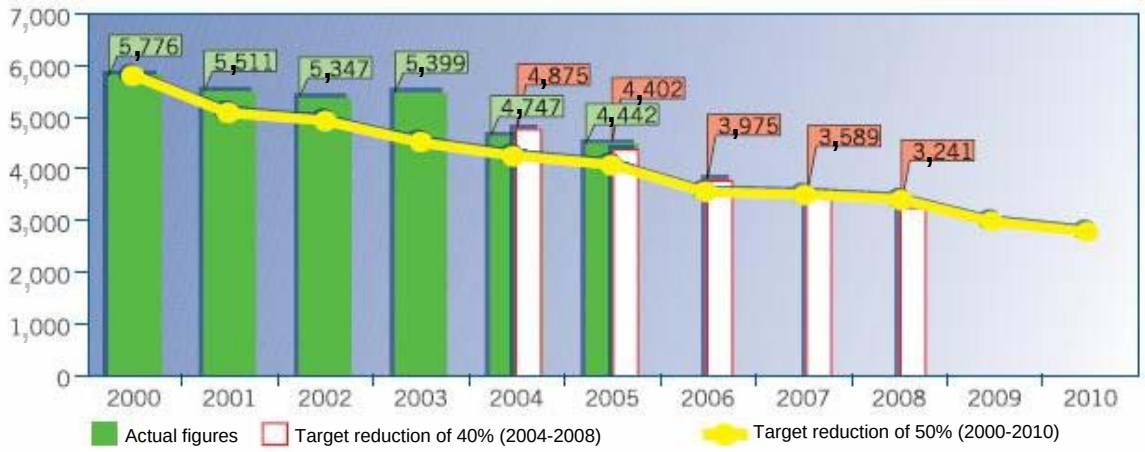
Road safety objectives of the European Union and Spain

UE – DGT (General Directorate of Traffic) ALIGNMENT

EU targets		DGT targets
Reduce deaths by 50% between 2001 and 2010	→	Reduce deaths by 40% between 2005 and 2008
Courses of action EU Action Programme		**Strategic Areas Road Safety Plan**
Improve road user behaviour	→ → →	Road education and training Raise awareness of road safety Vigilance and control
Safer vehicles	→	Vehicle safety
Improve infrastructures and traffic management	→	Infrastructures and traffic management/information
Goods and passenger transport safety	→	Working and transport road safety
First-line aid and help for victims of accidents	→	Aid for victims and their families
Gathering, analysis and publication of data about accidents	→	Investigation and analysis of road safety

The Spanish Strategic Road Safety Plan establishes a **general target of reducing by 40% fatalities** caused by traffic accidents (30 days), in the time period between 2001 and 2008, taking 2003 as a reference point for the calculation.

General target of the Strategic Road Safety Plan 2005-2008



Autonomous and municipal responsibilities

Administrative responsibility with regards road safety, in accordance with the Spanish Constitution, corresponds to and is exercised by the Spanish Public Administration, by the administration of the Autonomous Communities –whose respective statutes claim this responsibility.- and by the municipal administrations.

The communities that have been granted executive responsibility with regards road safety are the Basque Country and Catalonia. Due to its autonomous origins, Navarra retains responsibilities concerning traffic monitoring and the reporting of traffic violations in collaboration with the Traffic Department (Agrupación de Tráfico) of the Guardia Civil. With regards other aspects of road safety, such as roadways, transport, health and industry, the autonomous communities have claimed, and have been granted, important responsibilities.

In order to achieve a suitable level of coordination with regards the actions taken by the different administrations and to ensure that their collaboration is successful, certain relationships need to be set up between them, therefore allowing these administrations to move forward together towards the objective of improving road safety. This collaboration should be based upon the principals of coordination, cooperation, complementary working methods and reciprocal information, respecting at all times the responsibilities of each of the administrations involved. Important tools for this participation are road safety plans, collaboration agreements and the existence of professional organizations which, with the participation of all involved, provide a higher degree of efficiency whilst working to achieve the anticipated results.

The collaboration between the Spanish Public Administration (Administración General del Estado) and the autonomous communities will take shape through their participation with:

1. The already established professional bodies, such as the High Council for Road Safety (Consejo Superior de Seguridad Vial) and, in particular, the Autonomous Road Safety Committee (Comisión Autonómica de Seguridad Vial) which will be created within it and which, among other functions, will be responsible for proposing road safety measures and courses of action to the government and coordinating the actions of all of the autonomous communities in this field, promoting the pooling of efforts and the exchange of experiences.

2. The Strategic Road Safety Plan (Plan Estratégico de Seguridad Vial), which will allow: the realisation of initiatives such as an increase in surveillance and control measures on the roads in its jurisdiction (installation of speedometers and video cameras); the collaboration in campaigns to raise awareness over issues such as speed, alcohol, seat belts, helmets, mobile phones, etc.; the preventative interventions of primary health care; the promotion of increased active and passive safety in road vehicles; the renovation of the city's vehicles and the improved quality of vehicle inspection tests.

3. Civil protection, collaborating both in the state and autonomous plans and organizing pre-hospital emergency services and rescue systems for road traffic accident victims.

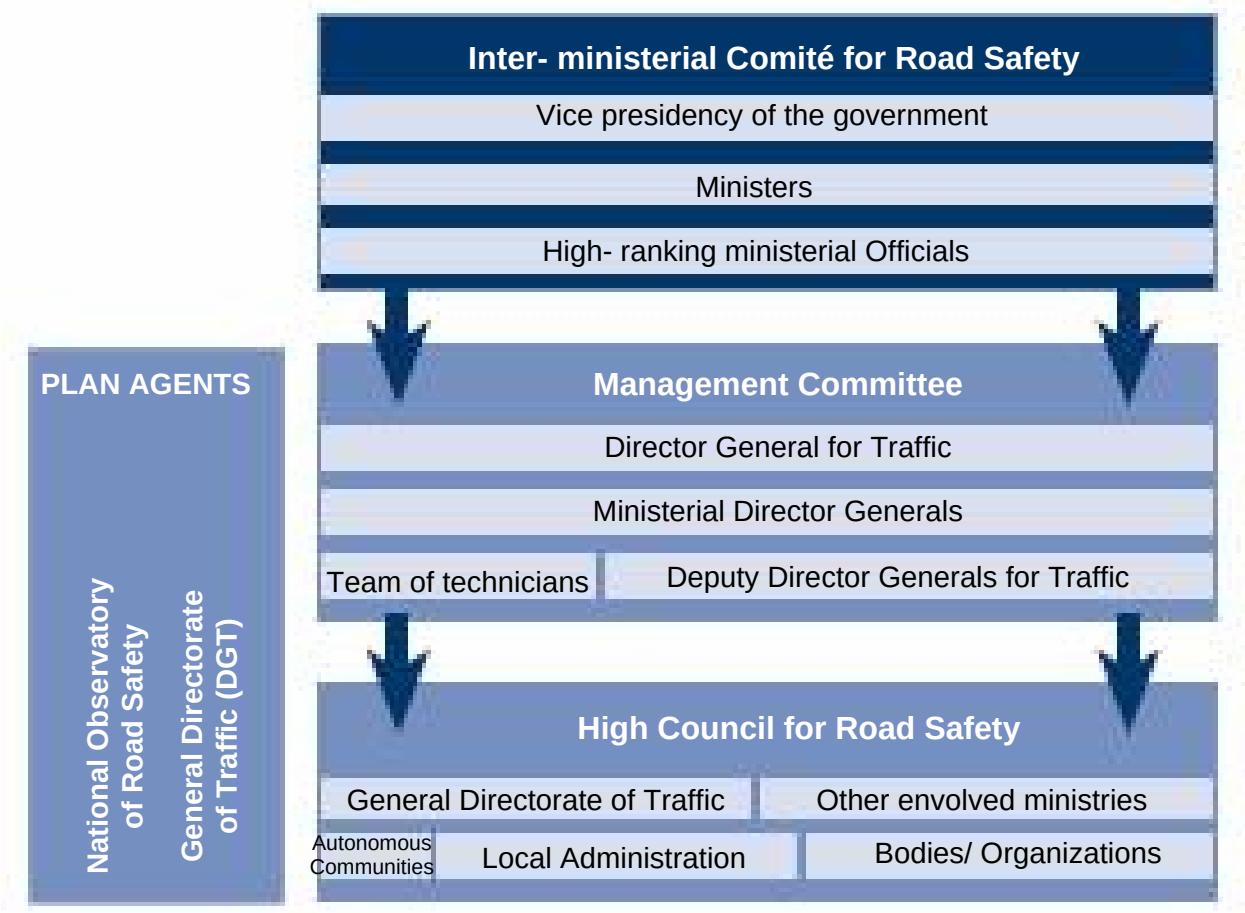
Elsewhere, the municipalities must also collaborate with their corresponding autonomous community in terms of:

- Education, since the town councils can carry out activities to complement those of the community, participating in the planning of the educational syllabus.

- Health, participating in the management of primary health care.

It is a fact that the town council's preparation of a strategic road safety plan lays the foundations for the collective work to be undertaken. It supposes a commitment to carry out the courses of actions it contains. It allows coordinated actions, leading to the improvement of the current road safety situation, to be organized. And, setting down quantitative objectives, it provides an efficient system of indicators linked to each strategy, with the aim of facilitating the constant monitoring and analysis of the real-world situation along with good governance and good decisions.

Institutions and organizations involved in road safety in Spain



Road safety responsibilities of the municipalities

1. The conservation and improvement of the roadways under their control, along with their signposting and the implementation of centralized traffic control systems.
2. The management and promotion of public transport within the municipal area.
3. Article 25 of the Ley Reguladora de las Bases de Régimen local establishes that the municipalities will be responsible for the organization of vehicular and pedestrian traffic on urban roadways. These responsibilities belong to them and have been set in article 7 of the Ley sobre Tráfico, Circulación de Vehículos a Motor y Seguridad Vial. • The organization, control and surveillance of traffic, through their own agents and on the roadways under their control, and the reporting and penalization of those violations committed upon said roadways when such actions are not attributed to another administration. • The regulation of urban road use through the use of municipal bylaws. This regulation also implies the reservation of lanes for certain users, the closing off of pedestrianized zones, the establishment of specific speed limits (article 19 of the Road Safety Law - Ley de Seguridad Vial), the installation and maintenance of road signs (article 139 of the General Traffic Circulation Regulation – Reglamento General de Circulación). • The immobilization of vehicles found parked without authorization in restricted time zones, when, as a result of the failure to comply with road traffic regulations there exists a serious risk for circulating traffic, people or property. In the case of substantial and unauthorized vehicle modifications, the immobilization of the vehicle is authorised when said modifications produce excessive pollution and/or fail to meet the requirements of the regular vehicle inspection tests. • The removal of vehicles from public roadways and their subsequent storage following an accident, abandonment, when they are an obstacle or a hindrance to the circulation of traffic, when they are parked without authorization in restricted time zones or when they have exceeded double the amount of time permitted and when the obligation to insure the vehicle has not been met. • The authorization of sporting events which involve the use of the centre of a city. • The undertaking of alcohol tests and the detection of narcotics. • The closing off of urban roadways as and when is necessary, either for a certain class of vehicles or users or for all.
4. The preparation of statistics and studies of road traffic accidents within the municipality.
5. Road safety planning.

1.3 Urban road safety planning

Taking into account the differential characteristics of urban areas with regards road traffic accidents and road safety, it is necessary to develop specific monitoring, intervention and municipal evaluation actions which are integrated with a transverse and multi-sector project in which all involved agencies and sectors are properly represented.

As the first step in this process, the basic objectives -around which all municipal action should be based,- must be established. These objectives must be universal for all towns and cities and should constitute the fundamental principles which will allow the strategic courses of action to be defined and the subsequent proposals to be fixed. However, given that each municipality -as mentioned earlier when talking about the risk factors,- has its geographic, demographic and social-economic peculiarities, along with its own mobility guidelines, these objectives could be adapted to their needs and those which are more relevant to their particular road safety problems could be emphasized.

These objectives, added to the data collection results and the description of the municipality, will allow the area's road safety problems to be identified, their causes to be analysed and an initial diagnostic -which will constitute the basic material for future road safety planning,- to be carried out. This analytical and diagnostic work is vital in order to later apply the methodology of the road safety plan and formulate the collection of proposals and actions which should correct, in the short, medium and long term, the detected problems.

Given that numerous municipalities have prepared, or are in the process of preparing, urban mobility plans —some of which are being carried out within the framework of local 21 agendas and using the principals and values of sustainable culture as references,- it is fundamental that the launch of a road safety plan is complementary to the mobility plan. This type of planning work does not only concentrate on the management and organization of traffic and the different means of transport but also on improvement of road safety of all citizens.

Areas of action and objectives

The European Road Safety Action Programme aims, as we have seen, to reduce the number of road traffic accident victims in the European Union by half by the year 2010, taking the data from 2001 as its reference. Spain's Strategic Road Safety Plan takes on this challenge, although it does qualify it and places its target at 40% over the 2005-2008 period.

EU objectives		General Directorate of Traffic (DGT) objectives
Reduce fatalities by half between 2001 and 2010	➔	Reduce fatalities by 40% between 2005 and 2008

Without any doubt, these objectives constitute the goal to which all regional and local road safety strategies should aspire, especially from a public health standpoint and the desire to improve the quality of life of all Spanish citizens, beyond the strict boundaries of mobility and traffic. One can certainly add other, more qualitative types of objective which cover the areas set down by the European action programme to these ones. Such objectives would include the creation of institutional leadership recognition measures, improvements in surveillance and police control, the overcoming of obstacles and the lack of and shortfalls of care services for victims and their families, along with an increased number of educational and mobility training initiatives and the development of a communication and information intervention strategy.

At a local level, however, the formulation of objectives should free itself from generalisations in order to more directly tackle the most common road traffic problems which affect cities. In these limited urban spaces, extremely diverse activities, uses and needs all coexist and bring with them their equally different habits and transport systems. The sustainable planning and management of this complex urban ecosystem must come as the result of a process which involves all levels of society and yet focuses on these very local objectives.

The “Decalogue” of **areas of action and objectives** which constitute the conceptual and strategic framework for the preparation of an **Urban road safety master plan** (Plan tipo de seguridad vial urbana) are as follows:

	Area of action	Generic objectives
1	The design of public spaces and signposting.	Ensure the fairer sharing of road spaces and improve street designs and road signposting in order to guarantee the coexistence of all the different transport systems.
2	Traffic and the coexistence of the different means of urban transport.	Ease traffic and promote more sustainable means of transport and travel systems.
3	Road traffic accidents Involving two-wheeled motor vehicles.	Reduce the number and the consequences of accidents involving two-wheeled motor vehicles (motorcycles and mopeds).
4	Mobility of the most vulnerable user groups.	Increase protection for pedestrians (in particular for children and the elderly), cyclists and people with limited mobility.
5	Surveillance and control of traffic violations and their causes.	Take action against the lack of road discipline and violations through surveillance and control.
6	The health and social care provided for victims of road traffic accidents.	Improve the health and social services for those affected by traffic accidents and consider urban road safety as a matter of public health.
7	The study of mobility and urban road traffic accidents.	Introduce monitoring systems to improve the collection and analysis of information about mobility and urban road traffic accidents.
8	Training and information on urban road safety.	Act within the area of training and educating citizens in order to instil the values of road safety in all areas of society.
9	The coordination and collaboration between administrations.	Boost coordination and collaboration between the responsible high-level institutions and organizations.
10	Social participation in urban road safety.	Encourage social participation and public debate about local mobility and urban road safety and boost local agreements.

In chapter 2, and working from the application of these ten commandments, a set of concrete actions is proposed. These develop the courses of action in such a way that each municipality can adapt them to their particular situation.

Methodological planning

The proposal detailed below has been prepared with the intention that it might serve as a conceptual and methodological reference for town councils when defining their road safety policies and preparing the urban road safety plan for their particular circumstances.

It is structured in the following stages:

Stage 1
DIAGNOSTIC. Description of the municipality, identification of the problems related to road traffic accidents and their causes.

Stage 2
FORMULATING THE PROPOSALS. Working from the “decalogue 07” objectives and taking the municipality's priorities as a base, a set of actions upon which the local administration can concentrate their efforts is proposed.

Stage 3
CREATING THE ACTION PLAN. Setting a schedule for the actions, and deciding upon the involved agencies and the available resources.

Stage 4
EVALUATING THE ACTION PLAN. Defining the information systems for the successful monitoring of the action plan, the evaluation of the established actions and the achievement of the anticipated objectives.

The development of each one of these four stages will naturally be determined by the characteristics of each municipality, since it will be the initial diagnostic which determines which objectives and courses of action the local administration and the involved staff should first focus their efforts on. In all cases, the preparation of an urban road safety plan –in accordance with this methodological planning,- provides a simple and comparable set of procedures to follow.

The keys to success

Road safety is a collective task. Therefore, the participation of all sectors and agencies connected to mobility and urban road traffic accidents is essential. The successful establishment of the Urban Road Safety Plan (Plan de Seguridad Vial Urbana) requires the use of two fundamental transverse strategies:

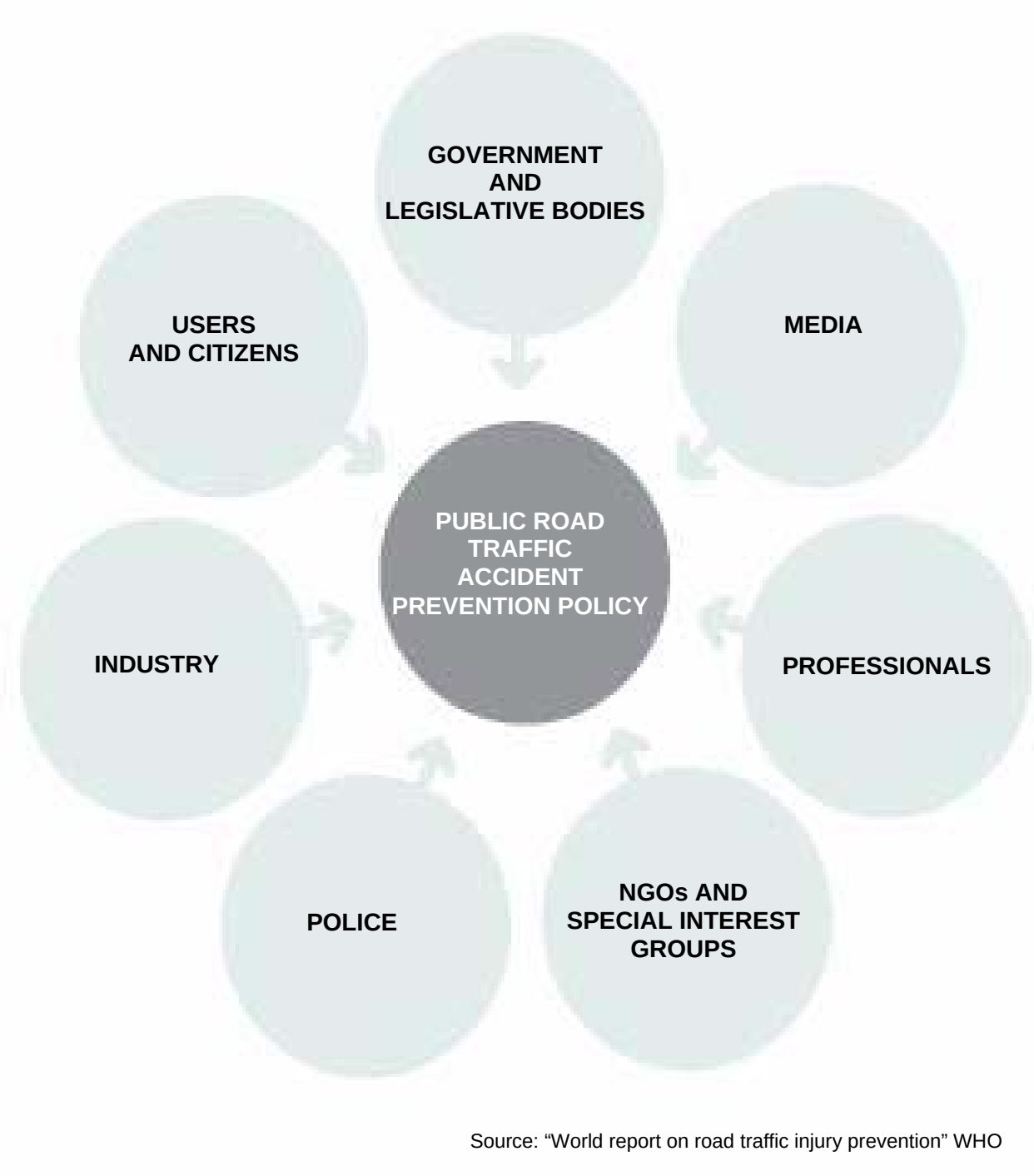
A. **Clear municipal leadership involving politicians, technicians and departments from all of the local administration,**
B. **The permanent collaboration of and coordination between all institutions and civil society.**

The municipal leadership is an indispensable prerequisite for the mobilization of the project to improve urban road safety in three dimensions: the municipality before the community, civil society and social-economic agencies; the municipality before the high-level municipalities, winning credibility and legitimacy which take the form of a boost to coordination tasks; and the town council itself, with the strong backing of the political and technical levels of the local administration.

	Area of action	Involved departments
1	The design of public spaces and signposting.	Town planning, municipal police, transport and traffic circulation, the treasury, social welfare, education.
2	Traffic and the coexistence of the different means of urban transport.	
3	Road traffic accidents involving two-wheeled motor vehicles.	
4	Mobility of the most vulnerable user groups.	
5	Surveillance and control of traffic violations and their causes.	
6	The health and social care provided for victims of road traffic accidents.	
7	The study of mobility and urban road traffic accidents.	
8	Training and information on urban road safety.	
9	The coordination and collaboration between administrations.	
10	Social participation in urban road safety.	

↘ **Urban road safety is a transverse topic which affects numerous municipal departments, for which reason it is vital that the responsible politicians and technicians from all of these departments actively cooperate with each other in order to make progress in the reduction of urban road traffic accidents.**

Key bodies and groups which influence the preparation of policies



Source: “World report on road traffic injury prevention” WHO

The aforementioned **municipal leadership** can lead to the application of the following actions:

A.1 Approval of a municipal road safety commitment in the Municipal Plenary.

A.2 Periodic revision of the Municipal Road Safety Plan (Plan Municipal de Seguridad Vial – PMSV).

A.3 Approval of a road safety budget.

A.4 Periodic public intervention on the part of the mayor or road safety councillor.

A.5 Approval of the Plan for Sustainable and Safe Mobility (Plan de Movilidad Sostenible y Segura), and the revision of the municipal bylaws.

A.6 Naming of a technician to be responsible for road safety coordination.

A.7 Periodic meetings between the responsible departments.

Each municipality, according to their short-, medium- and long-term actions, will need to prioritize the proposed actions. This prioritization will, of course, also be determined by the availability of resources –principally economic ones,- needed for the objectives of the road safety policies to be fulfilled. It is necessary, therefore, to establish administrative mechanisms and define the instruments which can guarantee the financing of the foreseen actions.

As such, **the coordination among administrations and the collaboration with relevant social organizations** is indispensable in order to better reach out to citizens and achieve the objectives in accordance with the principal of local, immediate action, to achieve increased efficiency in the implementation of the formulated proposals. Such coordination could in turn lead to the following urgent actions:

B.1 Creation of a Municipal Road Safety Council (Consejo Municipal de Seguridad Vial).

B.2 Approval of a Mobility and Road Safety Agreement (Pacto por la Movilidad y la Seguridad Vial).

B.3 More information and public debate about the municipal road safety actions.

B.4 Financing of actions promoted by agents of civil society.

This set of actions is explained in more detail below.

Regarding municipal leadership

A.1 Approval of a municipal road safety commitment in the Municipal Plenary
Prior to the approval of the Municipal Road Safety Plan, the town council must formally acquire, in a municipal plenary, the municipality's pledge to adhere to the objectives set out in the European Union white paper which aims to halve the number of road traffic accidents by the year 2010.
Concrete actions:
- Draw up an initial objective which contains a municipal pledge with at least two points to be approved first by the municipal Government Commission and subsequently by the plenary. - Reach an agreement concerning the preparation of a Municipal Road Safety Plan for the term. - Approve a basic action objective, for the term, concerning road safety which aims to reduce the number of fatalities on the roads belonging to the municipality. - Agreement of the plenary upon the adhesion to the European Road Safety Charter: http://ec.europa.eu/transport/roadsafety/charter/index_es.htm

A.2 Periodic revision of the Municipal Road Safety Plan (Plan Municipal de Seguridad Vial – PMSV)
The results obtained should be made public once a year in order to keep all citizens informed and thereby both increase the positive effects of the adopted measures within the population and publicize the information about the principal problems of road safety. Problems which are unknown are not, therefore, perceived to really be problems and the public cannot adopt preventative attitudes towards them. The plan should be a living document, which adapts itself to new necessities as and when they emerge. As such, it should be in a continuous state of revision although all modifications must be officially approved, in a similar way as the plan itself was.
Concrete actions:
- Secure the commitment to periodically revise the Municipal Road Safety Plan. - Prepare an annual report on road traffic accident trends: the road traffic data within this report should be taken both from the information belonging to the municipality itself and from information supplied by the higher-level administrations. - Publish data on the municipality's official web page and keep this as up to date as possible. - Provide an arena for debate about road safety on the municipality's web page and within the local media. - Prepare an annual report which evaluates the adopted measures. - Update the annual action plan.

A.3 Approval of a road safety budget

So that the measures that make up the plan can be effective, the corresponding budgetary amounts required by each and every measure included in the plan must be studied and approved.

Concrete actions:

- Economic evaluation of each of the actions which have been included in the Municipal Road Safety Plan.
- Approve the necessary budgetary amounts in the corresponding yearly budgets.
- Use the funds received from traffic fines to increase the approved budget and carry out the planned road safety actions.

A.4 Periodic public intervention on the part of the mayor or road safety councillor

To strengthen the commitment of each citizen to support the Municipal Road Safety Plan, it is advisable that the politicians responsible for the plan periodically appear before the public in order to both hear public opinion and to explain the philosophy behind the obligations taken on by the corporation and help this information reach the wider population.
These explanations should, as far as possible, be offered in press conferences arranged by the council and should take place as often as is deemed necessary. In this way, a positive effect within the community can be achieved, particularly if these press conferences take place at particularly beneficial times of the year, such as the beginning of the school year, the start of the summer holidays, etc.

Concrete actions:

- Organize periodic press conferences (previously preparing the person responsible for road safety with the help of the various involved municipal departments) in which the state of road safety within the municipality is explained and the active participation of drivers and other road users is requested.
- Hold citizen participation meetings for specific groups such as parents of schoolchildren, elderly people, motorcyclists, driving instructors, youth associations, etc.

A.5 Approval of the Plan for Sustainable and Safe Mobility (Plan de Movilidad Sostenible y Segura), and the revision of the municipal bylaws

In order for the Road Safety Plan to be effective, it is vital that the city's Mobility Plan is first revised in order to incorporate sustainability and safety criteria. This plan should revise the role of each mode of transport in the mobility system: public transport, private vehicles, parking, goods transport, goods loading and unloading systems, motorcycles, bicycles, pedestrians and other sensitive users such as children, disabled persons, etc.
The approval of the plan may entail modifications to the existing municipal bylaws affecting the topic or, at times, the approval of an entirely new bylaw in keeping with the Traffic, Motor Vehicle Circulation and Road Safety Law (Ley sobre Tráfico, Circulación de Vehículos a Motor y Seguridad Vial). Such a bylaw would be focussed within an urban setting and would create a series of rules and regulations which would allow drivers to move around more easily and more safely.

Concrete actions:

- Draw up and approve the city's Mobility Plan, including sustainability and safety criteria.
- Draw up a list of the possible bylaws affecting or pertaining to road safety.

A.6 Naming of a technician to be responsible for road safety coordination

In order to ensure an effective plan, the various municipal departments affected by it (local police, technical traffic circulation services, town planning, fire service, etc.) should be coordinated at all times.

Concrete actions:

- Make coordination between municipal areas, with regards road safety issues, an integral part of working practice.
- Establish collaboration criteria between the various municipal departments affected by the Municipal Road Safety Plan.
- Establish protocols for the creation of files and information relevant to road safety such as files on accidents, the population, mobility data, town planning descriptions, urban area growth, etc.
- Define the information and file transfer system to be used between departments.

A.7 Periodic meetings between the responsible departments

The different departments affected by the plan should hold regular meetings (at least once a year) in order to report back to each other on their activities and to propose any modifications to the approved plan. At the same time, the departments will also provide the data necessary for the correct compilation of the results obtained during the previous period.

Concrete actions:

- Approve a realistic timetable of meetings. At each meeting, all of the departments should present their previously studied report.
- Some areas of intervention which benefit from the coordination between departments are:

    - Getting to know the special accident black spots in the city and coming up with proposals to improve them.
    - Finding out about the rescue and victim treatment systems available in the municipality.
    - Coordinating the communication campaigns and the surveillance and control campaigns.
    - Preparing an emergency plan which covers serious accidents on public roadways.

Regarding collaboration and coordination

B.1 Creation of a Municipal Road Safety Council (Consejo Municipal de Seguridad Vial)
This council will act as a force for debate and the participation of civil society and the economic sector of the city in issues of mobility. Road safety should form part of a series of measures integrated in an agreement to which not just the local administration commits itself but also all kinds of citizen associations, economic sectors with connections to road safety, NGOs and experts who which to express their support. The participation of the public in issues of mobility is important since it is a topic which affects each and every citizen on a daily basis. Road safety and respect for traffic circulation regulations also affect many of the population every day. The Municipal Road Safety Council must help to find funding and to provide the economic resources required by road safety policies and local initiatives, so that the local road safety plan can be brought to life and be put into practice.
Concrete actions:
- Take the decision, on behalf of local government, to start the process of participation between civil, municipal and higher-level municipal bodies. - Discuss the basic objectives of mobility policy and, in particular, of the level of road safety that the municipality wishes to achieve. - Set up a debate with political parties and both local and regional civic bodies (neighbourhood associations, ecological groups, driving schools and driving school associations, car clubs, pedestrian associations, accident prevention associations, etc.). - Create workgroups to deal with specific aspects of mobility, road safety and road discipline, traffic circulation management, etc.

B.2 Approval of a Mobility and Road Safety Agreement (Pacto por la Movilidad y la Seguridad Vial)

To coordinate proceedings and consolidate the progress made over time in various aspects of road safety, different municipalities have already embarked on initiatives such as the drawing up of a Mobility Agreement (Pacto por la Movilidad). All types of civic bodies, trade unions, guilds, non-governmental organizations (NGOs) and even neighbours with their own individual interests take part in the preparation of the text.
In short, the agreement gets many different parties from civil society involved in the problems of mobility and road safety, in the model of mobility which is intended to be made reality over the years and in the measures which must be introduced in order for that to happen.

Concrete actions:

Draw up and approve the Mobility and Road Safety Agreement. Some examples:

- Barcelona's mobility agreement (in Spanish, Catalan and English): http://bcn.es/mobilitat/
- Burgos' civic mobility and accessibility agreement (in Spanish): http://www.diba.es/mediambient/PactoMovilidadBurgos.pdf
- Donostia-San Sebastián's civic mobility and accessibility agreement (in Spanish): http://www.diba.es/mediambient/PactoMovilidadDonostia.pdf
- Mataró's mobility agreement (in Catalan): http://ajmataro.org/ajuntament/publidoc/mobilitat/mobilitat.pdf
- Terrassa's mobility agreement (in Catalan): http://ajterrassa.es/mobilitat/pacte_mobilitat.pdf
- Hospitalet de Llobregat's mobility agreement (in Catalan): http://www.l-h.es/a21/pactemobilitat.pdf
- Sabadell's mobility agreement (in Catalan): http://www.sabadell.net/

B.3 More information and public debate about the municipal road safety actions

Local action with regards road safety should be open to the public at all times, not only to provide comprehensive information about what is being done but also in order to find out public opinion and the level of acceptance of each of the adopted measures. In such a way the complete approval of civil society regarding these measures and courses of action can be obtained.
A public debate about the development of the plan should be arranged, featuring the participation of local citizens and leading to the elaboration of the Local Agenda 21 plans.

Concrete actions:

- Take advantage of the organizational structure of civil society in order to get people involved in the issue of road safety in such a way that all of their associates also share our concern and desire to resolve the problems which currently exist in the municipality.
- Promote public debate about road safety, involving neighbourhood associations and other citizen groups, through public conferences hosted by politicians, local technicians or external experts, which put the projects and initiatives to change streets and traffic management on show, always with an emphasis on road safety.
- Incorporate road safety issues in the proposals and indicators of the Local Agenda 21 plans, through the use of public forums.

B.4 Financing of actions promoted by agents of civil society

There exist many organizations within civil society which can and should participate in improving road safety. Some, such as the associations of drivers or of victims, are already very active in this area whilst associations from other areas can act as channels through which to reach the target audiences (young people, the elderly, professionals, etc.) and should therefore receive the support of the administration so that the efficiency of the initiatives can be increased.

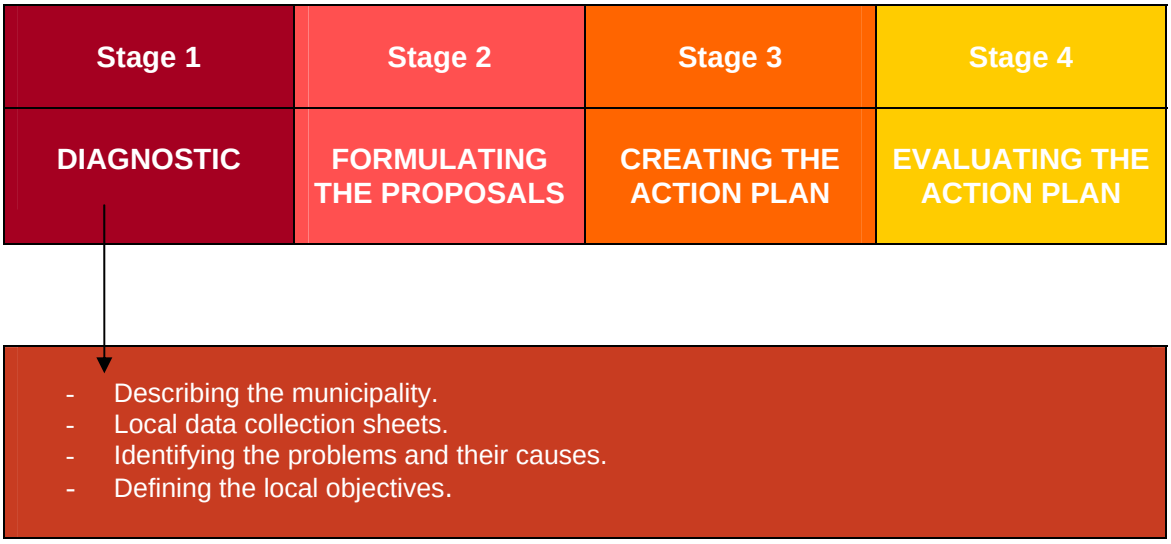
Concrete actions:

- Support those civilian organizations which are active in the area of road traffic accident prevention, through the issuing of subsidies or by jointly carrying out actions.
- Use these organizations and associations to reach the target audiences (universities, guilds and unions, sports clubs, etc.)
- Compile and make public all current information regarding the help and subsidies which can be applied for and the steps which are necessary to do so.
- Set up contacts with other administrations in order to find out about the possible joint financing of actions, plans, studies and construction work to improve mobility and road safety.

2

The urban road safety master plan: the methodology to apply

2.1 Diagnostic



To carry out the road safety diagnostic for the municipality, it is essential to become well acquainted with the baseline scenario, since this offers a clear snapshot of both the problems that the municipality faces and what their causes are. To reach this point, it is necessary to ensure the reliability of the starting data and the applied methodological procedure since, in the end, the final result will be more or less credible according to the degree to which this prerequisite has been fulfilled.

Having said this, it must be made clear that one cannot talk of cities in general, either. Instead, the particular characteristics of each different municipality must be taken into account when tackling road safety problems. As mentioned in the previous chapter, the type of landscape surrounding the city –coastal, inland, mountainous...,- its shape and size, the compactness or spread of its uses and amenities –compact city or decentralized city,- its social-economic activities, its road designs and layout, the specific details and composition of all of its vehicles and the transport habits of its population are the main issues which affect road traffic accidents and their associated risks.

However, although each final diagnostic will be different –due to the fact that each city has its own characteristics and typology,- if the same methodology is applied to more than one municipality, comparative studies can be made between the different areas, which would help everyone to move forward together towards resolving the problems affecting urban road safety.

Describing the municipality

Describing the municipality consists in compiling together all information which may be of interest in order to determine the city's strengths and weaknesses with regards urban road safety, observing the trends from past years and defining a baseline scenario adapted to the geographic, demographic, urbanistic and social-economic peculiarities of the municipality.

This scenario, therefore, will not be the same for all municipalities, although the objectives on which it will be based will be identical in order to facilitate dealing with the initial problems and comparing the situation will other municipalities which are similar in terms of those characteristics mentioned earlier.

Every road safety plan requires, as an essential part of its operation, an information system which allows the state of the current situation to be known and which monitors the interventions as they are implemented over time. Starting up a system of this type does not necessarily demand a huge infrastructure or the development of complex information tools.

The use of already existing data sources –local, regional, institutional, etc.- may be sufficient and could provide plenty of information. For example, the data on road traffic accidents collected by local police, the data available from the General Directorate of Traffic or the information about emergencies or hospital admissions following road traffic accidents can provide exhaustive information which can be used to describe the road safety situation within a city. What is necessary, however, is the appointment of a person responsible for coordinating the collection of data and analysing the results which are obtained.

An information system for road safety therefore generates numeric data which helps to provide a picture of the magnitude and the characteristics of the problem, the population and risk factors and the trends over time. As a result, this information should allow policies to be developed, priorities to be set, resources to be allocated, hypotheses to be tested, prevention programmes to be implemented, prevention strategies to be evaluated and the evolution of the problem to be monitored over time.

None of the commonly used information sources are exhaustive, nor do they provide all of the information desired. For example, finding out the frequency of seat belt use according to the accident reports of the local police only tells us the frequency of use among those people who have suffered a collision, not the entire population. Even so, such a figure can be useful as a rough measurement.

However, one must keep in mind that the importance and value of this information lies mainly in its subsequent transversal interpretation, tying together the different pieces of data until a clear and simple snapshot of the road safety situation in the municipality is obtained.

Basic municipal information (desirable) for the creation of an urban road safety plan

Information	Data to compile
Social-economic, demographic, territorial and urbanistic characteristics.	- Geographic and territorial data. - Demographic data. - Social-economic data. - Town planning model (degree of compactness or spread).
Road design and urban road layout characteristics.	- Road design and hierarchy. - Signposting and road markings.
Characteristics of the vehicle population and travel habits of the population.	- Vehicle population. - Travel habits. - Driving habits. - Transport trends. - Distribution of means of transport. - Available public transport. - Available parking.
Urban road traffic accident characteristics.	- Type of accidents. - Involved vehicles. - Profile of victims. - Profiles of drivers causing accidents. - Physical consequences. - Areas of risk. - Road traffic accident trends.
Creation of mobility and urban road traffic accident maps (graphical representation).	- Conflict areas (black spots). - Accident typology. - Distribution of public space. - Road hierarchy.

Specific urban road traffic accidents and accident victim information sources

Source	Advantages	Limitations
Local Police and General Directorate of Traffic	Variable coverage. Provide exhaustive information about the circumstances of the accident.	Does not identify resulting deaths which occur more than 24 hours after the accident, and not all cases are recognised, with the less serious cases often being lost. Does not provide information about the seriousness of any injuries -or such information is unreliable,- or about the location or type of injuries either.
Death register	Good coverage in the identification of road traffic accident fatalities.	Does not provide information about the location of the accident, nor about the vehicle, the circumstances of the accident or the type of injuries.
Medical Jurisprudence Institute (Instituto de Medicina Legal)	Provides information about the vehicle and an in situ diagnostic of the road traffic accident fatalities.	The location of the accident is not known and no information is provided about the circumstances of the accident.
Casualty departments and hospital admissions	Allow the seriousness and type of injuries to be known.	Does not provide information about the circumstances or the date of the accident. Data is often not computerized.
Hospital admissions	Using the admission diagnoses, the seriousness and type of injuries can be found out. The progress of injuries can be monitored.	Does not provide information about the circumstances or the date of the accident.
Mobility and travel habit surveys	Provide information about risk exposure factors and associated indexes.	These type of surveys, when representative, have a high economic cost.
Health surveys	Provides information about the prevalence of people who have suffered road traffic accident related injuries requiring medical attention and about the use of safety measures.	In some cases it is not possible to collect information regarding the injury mechanism.

Local data collection sheets

The data collection sheets that are proposed below correspond to the risk factors which have a bearing on road traffic accidents and which can be put into four groups (see the section *Risk factors*).

- The factors which influence the **exposure to risk**: economic, demographic, town planning, etc.

- The factors which influence the **lead up to a collision**: excessive speed, consumption of alcohol, fatigue, weather conditions, etc.

- The factors which influence the **seriousness of the collision**: tolerance to the impact, failure to use a helmet or a seat belt, insufficient protection, etc.

- The factors which influence the **seriousness of the injuries**: inadequate health services, insufficient hospital care, obstacles hindering the evacuation of victims, etc.

Sheet 1
DEMOGRAPHIC DATA
- Total population. - Population by age group (age pyramid): children (0-14), young people (15-34), adults (35-59), elderly people (60 or above).

Sheet 2
VEHICLE POPULATION (motorization index)
- Total vehicle population. - Vehicle population arranged by vehicle type: cars, motorcycles, mopeds, lorries and vans, buses and others. - Number of vehicles per 1,000 inhabitants (both for all and also for each individual type of vehicle: cars, motorcycles, mopeds, lorries and vans, buses, etc.).

Sheet 3

ROAD TRAFFIC ACCIDENT DATA

Accidents with victims

- Total number.
- Relative to the population (per 100,000 inhabitants).
- Relative to the vehicle population (per 10,000 vehicles).
- Relative to the number of vehicles per kilometre of roadway.

Victims

- Total number.
- Number of cases and percentage of total with each level of injury: slight, serious and fatal.
- Relative to the population (per 100,000 inhabitants) for both the total and for each level of injury.
- Relative to the vehicle population (per 10,000 vehicles) for both the total and for each level of injury.
- Number of hospital admissions per road traffic accident.

A person's injuries are considered serious when at least 24 hours of hospital care are deemed necessary. A fatality caused by a road traffic accident is only considered as such when the victim either dies at the scene or within 24 hours of the accident (those deaths which occur more than 24 hours after the accident are not considered road traffic related).

Accidents according to day and time

- Type of day: before a public holiday or weekend, during a public holiday or weekend, after a public holiday or weekend and working days.
- Time of day: morning (6:00am – 1:00pm), afternoon (2:00pm – 9:00pm) and night (10:00pm – 5:00am).

Accidents with pedestrians

- Total number.
- Percentage of total number of accidents.
- Number of injured people (slight and serious), number of fatalities.
- Percentage of each of these with regards previous total.

Accidents on crossroads

- Number of accidents on crossroads.
- Percentage of total number of accidents with victims.

Type of accident

- Number of accidents.
- Percentage of total number of accidents with victims of each type: front/side collision, side collision, head-on collision, rear-end collision (simple, multiple or in convoy), collision with pedestrian and other types.

Victims per accident

- Result of the calculation: number of victims of road traffic accidents / number of accidents with victims.

Fatalities per 1,000 accidents

- Result of the calculation: (number of road traffic accident related fatalities / number of accidents with victims) x 1,000.

Fatality rate (number of fatalities per 1,000 victims of road traffic accidents)

- Global fatality rate: (total number of road traffic accident related fatalities / total number of victims) x 1,000
- Indicators for following vehicle types: cars, motorcycles and mopeds:
  (fatalities caused whilst travelling by car / victims travelling by car) x 1,000.
  (fatalities caused whilst travelling by motorcycle / victims travelling by motorcycle) x 1,000.
  (fatalities caused whilst travelling by moped / victims travelling by moped) x 1,000.
- Indicators for pedestrians:
  (pedestrian fatalities / pedestrian road traffic accident victims) x 1,000.

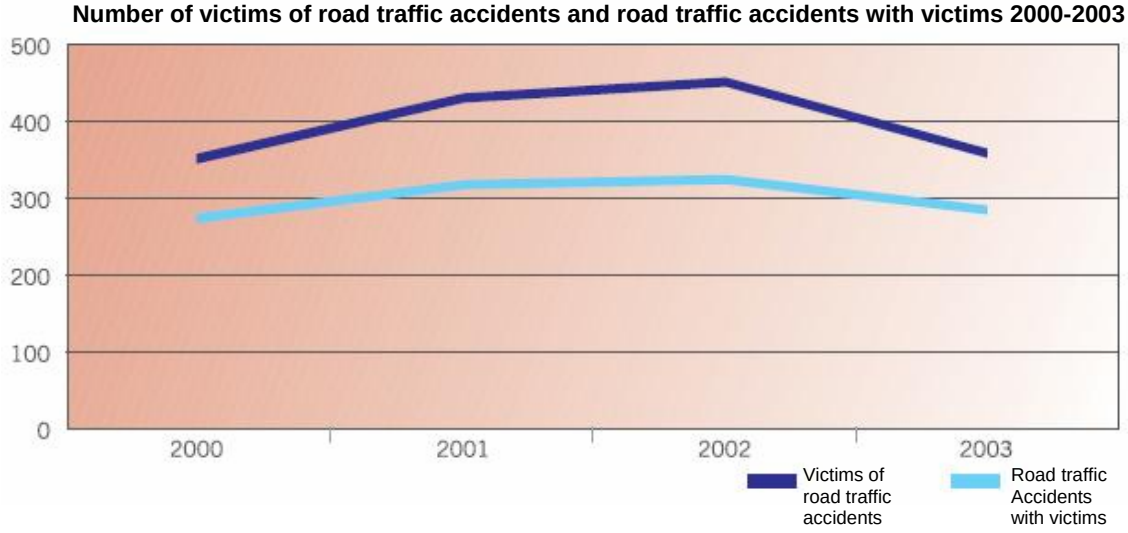
Sheet 4
PROFILE OF VICTIMS
Age
- Distribution of local population according to age group, in percent. - Distribution of victims according to age group, in percent. - Distribution of fatalities according to age group, in percent.
Profile of victims
For each of the previously described age groups and for the total number of victims the following characteristics are included: sex, injury, vehicle used (including for pedestrians), position within the vehicle. In each case, the number of cases and the percentage with regards the total will be shown.
Position of victim within the vehicle
For each sex and type of vehicle, the number of victims and the percentage with regards the total for each of the following positions will be shown: driver, front passenger, rear passenger and other passengers. The total number of victims in each type of vehicle will also be shown.
Use of safety systems
For each sex, type of vehicle and position, the percentage of victims who were using appropriate safety systems (seat belt or helmet) will be shown, along with the percentage of victims for whom this information is not available.

Sheet 5
VEHICLES INVOLVED IN ROAD TRAFFIC ACCIDENTS
- Total number of vehicles involved. - Total number of vehicles with victims in or on vehicle. - Percentage of total number of vehicles involved which had victims in or on each type of vehicle: cars, vans, lorries, buses, motorcycles, mopeds and bicycles.

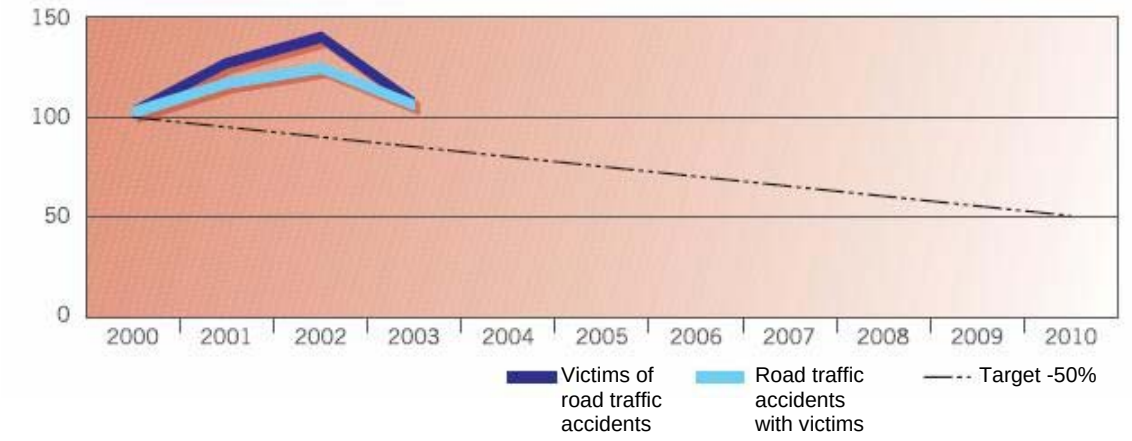
Sheet 6
OFFENCES
- Most common driving offences. - Offences related to the consumption of alcohol or drugs. - Profile of those drivers who caused accidents.

Sheet 7						
ACCIDENT TRENDS						
	...	2003	2004	2005	2002/2005	2004/2005
Population						
Accidents with victims						
Victims						
Slight injuries						
Serious injuries						
Fatalities						
Vehicles						
Accidents with victims per 100,000 inhabitants						
Accidents with victims per 10,000 vehicles						
Victims per 100,000 inhabitants						
Victims per 10,000 vehicles						
Victims per accident						
Fatalities per 1,000 accidents						
Fatality rate (fatalities per 1,000 victims)						
...						

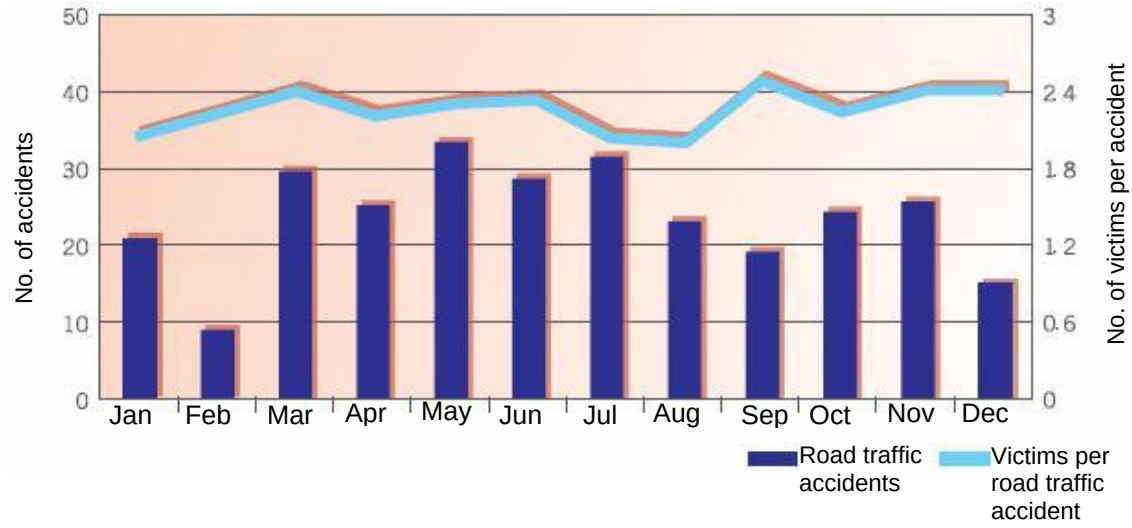
Examples of graphs



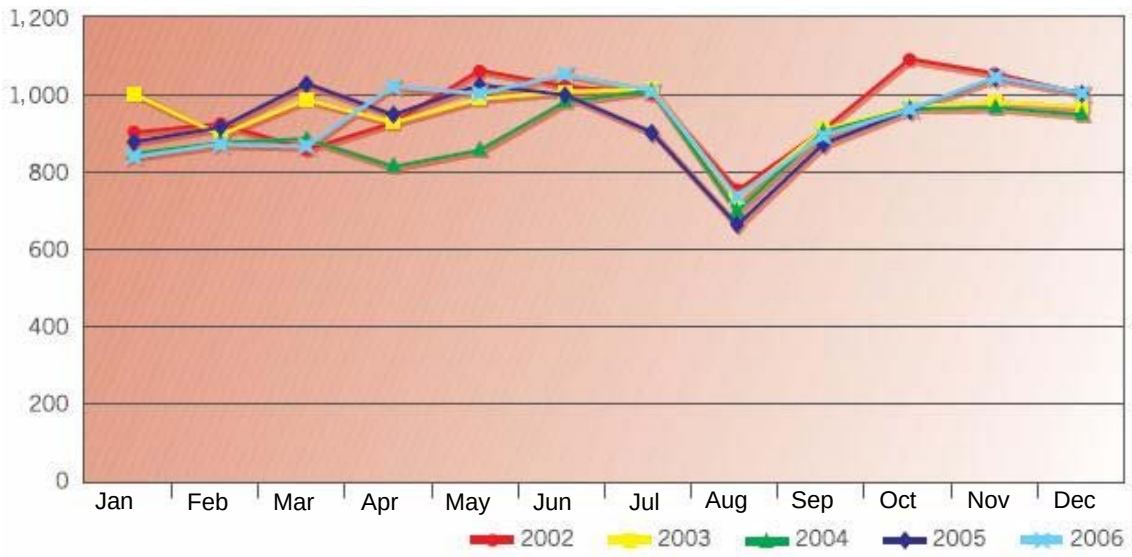
Progress towards the target of a 50% reduction in road traffic accidents and their victims



Number of accidents per month and average number of victims per accident



Yearly and monthly trends of road traffic accidents



Identifying the problems and their causes

The process of describing a municipality allows us to identify the road safety problems that affect it, along with the causes which underlie them. Finding out about the problems and their causes is, therefore, the first step towards solving them. The problems which affect urban road safety are normally of many different types. They may have their roots in urbanistic, regulatory, road design, police or civic issues. It is for this reason that the efforts made in this diagnostic stage are so important, since they allow us to ensure that the definition of the local objectives and the formulation of the proposals for action are headed in the right direction.

Some of the problems that stand out as good examples of what can be detected by the description of the municipality are: the lack of road safety on crossroads, the high number of accidents at pedestrian crossings, the high number of accidents involving cyclists, the lack of public participation in processes designed to improve road safety, the antisocial behaviour of drivers, a high number of accidents involving children, etc.

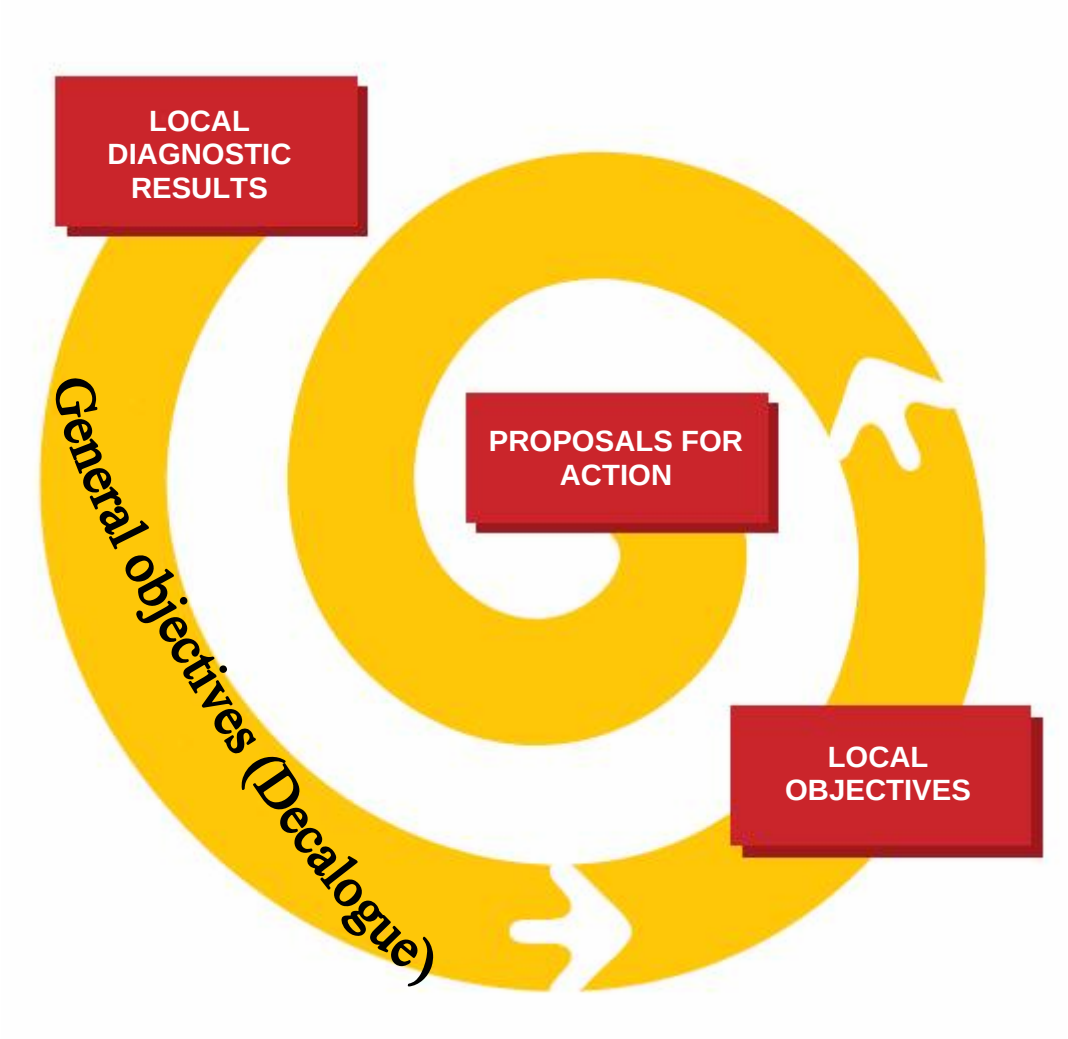
The causes of these problems, for example, would be numerous: the poor distribution of public space, the lack of police control to prevent offences, the lack of safe routes for schoolchildren, the lack of tracks or lanes for cyclists in the city, the lack of adequate signposting and road markings, the excessive speed of drivers, the lack of traffic lights, a public space which is excessively dedicated to motor vehicles, an obsolete or badly maintained vehicle population, poor public transport, insufficient pavements, antisocial behaviour on the part of drivers, lack of road safety education, etc.

Examples of road safety problems and their most common causes

Example problems	Possible causes
High number of accidents involving children.	Lack of safe routes to schools.
Pedestrian crossing accidents.	Lack of traffic lights, inadequate road designs, excessive vehicle speed and/or insufficient signposting and road markings.
Excessive speed and antisocial behaviour on the part of drivers.	Lack of police control, inadequate signposting and road markings and/or lack of effective local regulations.
High number of accidents involving cyclists.	Lack of cycle lanes and/or unsafe cycle lanes.
High number of accidents at junctions.	Unsafe road design, unsuitable speeds, irresponsible driving...
Lack of safety for pedestrians and high numbers of accidents involving pedestrians.	Lack of safe areas for pedestrians and people with limited mobility.
High number of victims of two-wheeled vehicle accidents.	Excessive speed on the part of the drivers, roadways which do not allow for the coexistence of cars and motorcycles, irresponsible driving on the part of motorcyclists...

Defining the local objectives

Once the problems affecting the municipality and their causes have been identified, the results obtained should be adapted to the general objectives already set down in order to accurately define those aspects which require special treatment (local or operational objectives). Ultimately, we are dealing with the local government's declaration of their intentions with regards urban road safety, which, quite naturally, must receive the full support of all of the local social agents.



The local operational objectives must therefore be specific and free from any vague definitions which may leave room for digressions. Each one of these objectives, however, must also be in line with the ten general objectives previously set down (*areas of action and objectives*), since these are what constitute the basic strategic framework around which an urban road safety plan is built. Some of these local objectives, however, may be of a transverse nature, being connected to two or more of the general objectives.

Some examples of local operating objectives might be:

- To increase the amount of public space dedicated to pedestrians (General objectives 1 & 4).
- Decrease the number of driver and passenger victims of two-wheeled vehicles (General objective 2).
- Decrease the number of collisions with pedestrians and cyclists (General objective 4)
- Improve local care for those people with disabilities resulting from urban road traffic accidents (General objective 5).
- Improve the collection of urban road traffic accident data (General objective 6).
- Increase controls against speeding, failure to use safety devices, the use of mobile phones and drink driving (General objective 10).
- Etc.

2.2 Formulating the proposals

Stage 1 Diagnostic	Stage 2 Formulating the proposals	Stage 3 Creating the action plan	Stage 4 Evaluating the action plan

The aim of the diagnostic process is to achieve the formation of a set of proposals that put into practice the working objectives taken on by the local administration. These proposals must also be in keeping with the objectives of the European Commission and the National Road Safety Plan (Plan Nacional de Seguridad Vial) in order to make headway in reducing the number of accidents and improving urban road safety.

A set of proposals for action are described below by way of example, which must be interpreted as a guide for the local technicians and politicians responsible so that they can define the action that their town council must take in order to advance in the improvement of urban road safety, using as a starting point the proposed local working objectives.

Due to the fact that many of the objectives are transversal, and belong to various fields, the list is open, rather than divided up according to objectives. Maintaining this transversal concept, and extending it to the administration of the municipal itself, guarantees a greater degree of effectiveness and offers more guarantees of success, despite the fact that initially it may pose more complications and obvious difficulties when it comes to dealing with the problems and their causes.

The list of proposals is also sufficiently extensive so that the editors and executors of the plan have a wide range of possibilities and options with which to construct the document, and are able to recognize the need to approach the accident rate on the roads from a trans-disciplinary and multi-factorial perspective, reflecting the reality of the situation.

It must therefore be taken into account that while the areas of action and objectives are specific to particular sectors, the proposals for action are usually of a transversal nature, since they relate to two or more objectives at a time.

Areas of Action and Generic Objectives			
1	The design of public spaces and signposting	Ensure the fairer sharing of road spaces and improve street designs and road signposting in order to guarantee the coexistence of all the different transport systems.	Proposals for local action (transverse)
2	Traffic and the coexistence of the different means of urban transport.	Ease traffic and promote more sustainable means of transport and travel systems.	
3	Road traffic accidents involving two-wheeled motor vehicles.	Reduce the number and the consequences of accidents involving two-wheeled motor vehicles (motorcycles and mopeds).	
4	Mobility of the most vulnerable user groups	Increase protection for pedestrians (in particular for children and the elderly), cyclists and people with limited mobility.	
5	Surveillance and control of traffic violations and their causes.	Take action against the lack of road discipline and violations through surveillance and control.	
6	The health and social care provided for victims of road traffic accidents.	Improve the health and social services for those affected by traffic accidents and consider urban road safety as a matter of public health.	
7	The study of mobility and urban road traffic accidents.	Introduce monitoring systems to improve the collection and analysis of information about mobility and urban road traffic accidents.	
8	Training and information on urban road safety.	Act within the area of training and educating citizens in order to instil the values of road safety in all areas of society.	
9	The coordination and collaboration between administrations.	Boost coordination and collaboration between the responsible high-level institutions and organizations.	
10	Social participation in urban road safety.	Encourage social participation and public debate about local mobility and urban road safety and boost local agreements.	

From this transversal and trans-disciplinary focus point, some **examples of action proposals** that local councils can use as base material during the elaboration of their urban road safety plans are outlined below. Each of the action proposals also considers a **set of actions** that the local administrations should take on as their own.

Examples of proposals for action for the elaboration of the Urban Road Safety Plan (Plan de Seguridad Vial Urbana)

PROPOSAL 1
Study, improvement of the urban road network and the organization of the roads into a hierarchy

PROPOSAL 2
A safer and more sustainable organization and regulation of traffic

PROPOSAL 3
Improvement of signposting and road markings

PROPOSAL 4
Road protection for the most vulnerable groups of citizens

PROPOSAL 5
Road safety services in companies and in professional mobility

PROPOSAL 6
Improvements in safety for users of motorcycles and mopeds

PROPOSAL 7
Promotion of urban public transport

PROPOSAL 8
Creation of instruments and improvements in the information available on accident prevention

PROPOSAL 9
Improvements in the attention given to victims of accidents and their evacuation

PROPOSAL 10
Creation and establishment of systems of information on urban accident rates

PROPOSAL 11
Diffusion of municipal acts with regards to mobility and road safety

PROPOSAL 12
Increase in police control of traffic violations and the monitoring of the application of sanctions

These proposals and associated example actions are outlined below.

PROPOSAL 1
Study, improvement of the urban road network and the organization of the roads into a hierarchy
An inadequate road and signposting design have a direct impact on urban road safety, and can constitute a source of accidents: badly designed roundabouts, the locating of pedestrian crossings in dangerous places, junctions with poor visibility, etc. By means of a study of the roads we can identify urban development and road design problems that have an effect on mobility and safety, and, from this basis, define the hierarchy of the roads, their principal use, the speed limit, and the most adequate road design, among other aspects. The urban public space is, moreover, a place where citizens coexist and is not just a network of roads for the exclusive use of motor vehicles. For this reason, the planning and administration of this space demands an in- depth knowledge of the usual travel habits of those people who reside in a municipality, and those who visit for work- related reasons, study, leisure, etc. The final objective must be to improve road safety, advancing towards a more balanced distribution of the streets in which the different methods of transport can coexist in a satisfactory way.
Examples of associated actions
· Organize the local road network into a hierarchy. Define a basic network of roads for traffic and devise a plan of phases for the setting in motion of signposting of the secondary and / or local network. · Plan in detail the actions to be carried out and their timetable, and carry out, on the basis of the compiled accident data, a plan for the improvement of black spots, establishing the possible priorities for action. · Improve the layout of roundabouts, traffic islands, lanes, junctions and those zones with a particular risk of accidents. · Establish agreements with the rest of the administrations with regards funding. · Devise a plan of streets with a reverse priority (environmental zones), or with a very low speed limit (10 kph zones, 30 kph zones, etc.), with specific access signposting, parking restrictions, zones adapted for loading and unloading etc, in the network of residential streets. Regularly revise the state of the road surface and the existing signposting, in particular warning and right of way signs as well as the correct functioning of traffic lights.
Areas of action
1. The design of public space and signposting.  2. Traffic and the coexistence of the different means of urban transport.  4. Mobility of the most vulnerable groups.  9. The coordination and collaboration between administrations. 

PROPOSAL 2

A safer and more sustainable organization and regulation of traffic

The road safety of drivers depends, to a large extent, on that the movement of traffic is produced in an orderly manner and with considerable, early visibility. Similarly, this order influences the safety of the other users of the public spaces since safer, well regulated traffic, at a suitable speed, helps to lower the probability of an accident at those points where cars meet other means of transport or travel systems.
Likewise, one of the most frequent causes of accidents in urban areas is inappropriate speed, especially on those roads where there is no physical element that limits such excesses: speed bumps, roundabouts, etc. For this reason, the first step towards reducing the speed of vehicles and making progress in the improvement of traffic is to define the most appropriate speed for every kind of road, thinking not only of improving the traffic flow but also in guaranteeing the coexistence of all the means of transport and, in particular, the safety of the most vulnerable groups. The second step is to generate administrative or infrastructural mechanisms that guarantee their compliance.

Examples of associated actions

- Devise a plan for the organization of traffic (between different movements of vehicle traffic, and between different movements of vehicles and pedestrians) to minimize the number of junctions that are dangerous or not regulated.
- Ensure, with the regulation of traffic lights and their synchronization, that drivers do not increase their speed above the limit in order to cross a junction before the traffic lights turn red.
- Regulate the junctions of the basic network with traffic lights, at least at those points where pedestrians or bicycles cross the main network.
- Define itineraries that reduce private car traffic and heavy vehicles in central streets and those with a greater pedestrian usage.
- Introduce speed reducing elements: roundabouts, traffic lights, speed ramps, sleeping policemen, rumble strips, road surface design, etc.
- Install technologically controlled elements (cameras to regulate compliance with traffic lights and speed cameras, radars, etc.).

Areas of action

2. Traffic and the coexistence of the different means of urban transport. 
4. Mobility of the most vulnerable groups. 
9. The coordination and collaboration between administrations. 

PROPOSAL 3
Improvement of signposting and road markings
The ongoing maintenance of signposting, especially with regards to regulatory signs, must be a part of urban development improvements, and be correctly installed, be visible to drivers and free of any element that impedes their legibility or visibility. Similarly, road markings must be in a good state of preservation, and therefore their renovation must be anticipated before the guarantee expires. It is also necessary to ensure the visibility and good working order of traffic lights during the established timetable.
Examples of associated actions
Maintain signposting in good condition and guarantee good visibility for drivers (ensuring that no tree branches or other elements on the public road hide the signs). Maintain road markings in good condition, especially pedestrian crossings, bicycle lanes, and spaces dedicated to collective public transport. Ensure, with the regulation of traffic lights and their synchronization, that drivers don not exceed the speed limit in order to cross a junction before the lights turn red. Regulate the junctions of the basic network with traffic lights, at least at those points where pedestrians or bicycles cross the main network. Supervise the signposting of road work.
Areas of action
1. The design of public space and signposting.  2. Traffic and the coexistence of the different means of urban transport.  4. Mobility of the most vulnerable groups.  9. The coordination and collaboration between administrations. 

PROPOSAL 4
Road protection for the most vulnerable groups of citizens
Pedestrians, especially children and the elderly, cyclists and people with limited mobility are the most vulnerable groups when faced with motor vehicles, and so they require a specific treatment that allows for their protection. With an eye to prioritising action, two questions must be considered: the protection of the basic pedestrian/ cyclist network, and the improvement of those points that have a high accident risk where pedestrians are involved. For this reason, it is fundamental that the planning and administration of public space give priority to these citizens, given that, as well as moving around in a sustainable way, along with users of collective public transport they represent the majority of users of public road space, although it might seem that drivers of private vehicles are the majority group. One of the fundamental questions that has to be taken into account in the typical road safety plan is the mobility of children and young people who travel daily to educational institutions. School routes are, in this sense, an adequate option to guarantee the safety of this group, and guarantee that drivers of motor vehicles respect them. In order to create them, however, there are two questions that must be taken into account: on one hand, knowledge of the mobility norms of schools, and on the other, the detection of deficiencies in the infrastructure of the roads habitually used by children.

Examples of associated actions

In general, to determine particularly conflictive points: pavements that do not have the minimum width, obstacles situated in the road which make pedestrian circulation difficult, obstacles that impede visibility for crossing the road, points where a basic traffic road and an intense flow of pedestrians converge where there is no specific protection for the pedestrian, and roads where the coexistence of vehicles and cyclists is difficult.

Pedestrians

- Define a basic safety network for pedestrians (including pedestrian crossings on the basic roads) that allow the start and end points of journeys on foot to be linked.
- Carry out a plan for the location of pedestrian crossings.
- Construct pavements with a minimum width of between 2 and 2.5 m, free of obstacles, to offer pedestrians a safe mobility.
- Prevent the total or partial parking of motor vehicles in spaces dedicated to pedestrians.
- Protect and adapt the natural walking itineraries- that is to say, those that citizens spontaneously use to cross roads- using rails or other protective elements.
- Situate traffic lights in front of pedestrian crossing in order to prevent vehicles from invading this space and reduce the risk of collisions with pedestrians.
- Install traffic lights with adjustable cycles to be able to adapt the timing of the traffic lights to the flow of vehicles and the presence of pedestrians.
- Create safe school routes

Cyclists

- Create a network of cycle lanes that allows the safe mobility of users of this kind of urban vehicle.
- Physically separate cycles lanes from pavements using kerb s, rails, or whatever other effective system that prevents cyclists from invading the space reserved for pedestrians.
- Devise a plan that intersperses stretches of cycle lane in the road network that facilitate and achieve a safer communication for cyclists.
- Take a particular note of safety on the routes to educational institutions in order to promote safe use of bicycles.
- Devise a signposting plan for non- regulated crossovers between cyclists and drivers.
- Prevent the parking of vehicles in cycle lanes.

People with limited mobility

- Eliminate from the pavements those obstacles that could impede the safe mobility of people who get around in wheelchairs, who are elderly, or who have either limited vision or are blind.
- Adapt pedestrian crossings and traffic lights so that these people can cross the streets with less difficulty.
- Ensure that vehicle users do not stop or park in zones where they then causes difficulties, or prevent, the passage of people who have some kind of disability.

Areas of action

The design of public space and signposting. 

1. Traffic and the coexistence of the different means of urban transport. 

4. Mobility of the most vulnerable groups. 

8. Training and information on urban road safety. 

9. The coordination and collaboration between administrations. 

PROPOSAL 5
Road safety services in companies and in professional mobility
Every year in Spain there are more than 40,000 road accidents that are “work related” (40% of the total), in which nearly a thousand people die. These accidents occur *in labore*, that is to say, working, or *in itinere*, travelling to or from the workplace. Ministry of Development (Ministerio de Fomento) (Movilia survey) statistics suggest that the number of journeys *in itinere* is around 30,000,000, a number which highlights the weight that the mobility of workers has in the total citizen mobility, and it explains the social, environmental and economic impact which it supposes for the Spanish state (Conjunto del Estado).
Examples of associated actions
· Promote mobility and road safety plans in industrial estates. · Promote mobility and road safety plans in public administration workplaces. · Encourage the treatment of mobility and road safety in companies´plans for safety in the work place. · Promote specific road safety plans and training programmes in professional collectives: messengers, fast food deliverers, taxi drivers, drivers who transport travellers, activities that involve loading and unloading, construction on public roads, etc.
Areas of action
7. The study of the urban road mobility and accident rate. 8. Training and information on urban road safety. 9. The coordination and collaboration between administrations.

PROPOSAL 6

Improvements in safety for users of motorcycles and mopeds

Users of motorcycles and mopeds are one of the groups most at risk of an accident, due to the speed and intensity of traffic, and their fragility when faced with more compact motor vehicles, which reduce the level of their safety.

According to General Directorate of Traffic statistics, 18% of the deaths in traffic accidents in the year 2005 were users of two- wheeled vehicles, and 23% of those who died were not wearing a helmet. There were more than 17,600 accidents involving motorcycles (19% of the total accidents), and the majority took place in urban areas (81%). Motorcycles were involved in more than 12,300 accidents (13% of the total), 69% of which were produced in an urban environment.

These statistics reinforce the necessity of active intervention in the motorcycle and moped accident rate, and for this reason urban road safety plans must consider specific action for this kind of vehicle, even more so if it is taken into account that the age group most affected id young people between the ages of 15 and 34.

Examples of associated actions

- Plan the parking of motorcycles and mopeds in the road.
- Widen the roads to create a better coexistence between private cars and motorcycles/ mopeds.
- Carry out awareness raising campaigns aimed at private car drivers on the vulnerability of other collectives.
- Control noise levels, emission levels, and motor tuning.

Areas of action

3. The accident rate of two- wheeled motor vehicles.
5. The monitor and control of traffic violations and accident rate.
7. The study of the urban road mobility and accident rate.
8. Training and information on urban road safety.
9. The coordination and collaboration between administrations.

PROPOSAL 7

Promotion of urban public transport

The excessive use of private vehicles for urban journeys contributes to the increase of congestion and a higher accident rate. The public space which pedestrians and public transport use is 100 times less than that occupied by cars and urban car parks. For example, for every passenger carried, a bus requires 5% of the space used by a car.

However, in order to get collective public transport to incorporate new users at the expense of mobility in private motor vehicle, it is necessary for town council administrations that count on urban transport- in collaboration with high- level institutions in big, metropolitan, cities- to analyse the mobility habits of citizens to establish a quality network that permits the reduction, or even the elimination, of car journeys.

Moreover, the dispersion of the urban fabric in muni9cipalities has created a segregation of uses and activities that has promoted private car use and increased the number of journeys, with a resulting increase in the risk of a road accident. Consequently, it is even more necessary to provide municipalities with a public transport system that is capable of connecting residential zones, shopping and leisure centres, industrial estates, etc. in order to avoid the growing dependence on cars. Similarly, the local administration must create or improve taxi fleets, whose correct use also contributes to the decrease in the use of private vehicles.

Examples of associated actions

- Carry out a preliminary study of the actions to improve collective public transport.
- Give priority to the administration of mobility, establishing bus lanes and ensuring that bus stops are free of stationary vehicles, also giving public transport priority at traffic lights and constructing sufficiently wide pavements in the area surrounding these bus stops.
- Promote public transport among workers and provide adequate services to centres of economic activity and leisure.
- Restrict and regulate the private parking on offer, favouring residents and a rotation system, and promoting the use of public transport.

Areas of action

2. Traffic and the coexistence of the different means of urban transport.
7. The study of the urban road mobility and accident rate.
8. Training and information on urban road safety.
9. The coordination and collaboration between administrations.

PROPOSAL 8

Creation of instruments and improvements in the information available on accident prevention

In practice, the human factor always plays a part in the total accident rate to a lesser or greater extent. For this reason, insisting on the responsibility and the risks involved in the use of a vehicle when raising awareness in the population is a basic factor in road safety. Although the results are not seen immediately, this is not a reason that should detract from the importance of this part of the plan.

Road safety must be a subject in which the whole of society feels involved, not just the authorities and the local police, etc., but also civil society. In order to guarantee a correct education for all citizens with regards to mobility, it is necessary to deal with the subject from the most initial phases of education to the most advanced. The local environment is, in this sense, the most adequate for carrying out prevention work in the communal environment.

The General Directorate of Traffic, other administrative organizations, and/ or private bodies have published various materials on mobility and urban road safety. The compilation of this material permits the creation of an information base and the detection of those aspects that demand the elaboration of new material. The actions in the field of information and the circulation of advice and best practices also take in other fields, from establishing a close collaboration with general campaigns, to carrying out campaigns which are strictly local, specifically directed at bad habits that have been detected in drivers.

Examples of associated actions

- Carry out information campaigns about the collective social impact and effects on the individual that the accident rate has, in collaboration with education institutions and youth associations in the local area.
- Conduct acts of direct communication aimed at urban professional drivers (pizza delivery drivers, taxi drivers, driving instructors, lorry drivers- loading and unloading, bus drivers, etc.).
- Collaborate with bodies related to mobility and road safety (insurance companies, automobile associations, etc.).
- Compile published material related to road safety and mobility and exchange them with other municipalities through collective agreement.

Areas of action

6. Sanitary and social services for victims of traffic accidents. 
7. The study of the urban road mobility and accident rate. 
8. Training and information on urban road safety. 
9. The coordination and collaboration between administrations. 
10. Social participation in urban road safety. 

PROPOSAL 9

Improvements in the attention given to victims of accidents and their evacuation

The reduction of the tie it takes support services to attend a traffic accident greatly reduces the consequences of the accident. For this reason, the urban road safety plan must bring about improvements in communication systems in emergency situations that permit a rapid and effective response to injured people at the scene of the accident and an urgent transfer to the nearest hospital or health centre.

An initiative which is being developed in Europe at the moment and which it would also be convenient to introduce in Spain- at least in big cities- is the creation of offices for attending to traffic accident victims. These offices can be administrated in collaboration with the town hall and other administrations, and collaboration with other private bodies and foundations that have their field of work or area of influence within the local population is also recommended. – this measure would complement the various action programmes drawn up by the local council, facilitating the relationship between those affected by traffic accidents and the administration.

Examples of associated actions

- Design and implement protocols for rapid action in the case of an accident, and establish a minimum time for the arrival at the scene of the accident.
- Create an office for the attendance to victims and their relatives, and devise a protocol for communication of news to the families of victims.
- Publish informative material on the administrative, legal and health service aspects.
- Devise a protocol for coordinated action of all the emergency services: 112, police, ambulance, accident and emergency, fire service, break down and recovery services, sand cleaning and conservation services.
- Organise annual meetings between the emergency services.
- Define and adapt best itineraries for emergencies (rapid access to hospitals).
- Carry out information campaigns on the individual and collective social effects of the accident rate.

Areas of action

6. Sanitary and social services for victims of traffic accidents.
7. The study of the urban road mobility and accident rate.
8. Training and information on urban road safety.
9. The coordination and collaboration between administrations.

PROPOSAL 10

Creation and establishment of systems of information on urban accident rates

In order to carry out a correct diagnostic of the level of the urban road traffic accidents in a municipality, and define the objectives for short-, medium- and long- term action, a system for systematic data collection must be available which is reliable and in keeping with a scientific systematic method.

It is essential that data on accidents in urban areas is available to the state, and for that reason that corresponding statements are taken for every accident that occurs in the area these statements being adjusted within a comparable methodology. It is assumed that currently only between a third and half of these events are detected by the local police and are known about by the traffic administration. As a supporting instrument to data collection relating to the urban accident rate, it is advisable to design or incorporate a computer application that permits an effective administration of this information.

It must be taken into account, however, that gathering all the various types of data related to the urban accident rate can be very complicated, especially in those accidents that are not particularly serious where nobody is injured and there is only damage to property, which do not require the presence of agents from the authorities or health services. It is the actual traffic legislation itself, specifically section e) of article 129.2 of the Traffic Regulations (Reglamento de Circulación) (RD 1428/ 2003, of 21 November), which establishes the obligation, in the case of an accident, to advise the authorities or their agents if it appears that the injury or death of any person has occurred.

Examples of associated actions

- Carry out a normalized and exhaustive registration of all accidents of any kind that occur in each municipality, with the objective of optimising studies of accident rates in urban zones.
- Introduce a computer application that allows the administration of all data and their statistic treatment- graphic and cartographic- and centralise all the relevant information related to accidents and injuries in a single database.
- Anticipate the necessity of an additional data mining system in order to find out the most frequent kinds of events, confidently decide which action needs to be taken, and communicate the results to the population.
- The completion of accident reports by the local police for the administration responsible, and the processing of these reports to the appropriate administration.
- Use other sources of information apart from police sources, such as hospital admissions (the nature and seriousness of injuries).
- Promote the participation of social agents which can collaborate with administrations to optimise information systems.

Areas of action

7. The study of the urban road mobility and accident rate. 
8. Training and information on urban road safety. 
9. The coordination and collaboration between administrations. 
10. Social participation in urban road safety. 

PROPOSAL 11

Diffusion of municipal acts with regards to mobility and road safety

The controls carried out by local police have the intention of achieving greater road safety, especially in relation to inadequate or excessive speeds, right of way, and passive safety (the use of a helmet, seat belt, child seats, etc.).

Similarly, it is also important that maximum diffusion of the results of the road safety plan, or the activities of debating forums, is carried out. In order to strengthen the commitment of every citizen, it is advisable that the politicians and technicians responsible for this appear before public opinion, explaining the philosophy behind the obligations taken on by the corporation of debating forums, is carried out. In order to strengthen the commitment of every citizen, it is advisable that the politicians and technicians responsible for this appear before public opinion, explaining the philosophy behind the obligations taken on by the corporation and that they make these obligations extendable to the population as a whole.

These actions, insofar as is possible, must be presented in press conferences called by the consistory periodically and with the necessary frequency. In this way, a positive effect on the public can be achieved, taking advantage of particularly appropriate times such as the start of the school year, holiday periods, etc. The action taken on providing informative material regarding the roads to all groups must also allow participation, and so the most adequate mechanisms must be set out in order to achieve this goal. Local media must be actively involved in the diffusion of preventative messages.

Examples of associated actions

- Devise a plan for diffusion of information through the media.
- Define a specific thematic programme that reinforces the behind-the-scenes work which goes on all year round in order to control compliance with traffic regulations.
- Explain the action plan in the periodical public interventions and present the safety plan, the results, etc. (press conferences, publications, etc.).
- Diffuse information and preventative messages by means of the local media.
- Publicise and announce the different actions that are carried out locally.
- Facilitate access for citizens to application forms related to road safety, and open debate forums.
- Define the tools and lines of communication between administrations and citizens.

Include road safety in mobility agreements.

Areas of action

8. Training and information on urban road safety.
9. The coordination and collaboration between administrations.
10. Social participation in urban road safety.

PROPOSAL 12

Increase in police control of traffic violations and the monitoring of the application of sanctions

Practically all accidents are the product of non-compliance with traffic regulations. In other cases, the non-compliance with these rules increases the consequences of the accident (not having passive safety elements available). The main violations that are committed are failing to use a helmet, and the inadequate use of a seatbelt in the back seats of vehicles in urban zones.

For all these reasons, the control over compliance with legislative measures regarding road safety must be increased: the control of speed by means of radar, detection and control of the consumption of drugs, medication, and alcohol, the use of passive safety elements, etc. Independent of the permanent controls carried out by local police, the plan must establish systematic controls for particular aspects of indiscipline on the roads, principally regarding those violations where levels of non-compliance higher than those outlined have been recorded. Local police must analyse which kinds of road safety violations are most common in the population, with the aim of exercising a more effective control over this kind of behaviour.

On the other hand, advances must be made in the effective application of sanctions, since a great number of violations committed in the urban environment go unpunished due to the incapacity of local administrations to ensure that these sanctions take effect. Granting the local police the ability to communicate the suspension of a driving permit or license would pass on to society a sense of control that would reinforce road safety in terms of a strict compliance with the agreements adopted. Above all, this aspect would become more relevant in smaller municipalities, since the control would be much more effective.

Examples of associated actions

- Define an action plan that includes police reports and offers drivers information regarding the reasons for the action taken and the effect that non-compliance with this action might have.
- Avoid the surrender of responsibilities with regards to police control and the application of sanctions. If fines are not effective, the local police lose authority.
- Adapt the sanction to the magnitude of the violation, apply the same sanctions to all citizens, and administrate the recovery of fines of all violations.
- Elaborate a list of the most serious road safety violations, in which it might be useful to highlight: the use of helmets and seatbelts, excessive speed, the consumption of drugs, medication or alcohol, the use of mobile phones, non-compliance with vehicle inspection tests, etc.
- Devise a plan for the introduction of technological elements for the compliance with traffic regulations: radars, traffic light camera controls, etc.
- Optimise the administrative processing of fines in order to guarantee their recovery.
- Collaborate with the rest of the administrations to avoid impunity regarding urban fines.
- Grant the police the ability to communicate the suspension of driving permits to the perpetrators of particular kinds of traffic violations.

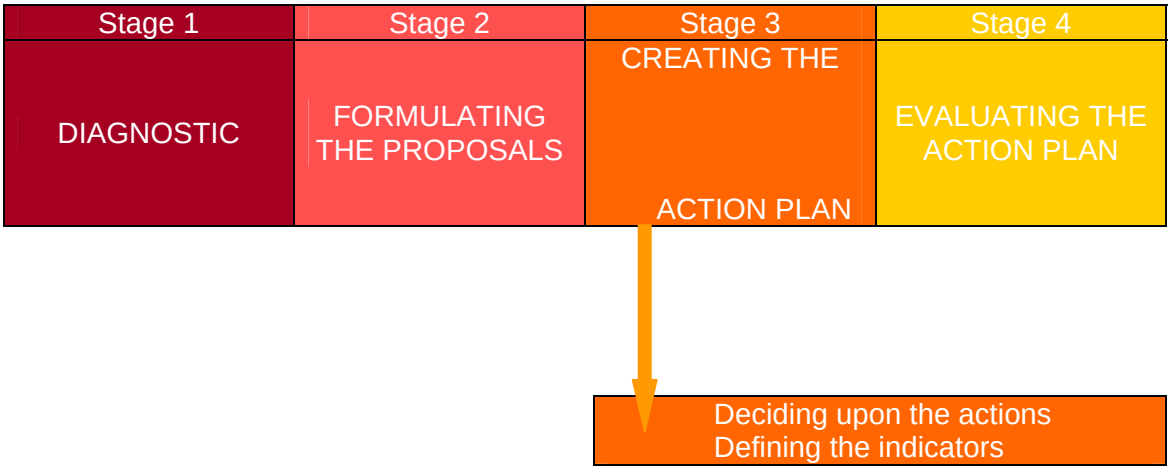
Areas of action

2. Traffic and the coexistence of the different means of urban transport. 
3. The accident rate of two-wheeled motor vehicles. 
5. The monitoring and control of traffic violations and their causes. 
8. Training and information on urban road safety. 
9. The coordination and collaboration between administrations. 
10. Social participation in urban road safety. 

Priority actions to include in the urban road safety plan

Short to medium term priority actions
Elaborate a road hierarchy and design plan which takes the following road typology into account: access roads, connecting roads, residential roads and commercial pedestrianized roads.
Establish speed reduction measures for motor vehicles in residential and commercial roads.
Construct pavements with a guaranteed minimum width which are free from obstacles in order to increase the safety of pedestrians and people with limited mobility.
Regulate the timing of traffic lights for pedestrians and people with limited movement so that they have enough time to cross.
Establish cycle lanes, improve their protection and the protection of zones of conflict with pedestrians.
Revise and improve urban signposting to ease traffic and guarantee the safety of the higher risk groups.
Sanction the failure to use a helmet with two-wheeled motor vehicles (motorcycles and mopeds) and immobilize the vehicles of those motorcyclists who have been sanctioned.
Sanction the inadequate use of seat belts and child seats.
Systematically control the levels of drink driving of drivers.
Establish legal measures to speed up the recovery of fines through collaboration with high-level institutions.
Create safe school routes for those children who travel to school on foot, by bicycle or by public transport.
Continuously revise road works signposting.
Prevent the partial or total parking of motor vehicles in spaces dedicated to pedestrians and cyclists.
Promote mobility plans for industrial estates.
Regulate goods transport in urban areas.
Undertake **awareness raising campaigns** for car drivers with regards the vulnerability of the other groups of road users, particularly in school zones and with high-risk groups.
Undertake **campaigns to increase the use of helmets and seat belts**, especially for children.
Design and implement quick **action protocols** in the case of urban road traffic accidents.
Set up a **statistic register of road traffic accidents** in the municipality and centralize them in a single database.
Conduct acts of direct communication aimed at **urban professional drivers** (pizza delivery drivers, taxi drivers, driving instructors, lorry drivers -loading and unloading, bus drivers, etc.).
Promote a **municipal agreement for sustainable mobility and road safety**.

2.3 Creating the Action Plan



Once the local operating objectives have been defined and agreed and the actions which the municipality wishes to carry out in order to achieve them have been proposed, it is necessary to clear up many questions concerning the successful operation and progress of the Urban Road Safety Plan (Plan de Seguridad Vial Urbana).

A declaration of intentions does not resolve any of the problems by itself. Instead, it must be accompanied by the resources needed to get the planned actions going and by a realistic calendar of actions which does not lead to disappointment half-way through due to an excessive and unrealistic initial push. For this reason, it is recommended that initial efforts are concentrated on a few actions which can be developed at full strength, and in line with the agreed time intervals.

This procedure is known as an Action Plan, and it is vital that it has the support of all of the involved external agents and of all of the departments of the local administration.

Deciding upon the actions

The plan should schedule the actions which are associated to each proposal and draw up budgets which guarantee their financing, application and effectiveness. This effort should be accompanied by the appointment of personnel who have the necessary training and experience and who can dedicate all or a large part of their time to the implementation of the actions and to their subsequent monitoring and evaluation.

In finalizing the actions, the external agents who will take part in them, their period of execution and the material resources required for their completion should also be considered. Likewise, it is advisable to define those indicators which allow the baseline scenario to be determined and the application of each action and its derived results and benefits to be monitored.

Example of a follow-up sheet for the actions proposed in the Urban Road Safety Plan

Proposed action: Name	
Operating objective(s): **Related areas and objectives (1-10)**	
Description of the action	
Associated actions	Action 1 Action 2 Action 3 ... ... Action n

Action 1, 2 ... n: Name	
Person(s) responsible	
Municipal departments involved	
External collaborators	
Budget	
Financing	
Period of execution	
Material resources	
Social and environmental benefits	
Follow-up indicator(s)	

Action 1, 2 ... n: Name of indicator	
Desirable trend	
Initial value (baseline scenario)	
Final value (end scenario)	

Defining the indicators

To determine the evolution of the actions undertaken within the framework of an urban road safety plan, as well as the social, environmental and/or economic benefits that have been achieved, it is necessary to create a list of indexes or indicators which translate the trends into quantitative numeric values. Having a set of indicators at your disposal allows you to evaluate the success of the municipal strategy, revise the general and local objectives and rework the proposals if necessary.

The indicators can be put into groups which are either similar or identical to the 10 areas of action defined as the conceptual base of any urban road safety (master) plan. In any case, the most important thing is that the indicators are easy to calculate, that they provide real rather than superfluous information and that they can be compared between municipalities. Their design, therefore, must facilitate the evaluation and monitoring process, since, if this is not the case, they would become mere pieces of numeric data with no value other than a purely statistical one.

Determining the baseline scenario is vital to have access, whenever possible, to a detailed report of all of the urban road traffic accidents registered in recent years. The General Directorate of Traffic (Dirección General de Tráfico), in collaboration with the autonomous communities, can contribute to the definition of the information collection, treatment and data publication models, in order to provide a combined and interchangeable base which allows for homogonous and well represented information.

In the following pages, some basic indicators which can be initially applied within the Urban Road Safety Plan are proposed. This said, the experience gained from putting the plan into practice will progressively adapt the list to the characteristics and trends of road traffic accidents of each municipality. The following indicators are a selection of the information compiled in the data sheets which describe a municipality (Diagnostic).

The analysis and the transversal reading of this collection of data and indicators allows urban road traffic accidents and the safety levels of the municipality to be described both in detail and simply, and also permits conclusions about a particular population group or victim profile to be drawn.

The value of statistical information

A detailed statistical knowledge of the accidents which have occurred in each municipality is an essential base from which to continuously improve and update the urban road safety plan and -correctly presented, - is the perfect tool with which to raise awareness among local drivers. In order for this to be possible, however, data must be compiled, local accident reports must be duly completed and all of this information must be contributed to the official, central set of statistics, something which is often not done if a systematic and scientific method of data collection does not exist in the municipality.

For the whole Spanish state to have urban road traffic accident data at its disposal it is absolutely vital that, for each accident that occurs, the corresponding statement is completed. The official report must be included and it should be duly passed on to the correct personnel (either of the autonomous region or of the state). It is estimated that currently between a third and half of road traffic accidents are not detected by the General Directorate of Traffic, in some cases because sufficient data is not provided by the local police.

Basic set of indicators (quantitative and qualitative)

Category	Indicators
Accidents with victims	- Total number of accidents. - Per type of vehicle (%). - Accidents / 100,000 inhabitants. - Accidents / 10,000 vehicles. - Accidents / 10,000 vehicles x km travelled.
Number of victims	- Total number of victims. - Victims / 100,000 inhabitants (total, pedestrians, cyclists...). - Victims / 100,000 vehicles (total, pedestrians, cyclists...). - Victims with serious, slight, fatal injuries (% & number / 1,000 accidents). - Female and male victims (% & number / 1,000 accidents). - Children, young people, adults and elderly people victims (% & number / 1,000 accidents). - Victims as a percentage of users of each means of transport (victims using mopeds / number of moped users, for example). - Hospital admissions x 1,000 victims.
Fatality rate	- Global fatality rate: (fatalities / total victims) x 1,000. - Rate per vehicle: cars, motorcycles and mopeds. - Rate per type of user of public roadway: pedestrians, cyclists and people with limited mobility.
Data concerning the accident	- Location of accident: junctions, crossroads, pedestrian crossings... (as a percentage of total). - Day of accident: public holiday or weekend, work day, before public holiday or weekend... (as a percentage of total). - Time of accident: morning, afternoon or night (as a percentage of total). - Type of accident: head-on collision, side collision, collision with pedestrian... (as a percentage of total). - Vehicles and means of transport involved: car, motorcycle, bicycle, pedestrian... (as a percentage of total).
Risk factors	- Vehicles which exceed the established speed limits. - Drivers who do not use the seat belt. - Motorcyclists who do not use a helmet. - Children younger than 12 who do not use child restraint systems. - Drivers with positive BAC. **As a percentage of the total number of vehicles or occupants monitored in daily police work or in prevention campaigns.**

2.4 Evaluating the Action Plan

Stage 1 DIAGNOSTIC	Stage 2 FORMULATING THE PROPOSALS	Stage 3 CREATING THE ACTION PLAN	Stage 4 EVALUATING THE ACTION PLAN

The monitoring and evaluation of road traffic accidents and urban road safety levels should do more than just let us verify the changes -positive or negative,- that have occurred and the success or failure of the completed actions, but should also allow the reformulation of the local operating objectives and the proposals in order to adapt them to the ever changing situation in our cities. In this way, the urban road safety plan should be a living, agile and flexible plan. It must be able to be regularly reviewed and improved, with the active participation of all of the involved municipal departments.

To determine and study the changes occurring to urban road safety within a municipality it is vital, as mentioned earlier, to be familiar with the baseline scenario and to monitor the situation. This is achieved through an easily calculated and interpreted system of indicators.

One must also keep in mind, however, that certain improvements cannot be evaluated through the use of numeric indicators alone. The obtained results should be contemplated from a perspective which is more qualitative than quantitative. For example, the number of school routes introduced, the number of speed reduction measures, roundabouts or traffic lights installed, the total number of traffic lights, the surface area of pavements added, the kilometres of cycle lanes constructed, the number of crossroads or junctions improved, the number of publications published, or the hours spent on road safety education, are all numeric pieces of numeric data which, by themselves, do not provide enough information with which to evaluate the actions undertaken. In other words, they cannot be considered indicators as such although it is true that they show the level of interest that a particular municipality has in making improvements in these areas.

As such, these qualitative steps forward should be indirectly evaluated through correlation with other data. For example, if the number of accidents at junctions progressively drops and the municipality has taken action in this area, the conclusions must take both of these pieces of information into account since, more than likely, they are directly related to one another.

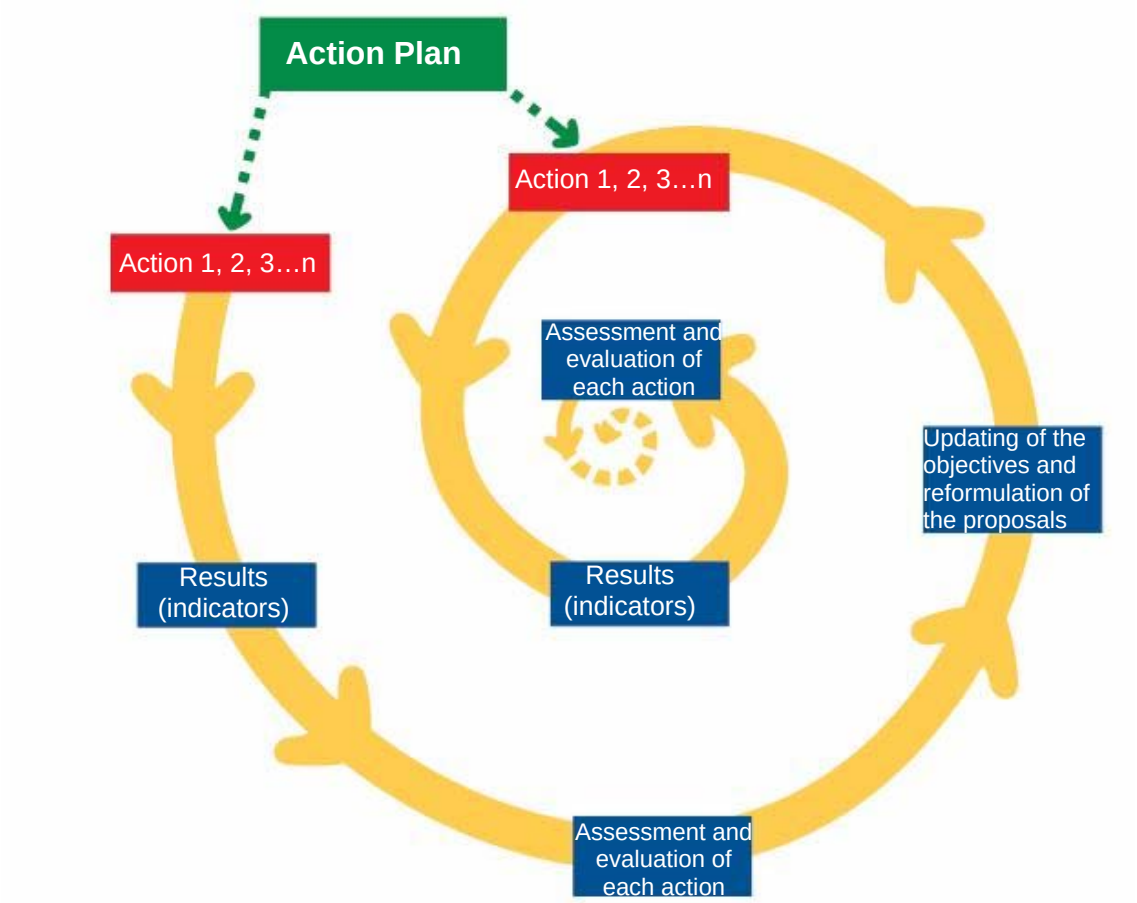
Therefore, although it is true that it is highly recommended to create a solid base of indicators which keep the municipality informed about the success or failure of its interventions, and that some of these indicators provide very valuable, precise information (the number of road traffic accident victims and fatalities, for example), it does not make sense to base the diagnostics of urban road safety problems solely on the analysis of numeric results.

The evaluation of an urban road safety action plan must, therefore, go beyond this analysis and undertake a global assessment which considers:

- the **plan implementation process** on behalf of the various municipal personnel, both at a political level and at a technical one. This assessment should take into account both the level of involvement of the institutions and high-level organizations and that of the local agents and groups connected to mobility and road traffic accidents within the municipality (bodies, companies, unions, neighbourhood associations, etc.).
- the **impact of the measures undertaken** upon urban road traffic accidents, in order to determine the degree of success or failure of the municipal strategy compared to the local operating objectives set down in the local road safety plan.
- and the **results obtained** for each of the actions proposed in the local action plan and carried out. These should be considered not just from a technical point of view but also taking into account the satisfaction level of the general public. The compiled information should ultimately lead to the revision of the local objectives and to their being redefined in order to adapt the action plan to the new scenarios that emerge over time.

Apart from the success of the adopted measures, the assessment of these results must consider the efficiency of the local departments and the external collaborators in reducing road traffic accidents. It is vital, therefore, that this analysis process is carried out from a critical and constructive local standpoint, since its fundamental goal is to make progress in the reduction of urban road traffic accidents and their associated negative impact.

Follow-up and control process for municipal actions



Improving urban road safety is a collective challenge, and can only be achieved with the daily efforts of all of the institutions and the population as a whole.

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