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National Pact for Safe and Sustainable Mobility

National Pact for Safe and Sustainable Mobility

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1 – Safe and sustainable mobility goals

Mobility is part of the global population's daily life and at the same time, the safety of people on the move is a vitally important social and cultural issue that has been addressed by a number of institutional bodies, both national and supranational, over the last few decades, with a special relevance at the turn of the new century.

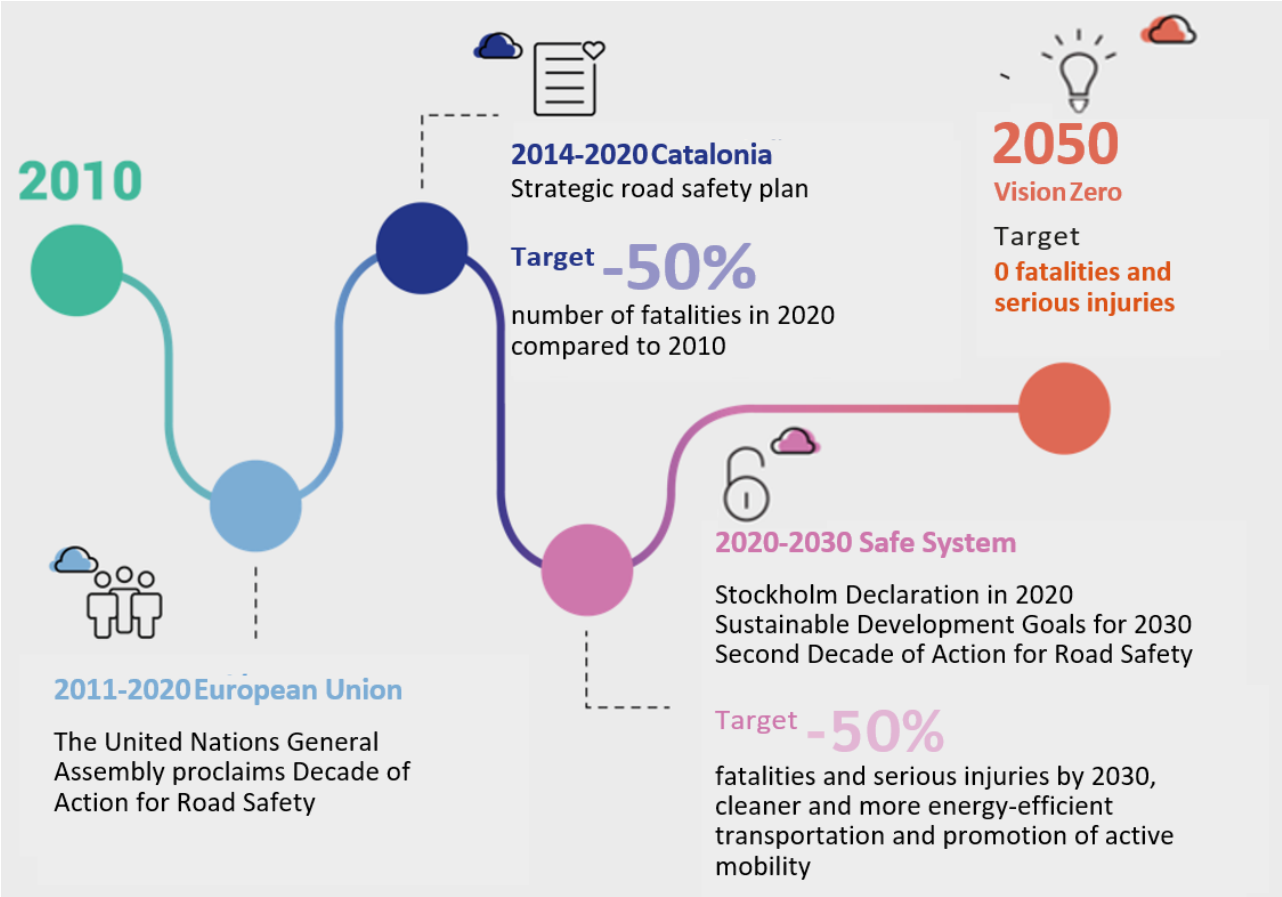
After a certain timeline during which road safety and traffic accidents had been assumed as an unavoidable plague that exceeded one million deaths per year worldwide, administrations' new mandates have been focusing on a change of mentality whereby road safety must be guaranteed in all citizens' commuting.

It is true that in this analysis of the realities of global mobility, at the beginning of the 21st century most commutes still basically revolved around motor vehicles, but as society has evolved, new forms of mobility that coincide with motor vehicles in the same space have been incorporated into the debate.

So we are facing a new scenario that requires action and taking ambitious measures aimed at guiding citizenship towards the so-called Vision Zero, as explicitly stated in the European Union's mandate and in our continental reference, i.e., the total absence of fatalities and serious injuries with lifelong consequences by 2050.

There is a need to ensure safer, more sustainable, active and healthier mobility for all, and that is precisely what the different international, European, federal and national organizations want to achieve by setting goals in this direction.

1.1 Road safety goals



Decade 2010-2020

In 2010, the United Nations General Assembly proclaimed the Decade of Action for Road Safety for the period from 2011-2020, and in 2011 the World Health Organization published the Global Plan for the Decade of Action for Road Safety. Both institutions agreed on the overall goal of stabilizing and subsequently reducing the number of road traffic fatalities by 2020.

At that time, 1.3 million people lost their lives annually in road traffic accidents, and in this regard it should be noted that half of them were not even traveling in a car. In addition, between 20 and 50 million people suffered non-fatal injuries each year as a result of a traffic-related accident, making this a major cause of disability worldwide.0F0F1

It is also important to note that 90% of road traffic fatalities occurred in developing countries, where less than half of the world's registered vehicles are located. The WHO estimates that at the time, motor vehicle collisions had an economic impact of more than US$500 billion (between 1-3% of each country's GDP).

[1] ***Global Plan for the Decade of Action for Road Safety 2011-2020***. *World Health Organization*

The goal of the Global Plan for the Decade of Action for Road Safety was to guide countries and facilitate their implementation of measures aimed at stabilizing and reducing the number of road traffic fatalities. To this end, international coordination was encouraged and state-level activities were proposed based on five pillars:

- Road safety management
- Safer roads and mobility
- Safer vehicles
- Safer road users
- Post-crash response

The Global Plan for the Decade of Action for Road Safety defined a number of indicators to monitor the implementation and outcome of the proposed activities while also stipulating the publication of follow-up reports on a global scale.

Once 2011-2020 was decreed as the Decade of Action for Road Safety, many other institutions set targets to improve road safety. The European Union, in this regard, established the road safety policy framework Towards a European Road Safety Area: Policy Orientations on Road Safety 2011-2020, with the main objective of cutting the number of road traffic fatalities in half.

In the European Union in 2009, more than 35,000 people died in traffic accidents and more than 1.5 million were injured. The European Commission estimated the cost to society at nearly 130 billion euros.1F2

Within the framework of the continent's road safety policy, actions were proposed based on the following strategic targets:1F

- Improved education and training of road users.
- Increased compliance with traffic regulations
- Improved safety of road infrastructure. Safer vehicles
- Promoting the use of modern technologies to increase road safety
- Protection of the most vulnerable road users

[2] ***Towards a European road safety area: road safety orientation and policies*** *2011-2020. European Commission*

The three most relevant actions that the European Commission considered necessary to undertake were as follows:

- Define a structured and coherent framework for cooperation, based on the best practices of all member states.
- Adopt a strategy on injuries and first aid to address the need to reduce the number of people injured in accidents.
- Improve the safety of the most vulnerable road users, in particular motorcyclists.

In 2016, the United Nations General Assembly issued a resolution inviting Member States that had not yet done so to develop and implement national road safety plans. In this document, it specified that the number of people killed annually in road traffic accidents worldwide was 1.25 million and justified the urgency of improving road safety in order to achieve the targets related to the Sustainable Development Goals by 2030.[3]

In the same line, and in view of the concern over the plateauing of the reduction in the number of fatalities due to road accidents, the Ministers of Transport of the European Union's Member States met in Malta in 2017, concluding with the Valletta Declaration[4], where certain data was updated on a European scale: there were 26,100 fatalities in the EU in 2015 due to road traffic accidents, which caused significant human suffering and economic costs estimated at 50 billion euros.

Over the last decade, there has also been a certain plateauing in the reduction of the number of fatalities, especially of pedestrians and cyclists, and the institutions have reached the conclusion that there is an improvement in the behavior of road users, given that the main causes of road accidents continue to be speeding, driving under the influence of alcohol, other substances or psychotropic drugs, driver distractions and driving under conditions of fatigue.

The Member States have committed to intensifying the measures necessary to achieve the goals proposed in the aforementioned documents, as well as to strengthening cooperation between Member States, among others.

In Catalonia, in accordance with this international scenario, the Government approved the Strategic Road Safety Plan 2014-2020[5] which, analyzing the evolution of fatalities and serious injuries on Catalan roads in recent years, identifies the challenges and areas for improvement to be addressed in order to achieve the targets of the medium-term reduction of road accidents and of Vision Zero based on strategic goals and strategic objectives to be achieved in this decade. These targets aspire to a 50% reduction in the number of fatalities in 2020 compared to 2010, but also to the aforementioned Vision Zero, i.e., that in 2050 there will be no fatalities or serious injuries with lifelong consequences due to road traffic accidents.

[3] ***Improving global road safety***. *Resolution approved by the General Assembly of the United Nations. April 2016*
[4] ***Valletta Declaration***. *Conclusions of the Council of the European Union on road safety. May 2017*
[5] ***Strategic road safety plan 2014-2020***. *Catalan Traffic Service*

In addition, these goals and objectives contained in the Strategic Plan are specified in the triennial road safety plans periodically developed by the Catalan Traffic Service, and it is in these documents where the specific actions to be implemented in order to achieve both the general and specific road safety targets are established. The first document of these characteristics dates back to the three-year period from 1999 to 2001, coinciding with the creation of the Catalan Traffic Service, and the latest is the Road Safety Plan 2017-2019.

In a more territorial line of work and as a tool to support local authorities, the Catalan Traffic Service offers municipalities the possibility of drafting local road safety plans, which, based on each town's main problems and accidents, allow for a diagnosis to be made and a plan to be developed that incorporates a whole series of measures to improve road safety and reduce road accidents locally. Until 2019, in Catalonia as a whole, a total of 266 municipalities already had drafted plans, some of which have already been evaluated and renewed. These towns have a population of more than 6.8 million citizens, which means that 90.8% of the population of Catalonia benefits from local road safety initiatives.

Decade 2020-2030

In 2015, the United Nations General Assembly presented the project *Transforming Our World: the 2030 Agenda for Sustainable Development*[6] as a plan of action for people and prosperity, with the objective of strengthening world peace in a broader concept of freedom. This document puts 17 Sustainable Development Goals and 169 targets into practice to achieve a sustainable development of the planet along three lines: economic, social and environmental.

In the 2030 Agenda for Sustainable Development, as stated by the Government in the national plan for the 2030 Agenda, there are several targets related to improving road safety. Specifically:

It is also important to bear in mind that the European Commission has begun work within the framework of the European Union's road safety policy for 2021-2030,[7] although it will be necessary to monitor the dynamics of mobility worldwide in the coming years as a result of the impact of the health crisis unleashed in 2020 by the Covid-19 pandemic and the measures to be taken as a consequence.

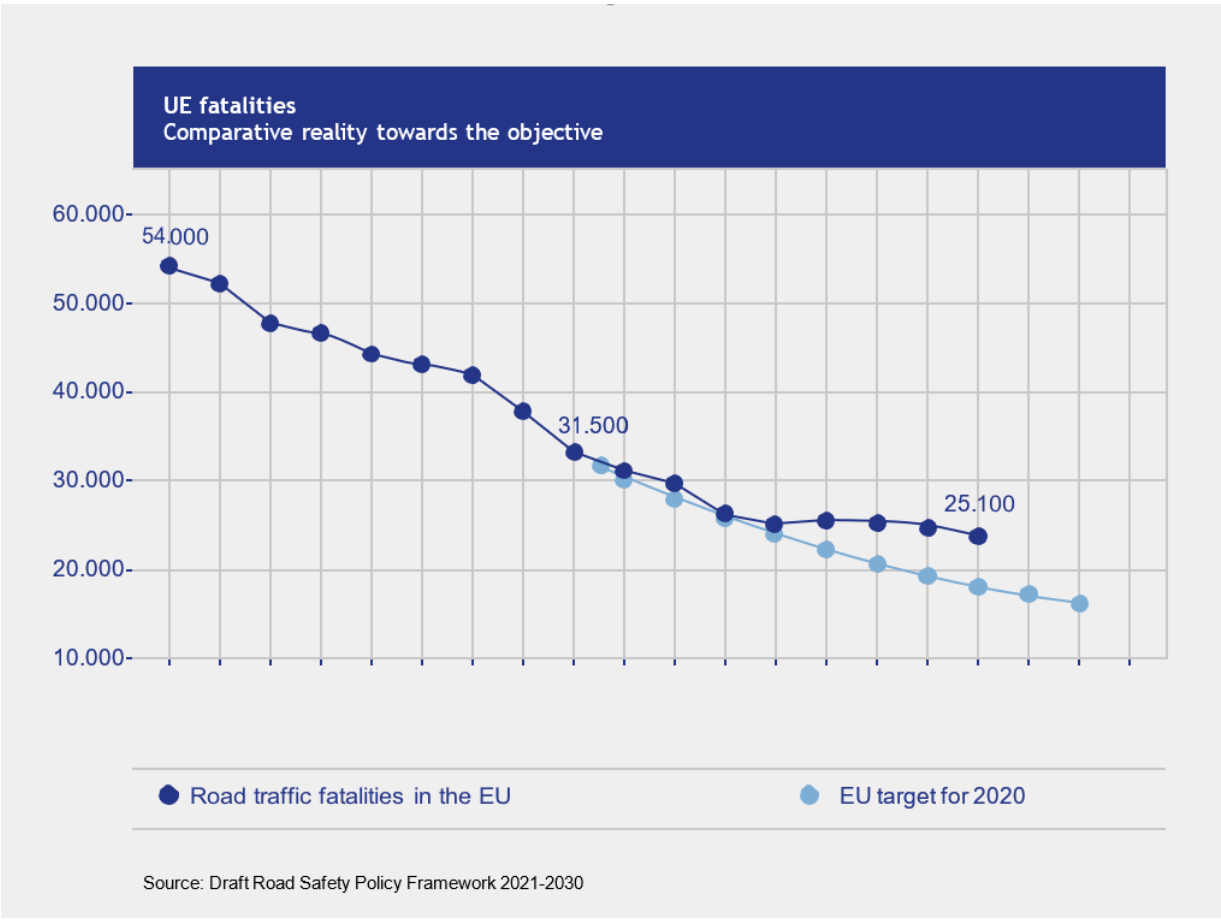
- **Goal 3. Guarantee a healthy life and promote well-being for all, at all ages**
  3.6. By the end of 2020, reduce the number of global deaths and injuries from road traffic accidents by 50%.
- **Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable**
  11.2. By 2030, provide access to safe, affordable, accessible and sustainable transport systems for everyone and improve road safety, especially by expanding public transport, paying special attention to the needs of people in vulnerable situations, women, children, people with disabilities and the elderly.

[6] ***Transforming our world: the 2030 Agenda for Sustainable Development***. *United Nations General Assembly. October 2015*
[7] ***European Union road safety policy framework 2021-2030***. *Document de treball dels serveis de la Comissió Europea. Juny de 2019*

The European Commission's working document, in any event, considers it unlikely to achieve the objective of halving road traffic fatalities between 2010 and 2020, due to the plateauing in reduction in recent years even in the main leading countries in road safety, as well as the spike in certain cases, and the non-representative reduction in accident rates during 2020 caused by the decrease in mobility due to the pandemic. The European Commission, in any event, adds new trends that have contributed to this plateauing and localized spike and that must be taken into account in order to reduce traffic accidents, such as distractions caused by the inappropriate use of cellular devices.

This European institution also mentions that there are other trends in mobility which, while offering opportunities to fight traffic congestion, are more environmentally friendly (car sharing, bike sharing or the use of personal mobility widgets), but that safety must be analyzed and the scenario dominated until now by motor vehicles must be adapted to these new realities.

The new framework is based on the so-called Safe System Approach, where fatalities and serious injuries are not seen as an unavoidable price of mobility. Although accidents will continue to occur, the Safe System is based on the assumption that fatalities and serious injuries are largely preventable, and that the main objective is to achieve a safer road network, accepting the fact that people will make mistakes, but building a layered combination of measures that prevents fatalities as a result of these human errors.



Mention should also be made of the Stockholm Declaration, the outcome of the Third Global Ministerial Conference on Road Safety in February 2020, which establishes a series of proposals to achieve the Sustainable Development Goals by 2030, the most important being:

- Achieving the ultimate target of a 50% reduction in fatalities and serious injuries by 2030 to reach Vision Zero (0 fatalities) 2050.
- Accelerating the shift towards cleaner, more energy-efficient means of transport and promoting active mobility, as well as the use of public transport to achieve sustainability.

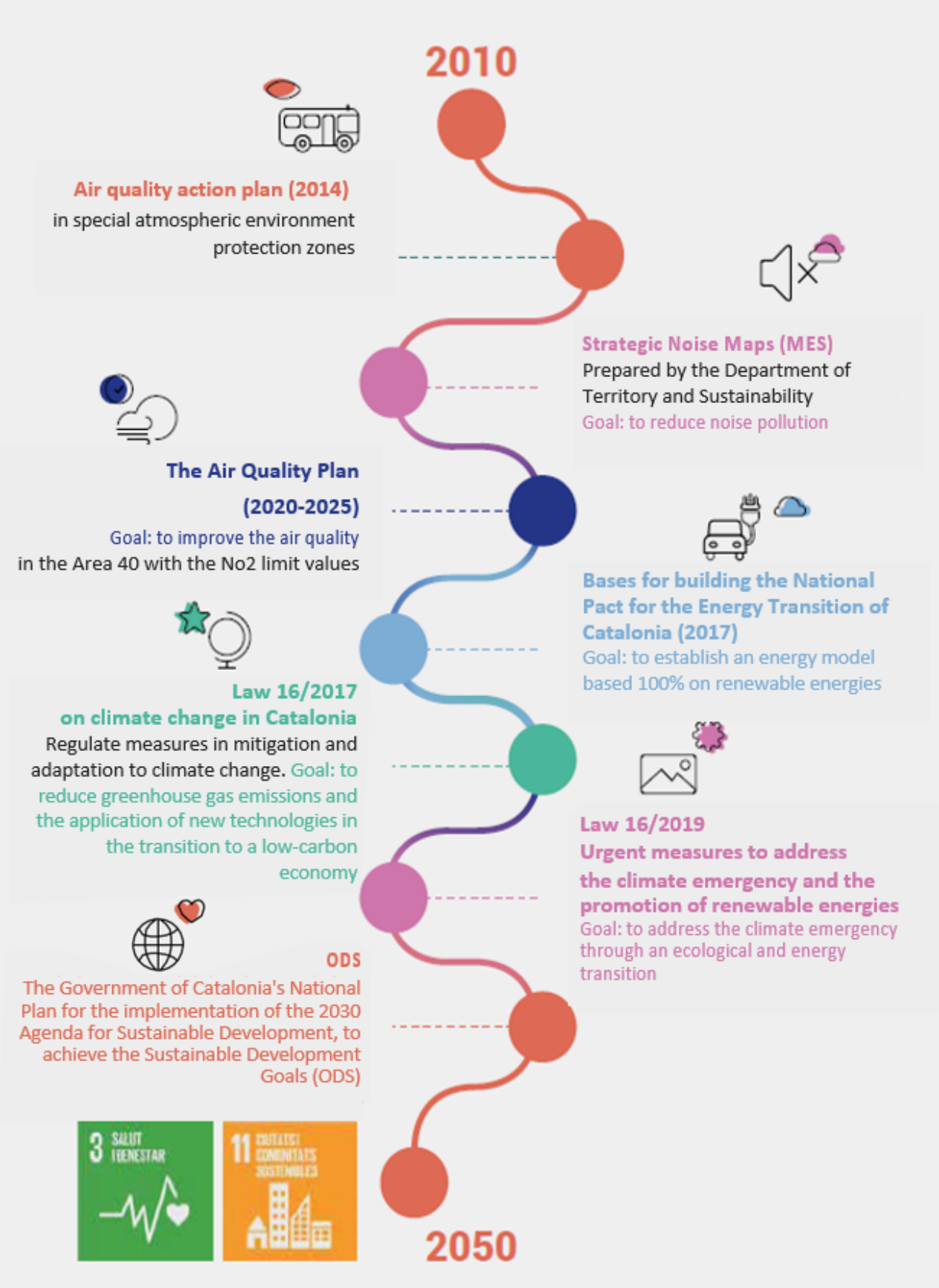
It is necessary to address the connections between road safety, mental and physical health, education, equity, gender equality, sustainable cities and the environment and climate change:

- Include road safety and safe systems in street design, road design, transportation system planning and governance, especially regarding vulnerable groups.
- Include safety devices in all vehicles
- Encourage and incentivize the development of existing and future technologies and innovations in road safety, in anticipation of the needs of the most vulnerable and with a greater investment in road safety
- Achieve access to emergency medical care services for the injured and provide psychological, social and legal support for victims and their families
- Maintain the focus on speed management, promoting a speed limit of 30 km/h in areas where vulnerable road users and vehicles normally coexist in the same space. It is important to highlight that speed reduction has a beneficial effect on noise pollution and is vital to reduce casualties.
- Establish strategies and plans of action both nationally and regionally, and emphasize the importance of supervising and presenting reports on the progress to be made towards achieving the road safety goals.

Finally, reaffirming the plan of action approved in 2015 and referred to at the beginning of this section and recalling the Sustainable Development Goals and the New Urban Agenda, on August 31st, 2020, the United Nations General Assembly approved a forty-point resolution among which the following were highlighted:

- Calling for collaboration between states to fulfill the 2030 agenda and to implement the Stockholm Declaration.
- Proclaming the 2021-2030 period as the Second Decade of Action for Road Safety with the objective of reducing road traffic fatalities by a further 50%.
- WHO's development of a plan of action as a guidance document to facilitate the implementation of the Decade's targets.
- Inviting Member States to continue to invest in road safety at all levels.
- Convening a high-level meeting no later than 2022 on improving global road safety.

1.2 Environmental goals



The dynamics of today's society, together with the rights to mobility, health and safety, are fundamental for the improvement of people's quality of life and well-being. However, when these dynamics and these rights are put into practice, in addition to road safety, it is necessary to take into account other impacts that mobility has, such as its contribution to air and noise pollution.

The National Plan for the 2030 Agenda, with 920 unique commitments and the coordinated work of 13 departments of the Generalitat, the Catalan Autonomous Government, to achieve the 17 Sustainable Development Goals (SDGs), includes the goals of reducing accidents and mortality, lifelong learning of healthy, sustainable and safe mobility and promoting carbon reduction strategies, and enhancing sustainable urban multimodal mobility or the improvement of public transport infrastructures.

Law 16/2017 on climate change contextualizes the current environmental state, caused to a significant extent by greenhouse gas emissions. This law is created to regulate measures aimed at mitigating and adapting to climate change, as well as to define the governance model of public administration in relation to this impact. This law pursues five objectives:

- Ensure that Catalonia reduces greenhouse gas emissions and favors the transition to a low-carbon economy.
- Strengthen and expand the strategies and plans that have been developed over recent years.
- Promote and guarantee the coordination of all Catalan public administrations, and encourage the participation of citizens, social agents and economic agents.
- Become a leading country in the research and application of new technologies, and reduce Catalonia's energy dependence on external energy resources.
- Make Catalonia's role visible in the world, both in cooperation projects and in its participation in global debate forums on climate change.

Likewise, the law seeks to reduce vulnerability to the impacts of climate change and to favor the transition towards an economy that is neutral in greenhouse gas emissions, competitive, innovative and efficient in the use of resources.

Similarly, the Government of the Catalan Generalitat has approved Decree Law 16/2019 on urgent measures to address the climate emergency and the promotion of renewable energies,8F8 which is aimed at adopting urgent measures to address the climate emergency situation through an ecological and energy transition that will allow the objectives set out in the aforementioned Law on climate change to be achieved in the shortest possible timeframe.

On the other hand, in 2017 the guidelines were published to constitute the National Pact for Catalonia's Energy Transition,9F9 created as a result of dialogue between all political forces and representatives of civil society, in order to provide Catalan energy policies with medium- and long-term stability that will allow the proposed targets to be achieved.

[8] ***Decree-Law 16/2019, of November 26th, on urgent measures for the climate emergency and the promotion of renewable energies***. *Published in the Catalan Generalitat's Official Gazette no. 8012 of 11/28/2019 by the Department of the Presidency*
[9] ***Guidelines to constitute the National Pact for Catalonia's Energy Transition***. *Institut Català d'Energia. 2017*

The long-term targets defined in this Pact are:

- Energy model based 100% on renewable energies, ideally by 2050.
- Compliance with the objectives of the new EU Clean Energy for All Europeans package:
- 27% of gross final energy consumption and 50% of the electricity mix must be renewable.
- 30% energy efficiency in relation to future forecasts
- 40% reduction in greenhouse gas emissions from the energy sector compared to 1990.

The 100% renewable energy model must also allow for, according to the Pact:

- Abandoning nuclear energy
- Reducing dependence on fossil fuels.
- Empowering citizens to play a more active and participatory role through clear and motivating communication.
- Opening the energy market up to regulated competition, creating a regulatory and fiscal framework favorable to the energy transition.

On a national level, Law 34/2007 remains in force in its air quality and atmospheric protection targets with the renewal of the legislative framework of reference on the prevention of atmospheric pollution. The objective of the law is to establish the foundations for the prevention, monitoring and reduction of atmospheric pollution in order to avoid and, when this is impossible, to mitigate the damage that may be caused to people, the environment and other goods of any nature. One of the most important aspects of the law is the improvement of the prevention instrument provided for in Spanish and European regulations through the renewal of the Catalog of Potentially Air Polluting Activities.

In 2014, the Catalan Government also developed the plan of action for the improvement of air quality in areas of special protection of the atmospheric environment,10F10 an instrument to plan, incentivize and regulate actions and behaviors to improve air quality in 40 towns, with the goal of guaranteeing compliance with European air quality directives.

This plan is committed to integrated mobility management, promoting a change of model based on public transport and active mobility, and promoting clean fuels and electric vehicles in everyday private mobility. It also makes it possible to activate effective measures in episodes of pollution that affect the circulation of private vehicles.

[10] ***Government Agreement 127/2014, of September 23rd, approving the Plan of Action for the improvement of air quality in areas of special protection of the atmospheric environment****. Department of Territory and Sustainability, 2014*

In order to be able to meet the goals established in the plan of action, and given the complexity of the origins of air pollution and the fragmentation of responsibilities in addressing these causes, a political-institutional agreement was adopted in 2017 for the improvement of air quality in the suburbs of Barcelona,11F11 which was confirmed in March 2019. According to this agreement, the Catalan Generalitat de Catalunya, the municipalities in the Area-40, the Metropolitan Area of Barcelona, the Barcelona City Council, the Barcelona Provincial Council, the Port of Barcelona and the Barcelona Metropolitan Transport Authority made more than 1,000 commitments in order to jointly achieve the goals set out in the air quality improvement plan.

The Air Quality Plan for Catalonia 2020-2025 envisages improving air quality in the Area-40 to respect the NO2 limit values set in the Royal Decree 102/2011 of January 28, coinciding with the values recommended by the WHO in the 40 municipalities around Barcelona declared areas of atmospheric environment special protection. To ensure compliance with the annual limit value of NO2 emissions in the 2025 scenario, the air quality target is set to reach 90% of the annual limit value (40 µg/m3), i.e. 36 µg/m3.

The reduction of nitrogen oxide emissions in the Area-40 must at least comply with the reduction targets specified in the Air Quality Improvement Agreement:

- 10% reduction of NOx emissions from mobility in 5 years (2022)
- 30% reduction of global NOx emissions in 15 years (2032)

In Catalonia, the priority areas for improvement (PAI's) are located around the main road and major economic activity corridors in Baix Llobregat, the Barcelona metropolitan area, Vallès Occidental and Vallès Oriental. The identification of PAI's does not imply that the measures to improve their air quality must be implemented exclusively in these areas and even the primary actions may have to be implemented outside of these areas. For example, if air quality levels are caused by road transport not originating or terminating in these areas, it will be necessary to take action on the points that generate or receive this mobility. If we analyze the contribution of the energy production and consumption sector in greenhouse gas emissions in more detail, we can see how transport has a very important contribution of approximately 40% of total emissions, followed by manufacturing industries and construction (23%), according to 2017 data.

According to the 2017 inventory of atmospheric emissions, 47% of NOx emissions and 46% of PM10 emissions were due to road transport, with road transport being the main source of pollution in special atmospheric environment protection zones.

Taking into account urban conditions and the dispersion of released pollutants, the contribution of motorized transport to air quality levels of nitrogen dioxide (NO2) in the center of Barcelona is practically 70%.

[11] ***Acord polític-institucional per a la millora de la qualitat de l'aire a la conurbació de Barcelona*** *de 6 de març de 2017*

Among motorized road transport, diesel is the main propulsion energy in the area, ranging from 65% of vehicles moving in the urban area to 72% of vehicles traveling on the expressways of the Barcelona conurbation.12F12

Finally, it is important to mention the actions aimed at mitigating noise pollution caused by mobility. The Department of Territory and Sustainability has drawn up strategic noise maps13F13 (MES), a tool for measuring the population's exposure to noise in specific areas. These maps particularly take into account the noise caused by road traffic, railways, airports and industrial areas.

MES of the agglomeration of Barcelonès II. Daily noise index. Google Earth view

[12] *Segons l'estudi Caracterització dels vehicles i les seves emissions a Barcelona i l'Àrea Metropolitana de Barcelona realitzat per Barcelona Regional amb la coparticipació de FIA Foundation i el RACC Automòbil Club per a l'Ajuntament de Barcelona i l'Àrea Metropolitana de Barcelona a l'octubre del 2017*

[13] *Resum mapes estratègics de soroll 2012-2017. Departament de Territori i Sostenibilitat*

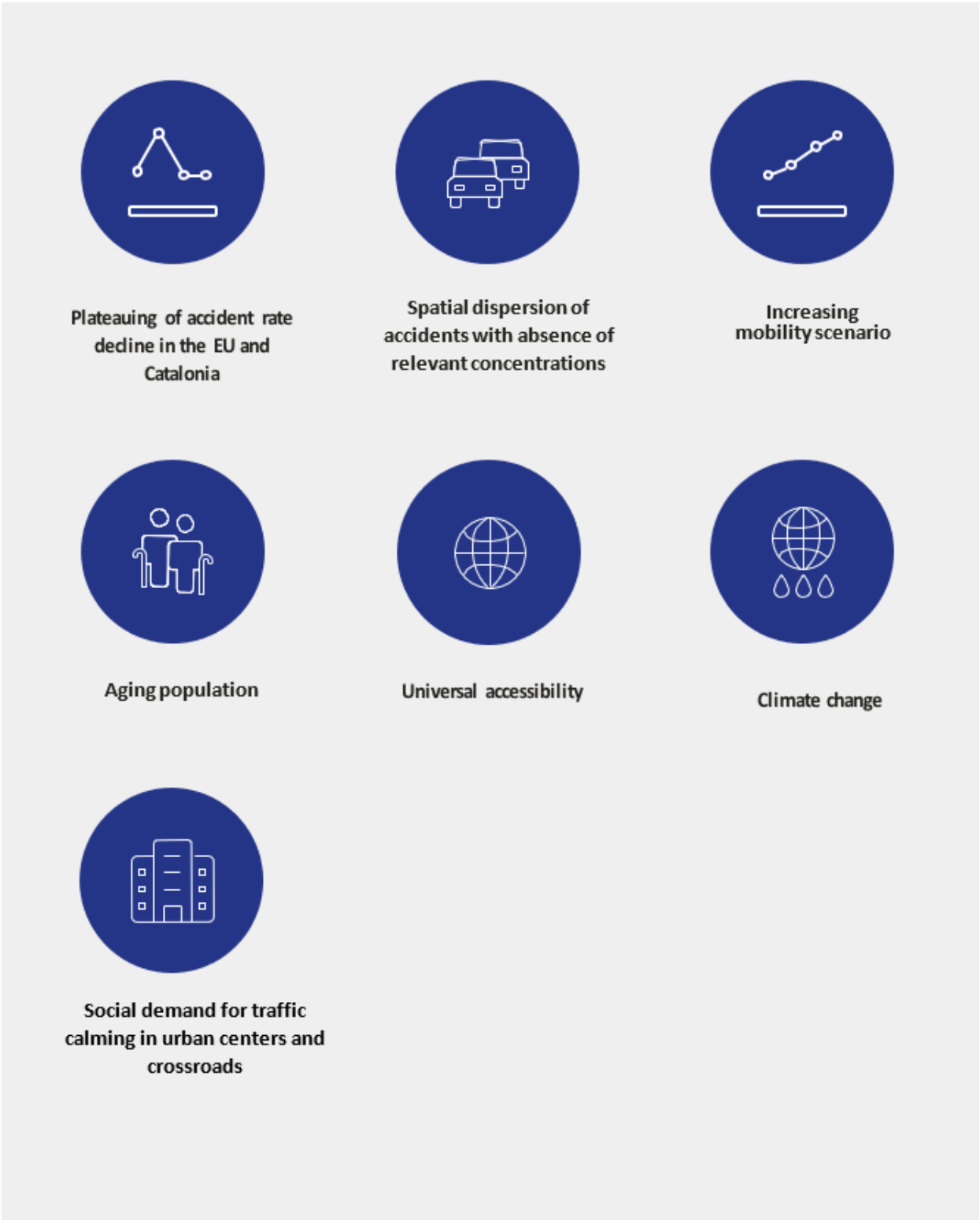
2 – Context

Today's society, as a scenario where new road safety targets and new environmental goals will be developed, is dynamic and changing, and, inevitably, so is mobility. The trends and new habits among the population have had a major impact on travel methods, with an explosion of mobility typologies, and where new technologies are playing and will continue to play a central and indispensable role.

This change in behavior forces administrations and all the agents involved in mobility policies to rethink the vision mainly focused on motorized travel, which until now was associated with the majority of road users, and to introduce corrections in the evolution towards the new cultural framework that had begun very tentatively in favor of safe and sustainable commuting.

In this regard, the following challenges and opportunities to be faced in the immediate future should be emphasized:

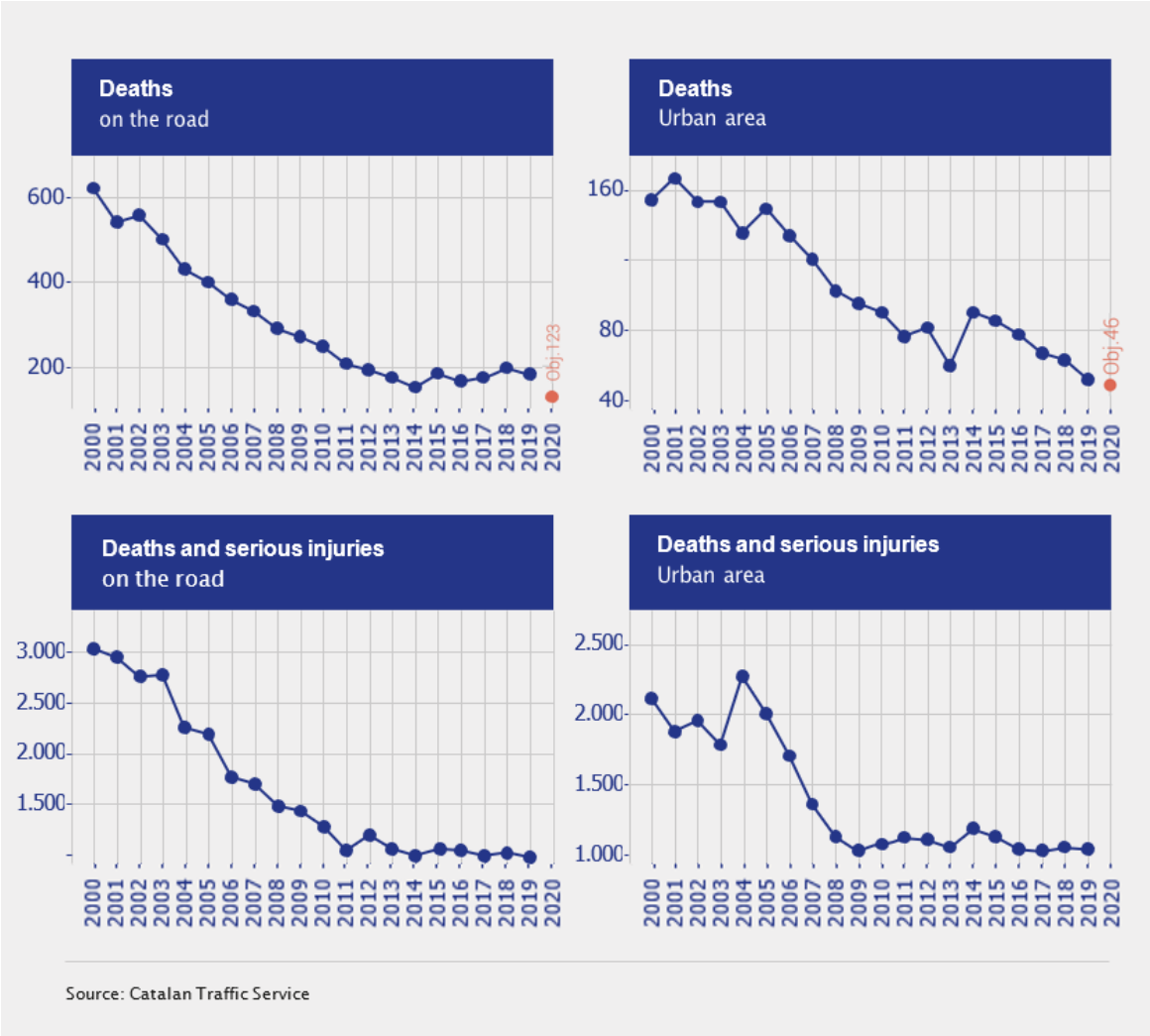
2.1 Challenges



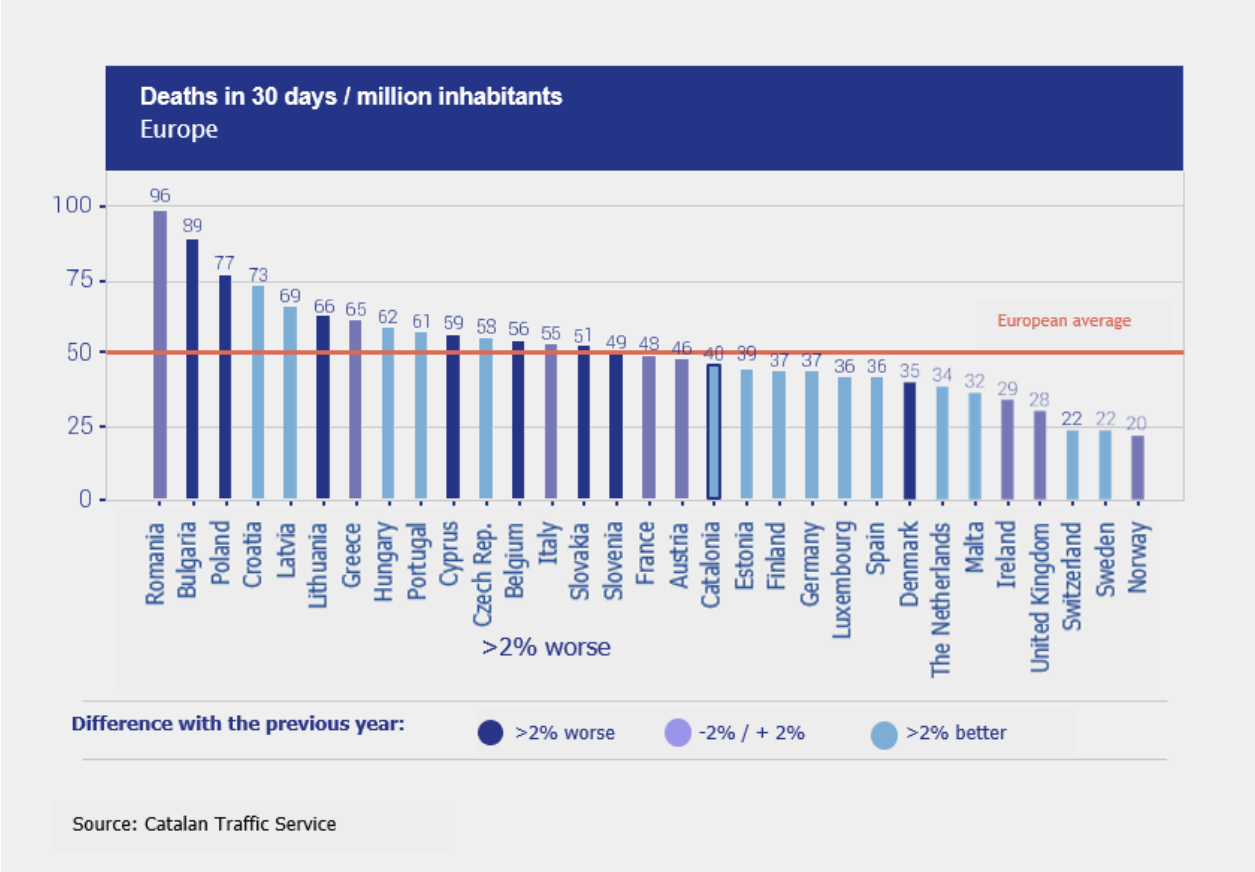
Plateauing of accident rate reduction in the EU and Catalonia

In 1999, the Catalan Traffic Service launched the first Road Safety Plan for Catalonia, aimed at increasing road safety. Since then, these plans have been implemented every three years in order to reduce the accident rate and the number of deaths on the Catalan road network as much as possible. Additionally, in 2014 the Government approved the Strategic Road Safety Plan from 2014 to 2020, a ground-breaking document that was in line with global and European objectives for a Safe System and Vision Zero for mobility as a whole. With this working basis, the Catalan Traffic Service has recorded an overall reduction in Catalonia of more than 60% of the accident rate on the roads and in its towns and cities.

However, although the trend in accident rates during the period 2000-2018 shows a notable decrease until 2013, from this year onwards accidents both on Catalan roadways and in its cities have plateaued with certain spikes both in terms of the number of fatalities and serious injuries.



This plateauing and occasional spikes are not exclusive to Catalonia or Spain, which until now had become the leading European territories in terms of accident rates per million inhabitants, but has been detected as a generalized trend in most European countries, even among leaders in road safety.



In order to further reduce the number of fatalities and serious injuries, it will be necessary to increase the intensity of measures and address new mobility trends that may affect road user's behavior.

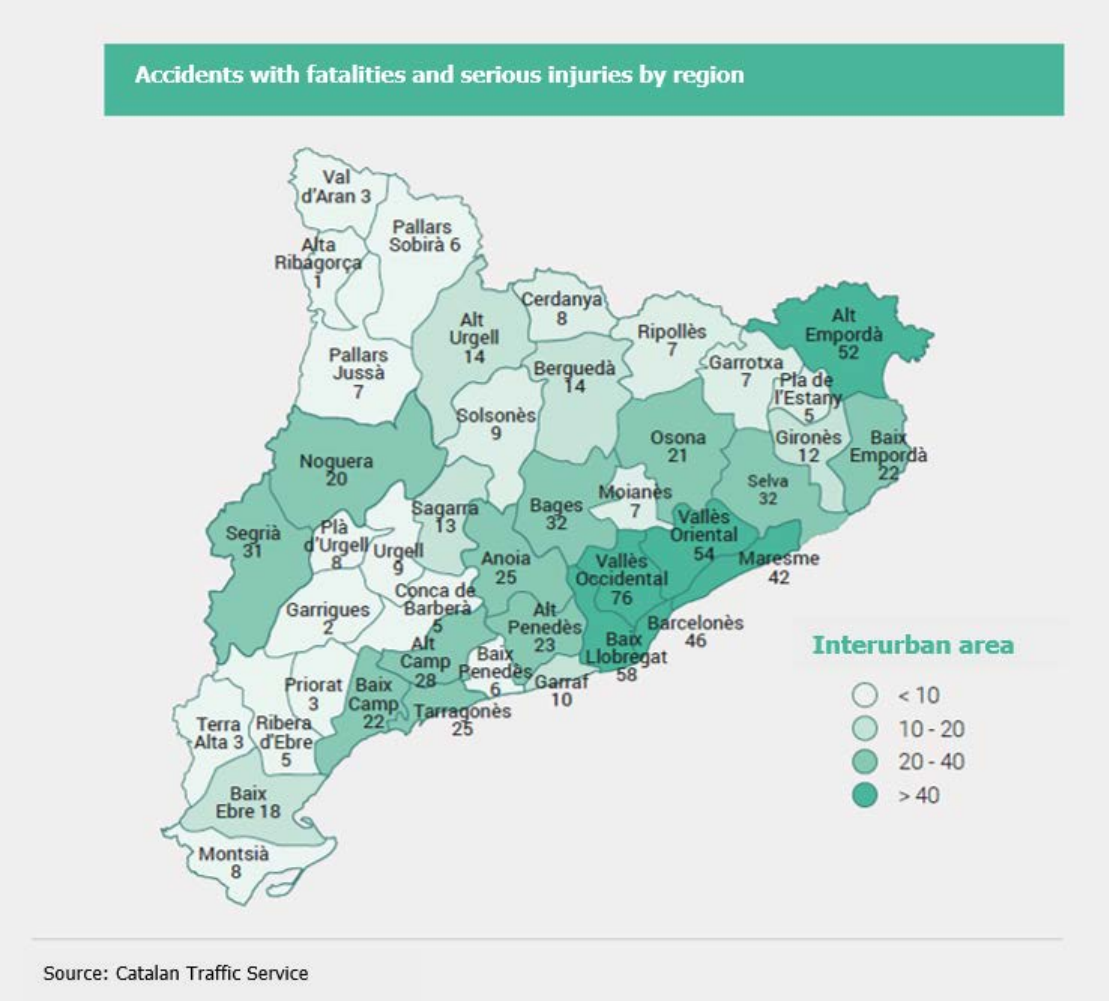
Taking into account the evolution of the number of deaths and serious injuries since 2013 and despite having achieved the first EU mandate of the decade 2000-2010 for reducing fatalities by 50% in 2010 compared to 2000, the target of a 50% reduction in fatalities in 2020 compared to 2010 is now far from being accomplished.

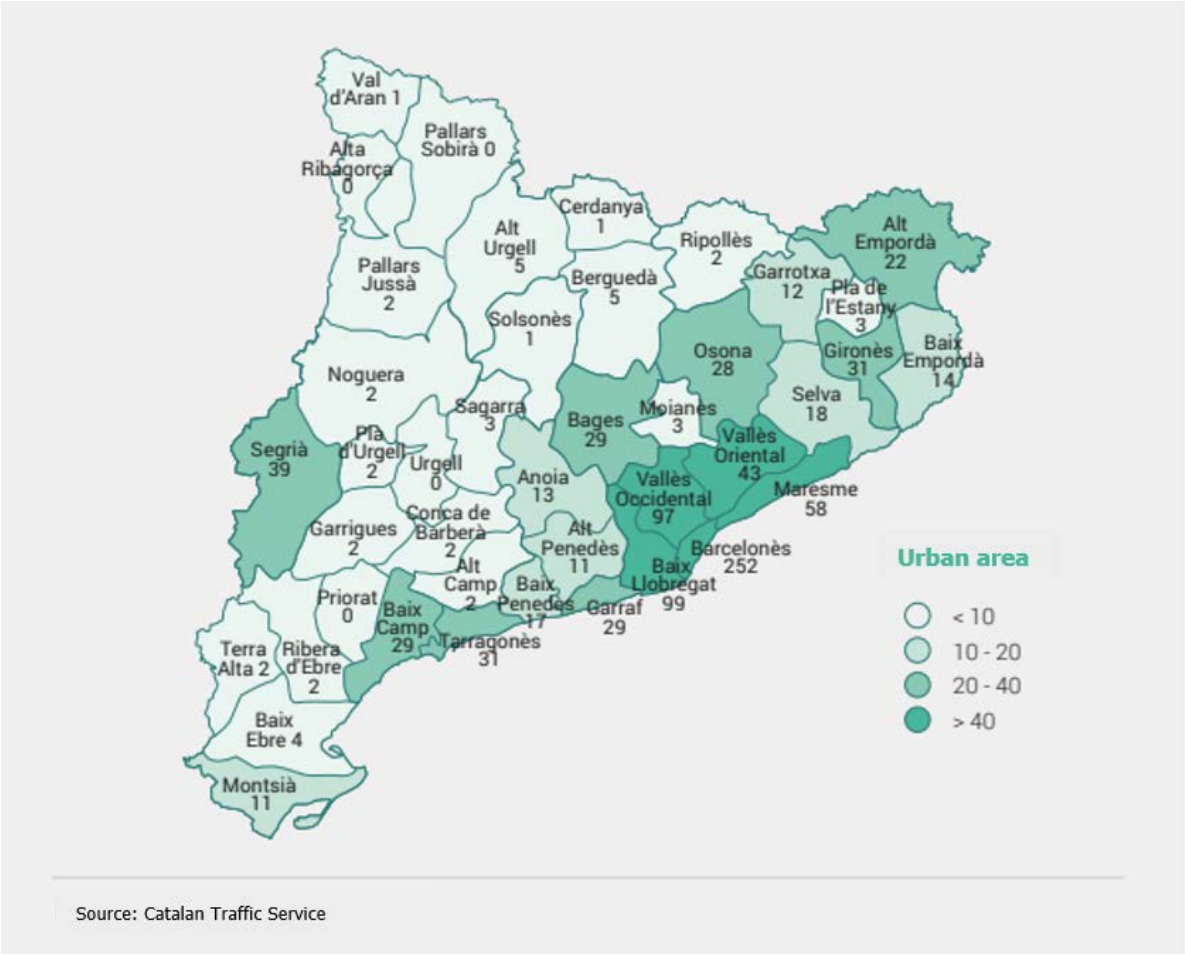
Based on the data analyzed, it is important to continue working to reduce the accident rate and the severity of accidents, and the instrument provided by this Pact is an excellent tool to do so.

Spatial distribution of accidents with an absence of relevant densities.

Intensive measures to reduce the accident rate in those sections of the road network with the highest density of accidents, especially with the development of speed cameras, which have served as a deterrent against a minority of uncivil behavior, have yielded good results, but have also led to a new accident rate map where the scenario is more widespread and more complex when it comes to continuing to reduce accidents to zero.

Fatal accidents continue to occur in both urban and interurban areas and their impact is significant in all provinces, but the casuistry is broader and goes beyond the major contributing factors (speed, alcohol and other substances or psychotropic drugs, non-compliance with regulations in general). As we have pointed out, there are no longer clearly detected sections or high-density accident hotspots, but rather they are more spread throughout the road network. The lack of clear patterns makes it more complicated to apply specific measures to reduce accidents.

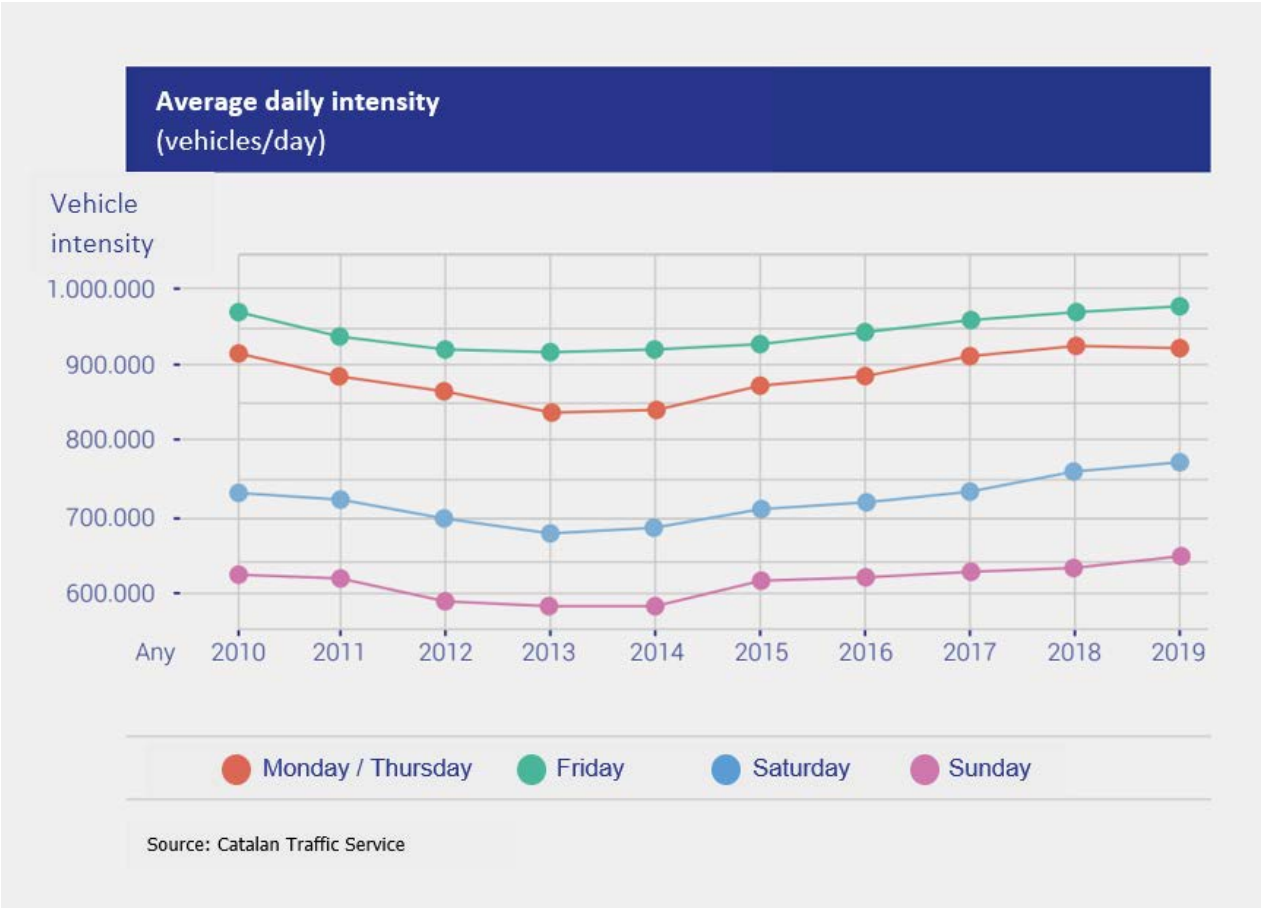




Increasing mobility scenario

In recent years, recovering from the economic crisis that began in 2008 has led to an increase in mobility. Since September 2013 and especially since 2014 on the whole, when the downward trend was interrupted, 2019 was the first year when records plateaued after four consecutive years of steady growth. Likewise, a significant increase in the use of widgets and mobility elements that were not previously present in regular traffic, especially in urban areas, can be detected.

In the current context, it will be necessary to see the economic and social effects derived from the Covid-19 pandemic and how these are reflected in mobility, which may lead to changes related to the increase in the use of private vehicles, lower vehicle occupancy as negative elements and an increase in the use of bicycles in cities as the main means of transport or the extension of pedestrian areas as positive elements.



Aging population

Catalonia has a high life expectancy: 83.3 years, a figure that is 1.3 years higher than the average for the Euro Zone (82 years) and with numbers similar to the world leaders in this type of record, such as Hong Kong, Japan, Italy and Spain. By sex, the life expectancy of women (86.3 years) stands out in relation to that of men (80.8 years).

These figures mean that, as is the case in most European countries, Catalonia is undergoing an aging process that increases the influence of the elderly and at the same time decreases the influence of the young.

This fortunately leads to greater mobility and commuting capacity among the elderly, but at the same time implies specific characteristics that position this group as a priority among the vulnerable in relation to road safety.

Universal accessibility

The Convention on the Rights of Persons with Disabilities adopted by the UN in December 2006 with the successive joining of the Member States and the Law 13/2014, of October 30, on Catalan accessibility, more recently, have positioned accessibility as an indispensable condition for exercising the rights of persons with disabilities and has established the obligations to promote and accelerate the necessary measures to achieve an accessible environment.

The accessibility chain, a global concept in which each part or area depends on and affects the rest, entails the need to eliminate the continuity of barriers if they exist. The fewer the barriers, the greater the ability of people with limitations or disabilities to move, access and use all types of services, which, in turn, must also be accessible.

Mobility is therefore an essential component of this chain, just as accessibility is an essential component of safe, sustainable and autonomous mobility. It is therefore essential to have public spaces and public and individual transport infrastructures that are safe, that take into account the population's functional diversity, as well as to anticipate new forms of mobility and technological advances, and ensure that no measure discriminates against, excludes or prejudices any group.

Climate change

The struggle against climate change is one of the central challenges and, undoubtedly, the primary one for today's society. Considering that this change is largely caused by greenhouse gas emissions, a transformation is needed in the mobility sector in one of its main areas, the type of vehicle, for the purpose of minimizing the emissions of polluting gases produced by motor vehicles.

It is necessary to promote more sustainable means of mobility, which are already a majority in major cities, although this growth is not yet reflected as strongly in urban planning.

Walking, cycling, public transport or electric alternatives are the way to rebalance the preponderance that motor vehicles have achieved in recent decades.

Social demand for traffic moderation in urban areas and at cross-streets

Year after year, the new dynamics of the big city dwellers underscore the need and the will to transform the space that has traditionally been reserved for vehicles in order to promote more active and healthier means of mobility, such as walking, cycling and public transport, while at the same time protecting these areas where users are most vulnerable.

In addition, there is a growing awareness in society of the public health problems associated with air and noise pollution and the demand for a higher quality of life directly related to the air we breathe..

2.2 Opportunities

Increase in the use of sustainable modes of mobility

Emergence of private operators in real-time traffic information management

Technological advances applied to vehicles (self-driving vehicles) and on the road

Increase in the supply of mobility services (MaaS))

Gender perspective in mobility

Increased use of sustainable modes of mobility

Opting for the use of public transport (bus, metro, streetcar), cycling, walking or personal mobility vehicles instead of private vehicles such as cars or motorcycles has a direct impact on polluting emissions and reduces, above all, local pollution and, at the same time, prevents other externalities such as noise or effects related to the use of public space.

Consequently, reducing the presence of private vehicles also implies a reduction in the severity of possible accidents, especially those involving the most vulnerable groups such as motorcyclists or pedestrians.

The commitment to sustainable modes of mobility has positive effects on people's health, because it reduces emissions of local pollutants, the cause of many respiratory diseases. The mobility and transportation model based on fossil fuel-dependent vehicles has high costs on people's health and climate change.

For this reason, a paradigm shift is needed to reduce the impacts of transport on the environment and people's health, and to continue working towards a total decarbonization of mobility.

To implement this cultural change, one of the main elements required to guarantee mobility in accordance with the global targets for preserving the environment and responding to the climate emergency is to increase the use of bicycles and similar means of transport. According to the 2019 Bicycle Barometer, 40.3% of Catalonia's population uses bicycles on a regular basis and 4.8% use them every day or almost every day.

In this regard, the Government of the Generalitat, with the direct participation of the Catalan Traffic Service, has approved the Catalan Bicycle Strategy 2020-2025, which has set as its general target, in accordance with the Sustainable Development Goals, to double the modal share of cycling to achieve the figure of 8% of urban commuting.

Emergence of private operators in real-time traffic information management

Mobility data management and the application of the big data phenomenon in commuting opens up a new range of possibilities for the end transport service user and ultimately affects road safety policies.

The application of new technologies and access to real-time information is a key factor in creating a more sustainable mobility that is more suited to people's needs. In this regard, intermodality becomes even more important as users can decide which is the most efficient and sustainable means of transport to use at any given time.

Technological advances applied to vehicles (autonomous vehicles) and on the road

The emergence of new technologies applied to vehicles is causing a change in the population's commuting habits and, in terms of road safety, can lead to a reduction in the number of accidents, as well as in the number of injuries.

Some examples of the already obvious results achieved are driving aids, such as lane change control, proximity alert, speed limiter, automatic emergency calls or the general use of ABS braking in the specific case of motorcycles.

This media prevents accidents due to distractions or in any event reduces the severity, which also depends on other factors, such as speed at the time of collision. In the same line, the emergence of the self-driving car has enormous potential when it comes to reducing the number of accidents and their severity, as it eliminates human errors.

The implementation of other types of technologies in the immediate future is also important because of their potential to reduce polluting emissions from motor vehicles. The role of the electric vehicle, and other options that favor the mobility decarbonization, minimizes a good part of the externalities related to atmospheric pollution.

It should be noted that changes in habits and the emergence of new technologies applied to mobility will mean that infrastructures will have to adapt, both with the incorporation of electric vehicle recharging areas and communication between the road and the vehicle regarding the self-driving vehicle.

Increase in the supply of mobility as a service (Maas)

The emergence of mobility services and the concept of mobility as a service represents a specific paradigm shift in the field of safe and sustainable mobility.

One of the most notable effects are the vehicle sharing platforms (personal mobility vehicles, bicycles, motorcycles or cars) and it should also be taken into account that having a range of vehicles that can be used without being the owner causes a certain disruption in the sector, not only from the point of view of manufacturers and fleet renewal, but above all from the point of view of users.

The first effect is a diversification in the choice of means of transport, which benefits sustainable modes of mobility and reduces local pollution, both atmospheric and acoustic. At the same time, it also reduces the number of vehicles used and reduces the use of public space needed to park the vehicles once travel is completed.

Another significant consequence of the use of this type of service is the amount of data that can be extracted from commuting, including elements for the analysis of accidents. A good management of this data can help to detect possible improvements in roads, vehicles and users.

In this regard, it is important to note the emergence of private operators that until now were not involved in the supply of mobility services, such as ICT companies, web page creators and designers or entrepreneurs involved in the generation of applications for mobile phones.

Equally relevant is the automotive sector's conversion from product to service, creating new initiatives to offer in a shared mobility paradigm.

Gender perspective in mobility

For many years, men and women have manifested distinct mobility patterns and driving styles as a result of differential gender socialization.

Men and women exhibit different driving styles based on these gender roles. The more collaborative and cautious driving of women, as opposed to the more competitive and less risk-assessing driving of men, is a consequence of the gender stereotypes and values that society associates with certain roles based on the sex attributed to them. In fact, in the field of driving, these stereotypes, although very much present, are the ones that lead men to assume riskier behaviors, as an affirmative sign of their masculinity.

As for the differences in existing mobility patterns, gender stereotypes and roles also have an impact. An example of this is the greater use of public transport by women and more use of private transport in the case of men.

Section i) of Article 53 of Law 17/2015, dated 21 July, on effective equality of women and men, establishes the need to conduct mobility planning that prioritizes travel times and takes into account accessibility in daily itineraries related to the organization of personal, associative, family, domestic and work life.

For this reason, it is clear that it is necessary to continue working within the scope of public policy planning, and specifically in the area of safe and sustainable mobility, so that mobility patterns and driving behaviors of men and women become more and more similar on the road towards safer and more sustainable mobility.

However, the gender perspective must have a cross-sectional impact on the different public policies that condition mobility, regarding issues related to the organization of work, family structure, organization of time and leisure, consumption patterns, areas that condition the differential values and behaviors of men and women, and the use of vehicles and their mobility patterns.

To conclude this point, we must not forget to highlight the importance of working to incorporate the gender perspective in the educational context, a fundamental aspect to achieve effective equality between men and women, introducing this perspective in road safety and sustainable mobility training in classrooms.

Conclusions to the challenges and opportunities of safe and sustainable mobility.

As a conclusion to this context of challenges and opportunities, it should be stated that the new mobility framework requires maximum involvement and coordination from the different agents, both from the administrations and from business, economic and social sectors to ensure the transition to a safe, sustainable mobility, committed to the fight against climate change and the improvement of air quality, healthy, connected and automated mobility that will allow for the achievement of a Vision Zero scenario by 2050, with no fatalities and no serious injuries with lifelong repercussions.

This need for cross-sectional collaboration between public, private and social agents is what is required for the formulation of the National Pact for Safe and Sustainable Mobility.

New mobility habits, as well as the emergence of new modes of transport, less harmful to our health, imply a rethinking of mobility, which must continue to be even safer, more sustainable and healthier. In this regard, public policies must promote increasingly more cross-sectional actions for improvement.

It is for this reason that the Government of the Generalitat agreed on July 9, 2019 gave impetus to the development of the National Pact for Safe and Sustainable Mobility.

The Pact's impulse allows for a response to the new challenges in mobility that are occurring and wants to be a tool as a strategic document of a cross-sectional nature, to facilitate coexistence and safety among users of different modes of transport that converge in the same public space.

In short, the National Pact for Safe and Sustainable Mobility brings together different disciplines that had been working in different areas until now: road safety, the environment and the fight against climate change, technological innovations applied to mobility and new forms of mobility.

3 – The National Pact for Safe and Sustainable Mobility

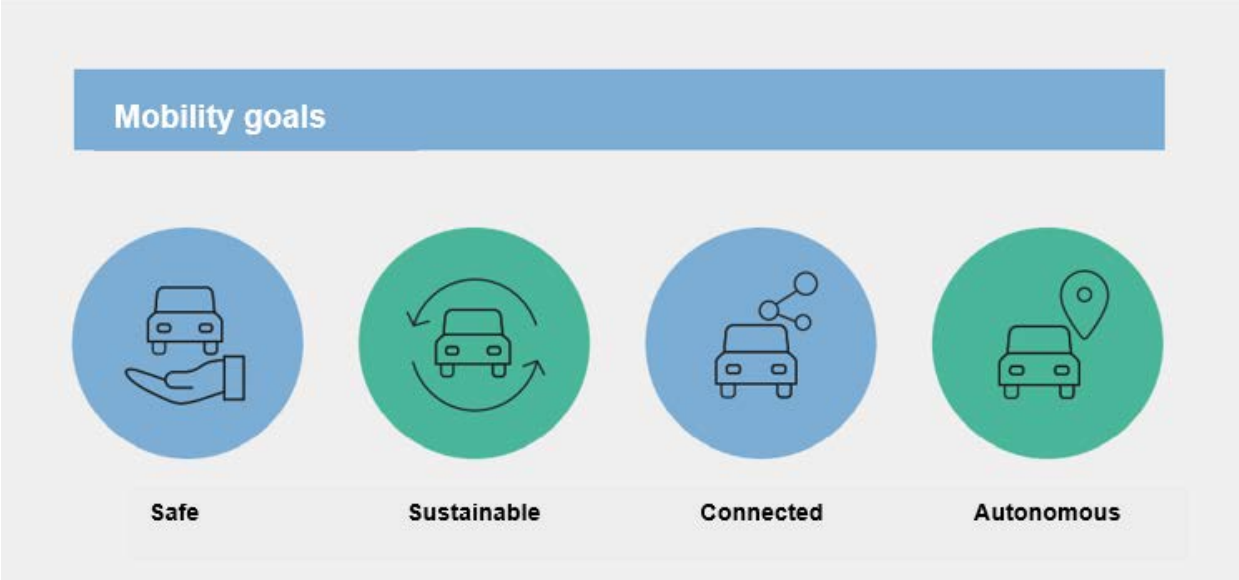
The drafting of the Pact was agreed on July 9, 2019 and had the support of the main social and economic agents at a subsequent event at the Palau de la Generalitat presided over by the Right Honorable President of the Generalitat, Joaquim Torra.

Its further development was worked on through a face-to-face participatory process, which took place in six sessions held in November and December 2019 at the Department of the Interior, and through a telematic participatory process that was completed during the first quarter of 2020.

3.1 Purpose and goals

The purpose and vision of the National Pact for Safe and Sustainable Mobility is to ensure the transition to a safe, sustainable mobility, committed to the fight against climate change and the improvement of air quality, healthy, connected and automated mobility that will allow for the achievement of a Vision Zero scenario by 2050, with no fatalities and no serious injuries with lifelong repercussions.

Consequently, the Pact, which involves agents directly or indirectly involved in the field of road safety and sustainable mobility, seeks to implement safer mobility that is at the same time sustainable, healthy, connected and autonomous.



Apart from promoting more sustainable mobility through non-motorized modes of transport and those not dependent on fossil fuels, active mobility and the promotion of public transport, the Pact must also consider the development and implementation of new technologies applied to the automotive industry, road infrastructures and information and traffic management systems in order to lead the transition towards an increasingly connected and autonomous mobility among all the agents involved.

The Pact seeks, as a cross-sectional strategic document, to bring together all these aspects that are interrelated and condition and affect mobility.

The overall goal of the Pact is to promote safer, more sustainable and healthier mobility and towards Vision Zero while addressing the following strategic targets:

The Pact as a future strategic document has a scope for the next ten years, applicable over the next decade 2021-2030.

3.2 The Pact's six strategic lines of action

The National Pact for Safe and Sustainable Mobility is divided into six main lines of action, which outline by fields the main responses to the challenges and opportunities for the future that have arisen in order to achieve a new mobility scenario that will make it possible to reach a social and cultural change with guarantees in road safety as well.

In this regard, the six strategic lines of action are as follows:

Line 1. Rethinking public space for more sustainable and safer mobility

Line 2. Adapting road safety policies to the new characteristics of the accident rate

Line 3. Creating an awareness-raising and educational strategy to involve society as a whole

Line 4. Developing a space for strategic cooperation between the different sectors involved in intelligent mobility

Line 5. Establishing strategic objectives for infrastructures regarding new mobility systems

Line 6. Deploying the necessary structure to manage the change

Line 1. Rethinking public space for more sustainable and safer mobility

Line of action 1 of the Pact focuses on establishing guidelines for coexistence among different road users (regulations, good practices, orderly spaces...) and reducing air pollution and noise by calming urban environments and prioritizing slower and non-motorized mobility.

The principal agents involved in this line of action are: the Departments of the Interior through the Catalan Traffic Service and the Directorate General of Police; Territory and Sustainability; Education; Business and Knowledge; Labor, Social Affairs and Families; Health; the AMB; the ATM; Provincial Councils; City Councils; local authorities; the local police; Railways of the Generalitat de Catalunya; RENFE; other public and private organizations and associations in the sector.

Line 2. Adapting road safety policies to the new characteristics of the accident rate

Line of action 2 of the Pact includes contributions to address the dispersion of accidents and the plateauing of the decrease in accident rates in a scenario of growing mobility and an aging population, to increase the resources allocated to the prevention and control of risky behavior to the level of the most advanced European countries and to guarantee safe mobility for all types of road users, especially vulnerable groups.

The principal agents involved in this line of action are: the Departments of the Interior through the Catalan Traffic Service and the Directorate General of Police; Territory and Sustainability; Education; Health; Business and Knowledge; Labor, Social Affairs and Families; Digital Policies and Public Administration; the ATM; local police; the Catalan Institute of Women; other public and private entities in the sector; and victims' associations.

Line 3. Creating an awareness-raising and educational strategy to involve society as a whole

Line of action 3 of the Pact is committed to implementing initiatives to promote a cultural change towards the awareness of a future without traffic victims and with more sustainable and healthy mobility, adding synergies with the incorporation of society as a whole, and defining a communicative, transversal, intergenerational and long-lasting strategy so that society feels challenged in the shared responsibility for the right to sustainable mobility.

The principal agents involved in this line of action are: the Departments of the Interior through the Catalan Traffic Service and the Directorate General of Police; Territory and Sustainability; Presidency; Digital Policies and Public Administration; Education; Health; Business and Knowledge; Labor, Social Affairs and Families; Justice; Agriculture, Livestock, Fisheries and Food; the ATM; Provincial Councils; City Councils; local authorities; local police; victims' associations; the Catalan Institute of Women and other public and private entities in the sector.

Line 4. Developing a space for strategic cooperation between the different sectors involved in intelligent mobility

Line of action 4 focuses on strategic public-private coordination to dynamize all sectors involved in mobility to promote intelligent systems, activate a space for dialogue in the field of mobility in terms of energy efficiency and technological progress, and increase collaboration between administrations, industry and society to promote intelligent transport and mobility services.

The principal agents involved in this line of action are: the Departments of the Interior through the Catalan Traffic Service and the Directorate General of Police; Territory and Sustainability; Business and Knowledge; Health; Labor, Social Affairs and Families; Digital Policies and Public Administration; the ATM; provincial councils; local police; city councils; local authorities and other public and private entities in the sector.

Line 5. Establishing strategic objectives for infrastructures regarding new mobility systems

Line of action 5 of the Pact seeks to respond to the new challenges that intelligent systems may pose for infrastructures, promote an accessible and compatible network for all, taking into account vulnerable groups and clean means of transport through the development of spaces for them, and optimize and homogenize the road network with the latest generation of intelligent transport systems providing the best results.

The principal agents involved in this line of action are: the Departments of the Interior, through the Catalan Traffic Service; Territory and Sustainability; Business and Knowledge; provincial councils; town councils; local authorities and other public and private entities in the sector.

Line 6. Deploying the necessary structure to manage the change

Line of action 6 of the Pact focuses on rethinking road safety and mobility policies with an approach that incorporates an interdisciplinary and collaborative perspective.

This line of action focuses on rethinking the current structure of traffic authority to address the new challenges of mobility and road safety in the future and at the same time integrate into the structure the traffic police and the management of the exponential growth of the penalty system.

The principal agents involved in this line of action are: the Departments of the Interior through the Catalan Traffic Service and the Directorate General of Police; Territory and Sustainability; Education; Health; Business and Knowledge; Agriculture, ATM; City Councils; local authorities, victims' associations and other public and private entities.

3.3 Coordination and management of the Pact

The Pact is a Map of plans, and as such, it is a strategic document of a cross-sectional nature that is in line with other strategic documents prepared by the Administration in those aspects that affect mobility, such as the battle against climate change, the reduction of polluting emissions from motor vehicles, the promotion of renewable energies, sustainable mobility, the development of electric vehicles and the application of new technologies to mobility, with the future of the self-driving vehicle on the horizon, among other aspects.

It is important to emphasize coordination and cooperation between the different public administrations (Generalitat, supra-local and local administrations) to facilitate the implementation of the actions that may be derived from this Pact and to do so in a multi-sectorial and coordinated manner.

Taking into account the cross-sectorial nature of safe and sustainable mobility policies, the implementation of the strategic lines of the National Pact will be carried out through sectorial action plans, promoted by the corresponding departments of the Generalitat and with the participation of the rest of the public administrations and public and private entities, as well as civil society.

These plans will specify the instruments and priority actions to achieve the goals established in this National Pact, establishing the necessary budget to implement these actions. The Catalan Traffic Service periodically prepares the triennial road safety plans and it is in these documents where the goals and strategic lines of the Pact are deployed through the specific actions to be carried out by the different agents involved. Annually, these actions are specified in the Program of Activities, which is developed by public and private entities working to improve road safety.

To accomplish the Pact's objectives, it is essential to involve not only the departments of the Generalitat but also the rest of the administrations and public entities that have responsibilities in this area.

Likewise, the collaboration and cooperation of all private entities and associations that undertake actions in the field of safe and sustainable mobility is essential.

Accessions

The different supra-local and local administrations, as well as other public and private entities, may adhere to the National Pact -communicating it to the General Sub-Directorate for Road Safety of the Catalan Traffic Service- provided that they express their commitment to the objectives and main strategic lines of the Pact and present a plan of action -or already have an approved plan- containing the development of different measures derived from the strategic lines of the Pact and designating a coordinator. In this regard, the Pact will gradually incorporate all those institutions that adhere to it as agents involved in the different lines of action.

By means of this accession, it is possible to involve the different socio-economic sectors concerned that feel called upon to participate in the development of the Pact's lines of action and to achieve the established goals.

The Interdepartmental Commission for the Improvement of Road Safety (ICIRS)) will monitor the implementation of the strategic lines contained in the Pact every 3 years as a result of the progress and knowledge of the different sectorial action plans, as well as the knowledge of the different actions implemented by the public and private entities that subscribe to the Pact, for the purpose of achieving the goals established in this National Pact.

On the other hand, a follow-up report of the Pact will be drawn up to evaluate the fulfillment of the established goals and an analysis of the actions implemented for the development of the strategic lines of action that comprise the Pact.

4 - Development of the lines of action

Line 1 - Rethinking public space for more sustainable and safer mobility

The prevailing model of mobility based on the preeminence of the private motor vehicle has high costs for people's health and is a decisive factor in the current scenario of climate emergency. For this reason, it is necessary to ensure the evolution towards a modal shift that promotes sustainable modes of mobility to the detriment of the most polluting ones, for the benefit of people's health and quality of life.

Motor vehicles are a major source of air pollution, related to respiratory system diseases, especially in cities, through the emission of particles (PM) and nitrogen oxides (NOx). Carbon dioxide (CO2), carbon monoxide (CO) and methane (CH4) are also the main greenhouse gases from combustion. Noise pollution from vehicle traffic also has a health-related impact.

In the European Union, means of locomotion were responsible for 25% of CO2 emissions in 2019, with cars emitting 60.7% of the total, 87% of CO emissions and 66% of nitrogen oxide emissions.

On the other hand, the health and social crisis resulting from the Covid-19 pandemic is altering and conditioning people's mobility patterns, both in terms of the use of private means of transport and in terms of an increase in sustainable modes of mobility and the recovery of city space for the public.

We must not let this opportunity go to waste and the institutions must promote the most sustainable and healthy modes of mobility, such as bicycles or public transport, for example, and discourage dependence on motor vehicles in terms of fossil fuels. This necessarily implies rethinking common spaces to accommodate all road users, and promoting coexistence and the use of the road network for all modes of transport.

So in this new scenario, it is essential to work to achieve friendlier, more people-oriented cities, and to reconcile their inhabitants with the urban environment, gaining space for pedestrians. The social demand of urban environments for traffic calming must be satisfied, and to this end, urban infrastructures must be adapted and the speed of use reduced, and traffic restrictions must be established in specific areas such as low-emission zones, superblocks and calming hubs, 30 km/h zones, single-platform streets with reversed priority or pedestrian zones.

Increasing public space for pedestrians promotes walking and improves people's quality of life, as well as promoting other uses of this space by citizens.

The establishment of low-emission zones with restrictions on the circulation of the most polluting vehicles - a measure that has begun to be implemented in cities such as Barcelona - has a high potential impact on the fight against pollution caused by motor vehicles. Another measure to be taken into account, which has been successfully introduced in other European countries, could be the establishment of an urban toll to reduce traffic through the payment of an anti-pollution tax

It is essential to continue working to promote the use of public transport, especially in the current circumstances - in which underuse has been detected due to the population's fear of the risk of infection in the context of a pandemic - recovering confidence in its use, promoting it and providing it with more resources so that it can be a feasible alternative to the private vehicle, especially in compulsory mobility. However, mechanisms must be established so that its current underuse doesn't lead to an increase in motorized modes

Intermodality between the different modes of transport must be promoted by establishing a network of connections that encourages the use of sustainable modes of mobility with measures such as the creation of shuttle parking and park & rides in urban perimeters and public transport stations, and safe parking for bicycles at train and bus stations.

On the other hand, the new shared mobility services become an opportunity to promote a more sustainable mobility, because they reduce the negative externalities compared to those of the private vehicle. Consequently, shared mobility services, in their different modalities (car sharing, motorcycle sharing, bike sharing...) are a good opportunity to reduce pollution, to promote more sustainable mobility, to improve parking management in cities and to promote the renewal of the existing fleet of vehicles by encouraging the use of vehicles with less polluting energies, such as electric vehicles.

On the other hand, it is important to adapt cities and towns to the new modes of sustainable mobility that are emerging, such as personal mobility vehicles (PMVs), which have experienced a considerable increase in use in recent years. Given the emergence of this new mobility player, it is necessary to standardize its criteria for use and circulation through a common regulation and at the same time promote safe coexistence in their interrelation with pedestrians and other vehicles.

Nevertheless, within the urban area, it is necessary to continue working on the improvement of local road safety, with the expansion of local road safety plans in all localities and the continuation of the strategy of evaluation and continuous updating of the existing local plans, as well as the implementation of technical work to improve road safety to address specific problems of localities in relation to aspects such as traffic calming in a specific area, the organization of an industrial estate or a housing development with road safety criteria, or the study in a peri-urban area, among others.

The following sub-areas and strategic lines are derived from the development of this line of action:

1.1 Strategies to facilitate a modal shift towards more sustainable modes of transport and to promote intermodality between different modes of transport

1.1.1 Promote safe, active and sustainable mobility

Agents involved: Departments of the Interior through the Catalan Traffic Service and the Directorate General of the Police; Territory and Sustainability; Education; Labor, Social Affairs and Families; Health; the ATM; Provincial Councils; City Councils; local authorities; local police and other public and private entities.

- 1.1.1.1 Encourage the use of safe, active and sustainable modes of transport, promoting the use of bicycles, personal mobility vehicles, public transport and pedestrian mobility.
- 1.1.1.2 Involve the logistics sector in the commitment to reduce emissions of atmospheric pollutants and greenhouse gases, promoting the urban distribution of last-mile goods with electric and/or non-polluting vehicles.
- 1.1.1.3 Promote sustainable modes of transport in labor mobility, encouraging company commuting plans
- 1.1.1.4 Conduct awareness-raising campaigns to promote safe, active and sustainable mobility

1.1.2 Promote the use of public transportation

Agents involved: Departments of Territory and Sustainability; Labor, Social Affairs and Families; Health; the ATM; provincial councils; town councils; local authorities and other public and private entities.

- 1.1.2.1 Provide a safe, affordable, accessible and sustainable public transport system for all.
- 1.1.2.2 Provide a collective public transport system that is competitive with the private vehicle, especially for regional commuting.
- 1.1.2.3 Facilitate access for public transport in large cities with bus lanes.
- 1.1.2.4 Adapt the public transport supply to labor mobility needs.

1.1.3 Promote intermodality

Agents involved: Departments of Territory and Sustainability; Business and Knowledge; Labor, Social Affairs and Families; the AMB; the ATM; Railways of the Generalitat de Catalunya; RENFE; provincial councils; city councils; other supralocal and local entities and other public and private entities.

- 1.1.3.1 - 1.1.3.1 Promote intermodality between the different modes of transport.
- 1.1.3.2 Strengthen shuttle and park & ride infrastructures to promote connections with sustainable mobility modes.
- 1.1.3.3 Facilitate access to industrial parks through public transport, intermodal connections and sustainable mobility modes.

1.2 Initiatives to reduce air and noise pollution

1.2.1 Implement actions to improve air quality and reduce noise pollution

Agents involved: Departments of the Interior through the Catalan Traffic Service; Territory and Sustainability; health; the AMB; the ATM; provincial councils; city councils; local authorities and other public and private entities.

- 1.2.1.1 Consolidate the implementation of strategies for sustainable access to cities, such as the expansion of low-emission zones and the implementation of traffic restriction measures for environmental reasons to discourage the use of private vehicles within cities.
- 1.2.1.2 Harmonize regulatory ordinances on environmental driving restrictions.
- 1.2.1.3 Conduct communication campaigns explaining the health benefits of establishing low-emission zones.
- 1.2.1.4 Encourage the renewal of the existing fleet of vehicles, both private vehicles and fleets for transporting goods or passengers, with the incorporation of low-emission vehicles that are clean and use renewable energies.

- 1.2.1.5 Implement actions to improve noise quality by introducing changes in mobility patterns, promoting quieter and healthier modes of transport and reducing the use of private motor vehicles.
- 1.2.1.6 Promote the protection of sensitive areas (schools, hospitals, residences, facilities, etc.) in order to reduce noise pollution.

1.3 New trends in urban mobility. Personal mobility vehicles and shared vehicles

1.3.1 Integrate personal mobility vehicles into road safety dynamics

Agents involved: Departments of the Interior through the Catalan Traffic Service and the Directorate General of the Police; Education; provincial councils; the AMB; city councils; local authorities; local police and other public and private entities.

- 1.3.1.1 Establish recommendations for the safe circulation of personal mobility vehicles (PMVs).
- 1.3.1.2 Conduct training activities on the use of PMVs.

1.3.2 Promote the use of shared vehicles

Agents involved: Departments of the Interior through the Catalan Traffic Service and the Directorate General of the Police; Territory and Sustainability; Labor, Social Affairs and Families; Provincial Councils; the AMB; the ATM; city councils; local authorities; local police and other public and private entities.

- 1.3.2.1 Encourage the use of the different types of existing shared vehicles (car, bus, motorcycle, bicycle, PMV).
- 1.3.2.2 Promote electric vehicle sharing
- 1.3.2.3 Promote the use of shared mobility services in workplaces.

1.4 Urban planning and adaptation of infrastructures to a greener and healthier city model

1.4.1 Incorporate safe, sustainable and accessible mobility criteria in urban planning

Agents involved: Departments of the Interior through the Catalan Traffic Service and the Directorate General of the Police; Territory and Sustainability; Health; Labor, Social Affairs and Families; provincial councils; the AMB; city councils; local authorities; local police and other public and private entities.

- 1.4.1.1 Design public space in order to promote sustainable, safe and accessible modes of mobility, and minimize the population exposed to air and noise pollution.
- 1.4.1.2 Adapt urban infrastructures to sustainable and safe mobility modes
- 1.4.1.3 Integrate road safety into municipal planning through local road safety plans.
- 1.4.1.4 To take into account occupational mobility planning in urban planning.

1.4.2 Extend traffic calming measures

Agents involved: Department of the Interior through the Catalan Traffic Service and the Directorate General of the Police; provincial councils; city councils; local authorities; local police and other public and private entities.

- 1.4.2.1 Promote traffic calming measures in urban areas.
- 1.4.2.2 Expand superblocks and traffic calming hubs, 30 km/h zones, single-platform streets with priority for local commuting, or pedestrian zones.
- 1.4.2.3 Introduce new speed reduction measures in urban areas.

Line 2 –Adapting road safety policies to the new characteristics of the accident rate

During the decade 2000-2010, Catalonia was one of the leading countries in Europe in the reduction of fatal accidents on the road network, achieving reductions of more than 50% in road traffic fatalities.

However, in the decade 2010-2020 these reductions have been around approximately 30% in fatalities, far from meeting the 50% reduction target set by the Strategic Plan for Road Safety 2014-2020 in Catalonia, reduction percentages that coincide with the majority of European countries in our environment. Nonetheless, it remains to be seen what consolidation effects this trend will have as a consequence of the pandemic caused by COVID-19.

In any event, without taking into account the exceptional nature of the curb on mobility initially caused by the health crisis, this trend of a certain slowdown in the fulfillment of road safety objectives throughout Europe, in Catalonia it can be justified by observing the latest accident trends, which show an increase in the dispersion of accidents and a plateauing in the decrease in mortality. The decreasing trend is modified from 2014, when the evolution of mortality and serious accidents show variations and there is no continuous reduction over the years.

Moreover, although there are still sections and accident hotspots, today accidents are no longer grouped into specific points but are spread out more widely across the national territory, which means that road safety actions must be accompanied by an even more precise diagnosis and a certain microsurgery.

It should also be noted that with the last economic recovery resulting from the crisis that began in 2007, mobility increased with a consequent increase in accidents. The change in forced mobility - with a growing tendency to move away from the place of residence / work / school - is also one of the factors that may explain this dispersion of accidents.

Speeding, driving under the influence of alcohol and other substances or psychotropic drugs, as well as the growing importance of distractions, with the use of cell phones in driving as a factor that is constantly increasing, are some of the concurrent factors that cause more traffic accidents. To this end, we must work to intensify and reinforce measures to control these risk factors.

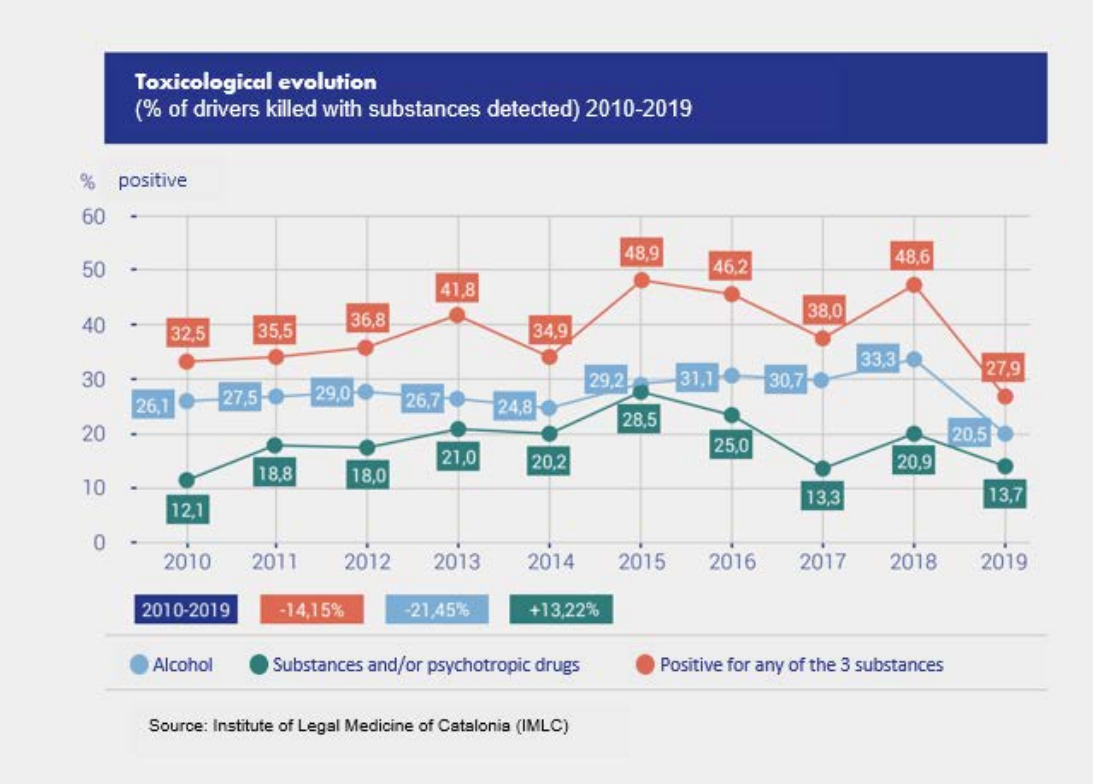
Consequently, adapting road safety policies to the new accident rate characteristics requires, above all, a multiple and multidisciplinary approach, which in this new stage must focus even more on the human factor, which is responsible for more than 90% of accidents.

The protection of vulnerable groups and the need to increase knowledge about the concurrent factors of the accident rate are key in this area, both in terms of deepening the technical possibilities offered by big data and in terms of the specific measures to be taken to prevent each and every one of these accidents on a sectoral basis.

Although administrations are increasingly and better prepared to acquire the data that helps them to understand and analyze the accident rate and its causes, work must be done to improve accident information systems and, above all, coordination between the different administrations involved, as well as improving police coordination between the different traffic police forces.

This need for technical and police coordination must have repercussions on the improvement of the control of traditional and new factors ranging from excessive or inadequate speed or the consumption of alcohol and other substances or psychotropic drugs to distractions. It is necessary to review the existing speed limits and adapt them according to each road with a decreasing trend, move towards the establishment of a 0.0% consumption rate and consolidate control over risky behaviors based on the inappropriate use of electronic devices that have become part of our lives almost every minute.

The impact of the consumption of alcohol, other substances and psychotropic drugs on driving is a risk factor that causes a large number of road accidents. For this reason, it is important to focus on its prevention and control. According to the toxicological evolution data analyzed by the Institute of Legal Medicine of Catalonia (IMLC) shown in the graph below, in 2019, 20.5% of drivers killed in traffic accidents had consumed alcohol, 13.7% had consumed illegal substances and/or psychotropic drugs and 27.9% had tested positive for any of these three substances.



Neither can we forget the importance of continuing to work on safe infrastructures, an aspect that will be dealt with in detail in line of action 5 of the Pact with measures that contribute to reducing the number of accidents, and on the development and implementation of active driving safety technologies as a way of improving road safety.

If we focus on the diversity of vulnerable groups (pedestrians, cyclists, users of personal mobility vehicles, motorcyclists and the elderly), the most worrying areas that still require a specific focus of action are headed by motorcyclists and the elderly because of what they constitute in the overall accident rate. Neither of these two groups follow the general decreasing parameters and even increase the figures of the beginning of the decade 2010-2020. Cyclists also deserve special attention, due to their growing rate of implementation, because of their increasing growth in urban areas.

Group by group, the priority of traffic policies, especially in urban areas, must start from the protection of pedestrians. In 2019, collisions with pedestrians were still the main cause of pedestrian accidents in urban areas, while in interurban areas they outnumbered other types of accidents, such as rollovers on the roadway or collisions with an obstacle. The introduction of new driving technologies applied to the improvement of pedestrian safety, such as detection system devices or innovation in pedestrian crossing signaling, as well as intelligent lighting, can contribute to the improvement of the safety of this group and all of this can lead to a better and better adapted urban planning.

Another important measure to promote pedestrian mobility and reduce pollution from motor vehicles is the establishment of traffic calming measures such as 30 km/h zones, superblocks and traffic calming hubs, pedestrian islands and single-platform streets with reversed priority, aspects that have already been addressed in the previous section. The aim is to recover space for pedestrians to the detriment of that traditionally allocated to private vehicles, in order to have more calmed urban spaces that contribute to improving people's quality of life and health, as well as to reducing the high levels of pollution that are still being recorded.

With regard to cyclists, the Catalan Traffic Service is committed to the challenge of promoting bicycle use, which has recently increased considerably. According to the Bicycle Barometer 2019,[14] 40.3% of the population in Catalonia uses the bicycle with some frequency and specifically 4.8% use it every day or almost every day. The Government of the Generalitat, through the Department of Territory and Sustainability and the direct participation of the Catalan Traffic Service, has approved the Catalan Bicycle Strategy 2020-2025,[15] which establishes as a general objective, in accordance with the Sustainable Development Goals, to double the modal share of bicycles to reach 8% of urban commuting and to ensure that this increase is made without increasing the accident rate in this sector, which in recent years has been suffering the effects of the combined impact on its space from the phenomenon of personal mobility vehicles.

Many municipalities are currently working to provide infrastructures for bicycles and these personal mobility vehicles with the creation of a basic cycling network, influencing the design of urban space and developing spaces for bicycles with connections to the city's main facilities and public transport. Furthermore, to promote effective intermodality between bicycles and public transport, we must insist on improving accessibility to stations, creating safe bicycle parking areas and promoting a harmonious coexistence with other modes of mobility.

In order to reduce the accident rate among motorcyclists, the Catalan Traffic Service proposes training as a cornerstone of improvement with the implementation of courses adapted to the associated type of driving and specific risks. It is also important to promote the use of adequate protective equipment adapted to the needs of each type of two-wheeled vehicle user. Apart from training and equipment, it is essential to adapt the road infrastructure to motorcyclists and the vulnerabilities involved in two-wheeled driving, with the implementation of specific adaptations to improve their protection, especially in those stretches with higher average intensity or higher risk with the presence of motorcyclists.

As for the elderly, the population's aging has a very visible impact on mobility and road safety. The number of fatalities between the ages of 65 and 74 decreased the least in 2019 compared to the 2010 baseline, less than 5 percent. Taking this sector into account, it is important to carry out training actions for the elderly adapted to the characteristics of their mobility and to adapt the urban space to their mobility needs, with generic and specific measures such as the protection of the environment of the facilities frequented by this group or with the appropriate traffic light regulations for the dynamics of the elderly.

Another important aspect to be addressed in the future is the need to establish greater control of the perceptual, motor and cognitive functions of people with driving licenses by adapting the license renewal tests to these specific characteristics, with a more complete test in the case of the elderly. Communication between traffic and health authorities must also be improved in order to provide the most appropriate response possible to the needs of the different risk groups, while respecting the privacy of their personal data.

For all these reasons, it is necessary to work on the following sub-areas and strategic lines:

[14] *Bicycle Barometer Survey 2019. Department of Territory and Sustainability*
[15] *Catalan Bicycle Strategy 2020-2025. Department of Territory and Sustainability*

2.1 Strategies to address the dispersion of accidents and the plateauing in accident rate decline

2.1.1 Analyze traffic accidents in order to identify the causes and establish corrective measures

Agents involved: Departments of the Interior through the Catalan Traffic Service and the Directorate General of the Police; Territory and Sustainability; Health (Sub-directorate General of Drug Addiction); provincial councils; town councils; local authorities; local police; the Catalan Institute of Women and other public and private entities

- 2.1.1.1 Improve the traffic and mobility accident information system in collaboration and coordination with the traffic police forces
- 2.1.1.2 Investigate further the type and cause of accidents according to their severity
- 2.1.1.3 Define and create a traffic and accident modeling unit.•
- 2.1.1.4 Incorporate a gender perspective in the study of accidents and risky driving behaviors •
- 2.1.1.5 Promote citizen collaboration mechanisms (apps, for example) that facilitate the localization of road risk situations

2.1.2 Have an impact on risky driving behaviors

Agents involved: Departments of the Interior through the Catalan Traffic Service and the Directorate General of the Police; Territory and Sustainability; Health (Sub-directorate General of Drug Addiction); local police; provincial councils; city councils; local authorities; victims' associations and other public and private entities.

- 2.1.2.1 Reduce risky behaviors against road safety through prevention and control actions•
- 2.1.2.2 Address inadequate or excessive driving speed •
- 2.1.2.3 Work to put an end to the use of alcohol, other substances and psychotropic drugs while driving •
- 2.1.2.4 Address the use of mobile phones while driving and distractions at the wheel
- 2.1.2.5 Improve the coordination of traffic police and road safety surveillance and control tasks
- 2.1.2.6 Conduct awareness-raising actions on the effects and consequences of risky driving behaviors.

- 2.1.2.7 Improve the penalization procedure for more effective control of risky behaviors
- 2.1.2.8 Incorporate education and training in safe and sustainable mobility as preventive actions in all areas
- 2.1.2.9 Work with society and the telecommunications and mobile device industry to minimize distractions while driving

2.1.3 Improve infrastructures to favor safer mobility

Agents involved: Departments of the Interior through the Catalan Traffic Service and the Directorate General of the Police; Territory and Sustainability; provincial councils and other public and private entities.

- 2.1.3.1 Review vertical and horizontal signage and take measures to contribute to reducing the number of head-on/side collisions, with actions such as the introduction of 2+1 roads.
- 2.1.3.2 Draw up regulations for restraint systems adapted to the reality of most Catalan roads.

2.1.4 Increase the technological adaptation of the Catalan car fleet

Agents involved: Departments of the Interior through the Catalan Traffic Service and the Directorate General of the Police; Territory and Sustainability and other public and private entities.

- 2.1.4.1 Establish a consistent regulatory framework that encourages the development and implementation of adaptive occupant protection and observation systems
- 2.1.4.2 Prepare the appropriate environment for the deployment of tertiary safety systems to help improve and speed up the response of emergency and rescue teams in traffic accidents

2.2 Prevention of pedestrian collisions

2.2.1 Rethinking public space by making the pedestrian the focus of public urban planning and mobility policies

Agents involved: Departments of the Interior through the Catalan Traffic Service and the Directorate General of the Police; Territory and Sustainability; Health; the ATM; the local police; provincial councils; city councils; local authorities and victims' associations.

- 2.2.1.1 Implement new traffic calming and reverse priority zones for pedestrian mobility.
- 2.2.1.2 Establish road safety measures to protect pedestrians.

2.2.2 Control risk behaviors for pedestrian protection

Agents involved: Departments of the Interior through the Catalan Traffic Service and the Directorate General of the Police; Territory and Sustainability; Health (Sub-directorate General of Drug Addiction); local police; provincial councils; city councils; local authorities and other public and private entities.

- 2.2.2.1 Address behaviors that pose a risk to pedestrian protection (for example: infractions by drivers of different types of vehicles that endanger pedestrians' integrity , or infractions related to non-compliance with traffic lights and pedestrian crossings, as well as monitoring unregulated behaviors that cause harm to people, etc.)

2.2.3 Promote measures to protect pedestrians in interurban areas

Agents involved: Departments of the Interior through the Catalan Traffic Service and the Directorate General of the Police; Territory and Sustainability; local police; provincial councils; city councils; local authorities; victims' associations and other public and private entities.

- 2.2.3.1 Plan side paths, sidewalks for pedestrians or alternative routes on interurban roads where there is a certain intensity of pedestrian traffic
- 2.2.3.2 Study making the use of reflective and lighting elements mandatory for walking on interurban roads

2.2.4 Promote the incorporation of ADAS - safety devices in vehicles for pedestrian protection

Agents involved: Departments of the Interior through the Catalan Traffic Service; Business and Knowledge; Digital Policies and Public Administration; provincial councils; city councils; local authorities and other public and private entities.

2.2.5 Promote road education for safe and sustainable mobility on road user risks and behaviors in order to improve their safety

Agents involved: Departments of the Interior through the Catalan Traffic Service and the Directorate General of the Police; Education; Health (Sub-directorate General of Drug Addictions); local police; provincial councils; city councils; local authorities and other public and private entities.

2.3 Cyclists: the challenge of promoting the use of bicycles without increasing accident rates

2.3.1 Promote communicational, educational and training activities on the use of bicycles

Agents involved: Departments of the Interior through the Catalan Traffic Service and the Directorate General of the Police; Territory and Sustainability; Education; Health (Sub-directorate General of Drug Addiction); local police; provincial councils; city councils; local authorities; other public and private entities and associations.

- 2.3.1.1 Increase educational activities on bicycle use
- 2.3.1.2 Ensure that education for safe and sustainable mobility in bicycle use is included in the school curriculum for primary and secondary school students
- 2.3.1.3 Study the implementation of fines for cyclists equivalent to compulsory attendance at training and awareness sessions
- 2.3.1.4 Collaborate in national and international cycling promotion organizations and with other public and private institutions
- 2.3.1.5 Conduct campaigns to promote bicycle use

2.3.2 Regulate cycling, investigate the accident rate and address road indiscipline

Agents involved: Departments of the Interior through the Catalan Traffic Service and the Directorate General of the Police; Territory and Sustainability; Health (Sub-directorate General of Drug Addiction); local police; provincial councils; town councils and local authorities.

- 2.3.2.1 Make legal proposals for cycling to improve safety
- 2.3.2.2 Promote the use of safety elements such as helmets and the use of lights during the day
- 2.3.2.3 Prepare studies and reports that allow us to know the causes of accidents involving cyclists in greater detail and to characterize their mobility
- 2.3.2.4 Address road indiscipline of both cyclists and other road users in their interaction with cyclists and establish specific and comprehensive controls for the purpose of reducing accidents

2.3.2 Create cycling infrastructures to guarantee a continuous network

Agents involved: Departments of the Interior through the Catalan Traffic Service and the Directorate General of the Police; Territory and Sustainability; Education; local police; provincial councils; city councils; local authorities and other public and private entities.

- 2.3.3.1 Review the space allocated to bicycle users in urban environments in order to avoid conflicts with other road users (motor vehicles, pedestrians and users of personal mobility vehicles)
- 2.3.3.2 Promote the creation of a connected inter-urban cyclable network connecting different towns by means of bicycle lanes
- 2.3.3.3 Study the implementation of segregated lanes where different modes of transport circulate according to parameters such as speed, vulnerability, risk to third parties and maneuverability

2.4 Motorcyclists: how can we improve their safety?

2.4.1 Promote continuous training through refresher and recycling training activities

Agents involved: Departments of the Interior through the Catalan Traffic Service and the Directorate General of the Police; Labor, Social Affairs and Families; Health (Sub-directorate General of Drug Addiction); local police; provincial councils; city councils; local authorities and other public and private entities.

- 2.4.1.1 Promote road safety training for motorcyclists and other road users regarding their interaction with motorcyclists
- 2.4.1.2 Review the conditions, experience and requirements needed to drive motorcycles belonging to different categories
- 2.4.1.3 Conduct communication and awareness-raising campaigns aimed at different groups of motorcycle users according to their type of mobility (urban, leisure and/or weekends, users of shared mobility services, etc.)

2.4.2 Influence the improvement of the road infrastructure and protection for motorcyclists

Agents involved: Departments of the Interior through the Catalan Traffic Service and Territory and Sustainability; provincial councils; city councils; local authorities and other public and private entities.

- 2.4.2.1 Improve road safety for motorcyclists by installing protection systems and ensuring optitimal infrastructure maintenance conditions.
- 2.4.2.2 Study the implementation of different means of lane segregation for motorcylists.

2.4.3 Promote passive and active safety systems for motorcycles and motorcyclists.

Agents involved: Departments of the Interior through the Catalan Traffic Service and the Directorate General of the Police; Territory and Sustainability; Business and Knowledge (Sub-directorate General of Industrial Safety); Health (Sub-directorate General of Drug Addictions); local police and other public and private entities.

- 2.4.3.1 Promote safe protective equipment for motorcyclists and their riders
- 2.4.3.2 Invest in innovating active safety systems for motorcycles
- 2.4.3.3 Encourage the renewal of the mobile motorcycle and moped fleet to incorporate safety improvements and promote more sustainable commuting
- 2.4.3.4 Encourage heavy vehicles to be equipped with driving aid safety systems for the protection of vulnerable groups including motorists and pedestrians.

2.4.4 Address indiscipline on roads

Agents involved: Department of the Interior through the Catalan Traffic Service and the Directorate General of the Police; Health (General Sub-directorate of Drug Addictions); provincial councils; city councils; local authorities and local police.

- 2.4.4.1 Addressing risky behavior from motorcyclists and from other road users towards motorcyclists

2.5 Effects of population aging on mobility and traffic safety

2.5.1 Establish a continuous lifelong training program on safe and sustainable mobility

Agents involved: Departments of the Interior through the Catalan Traffic Service and the Directorate General of the Police; Health; provincial councils; town councils; local authorities; local police and other public and private entities.

- 2.5.1.1 Establish a system of continuous training for the elderly to help them improve their driving skills and attitudes.
- 2.5.1.2 Conduct specific training actions for the elderly both at driver's licensing and driver's license renewal centers, as well as at advice centers and civic centers, with the aim of improving safety in their commutes.
- 2.5.1.3 Study and propose improvements to the driving license renewal tests according to the physical and cognitive capacities of each individual.

2.5.2 Acting on infrastructures for the protection of elderly people's mobility

Agents involved: Departments of the Interior through the Catalan Traffic Service and the Directorate General of the Police; Labor, Social Affairs and Families; Health; provincial councils; town councils; local authorities; local police and other public and private entities.

- 2.5.2.1 Reorganize urban space, taking into account the trend towards a progressively aging population, incorporating the specific mobility needs of the elderly in the present and future design of towns and cities

2.5.3 Study new traffic requirements to guarantee elderly people's mobility and road safety

Agents involved: Departments of the Interior through the Catalan Traffic Service and the Directorate General of the Police; Labor, Social Affairs and Families; Health (Sub-Directorate General of Drug Dependency); provincial councils; city councils; local authorities; local police and victims' associations.

2.5.4 Promote driving assistance measures, especially in heavy vehicles and public transport to prevent pedestrian injuries

Agents involved: Departments of the Interior through the Catalan Traffic Service and the Directorate General of the Police; Labor, Social Affairs and Families; provincial councils; town councils; local authorities; local police and other public and private entities.

Line 3 – Creating an awareness-raising and educational strategy to involve society as a whole

In view of the paradigm shift that is taking place in mobility and the challenges and opportunities that arise from it, and in order to face the climate emergency situation we are currently facing, efforts must be made to develop a communicational and awareness-raising strategy that promotes real social and cultural changes that will result in a more sustainable, active, healthy and safe mobility.

As a result of the participatory process for the development of this Pact, the need for a change in our way of transmitting information on road safety and sustainable mobility has become evident: it is necessary to do it in a way that is more cross-sectional and adapted to new communication channels, such as social networks, in order to reach the different groups of people who use public roads more quickly and effectively, and specifically those who are most vulnerable.

But we must not only amplify the channels and ways of communicating, we must also reinterpret the communication strategy beyond the intrinsic communicative fact. Communicating in a broad sense means being aware of the lifelong message that citizens receive, throughout the entire educational and formative period of their lives.

In recent times, a positive reinforcement of the responsible use of the road and civil behaviors has been detected among citizens, which has made it possible to stop placing the focus exclusively on those minority behaviors that infringe the rules of road safety. For this reason, in addition to implementing awareness-raising campaigns on the consequences of reckless behavior, it is necessary to highlight those positive attitudes and behaviors regarding driving even more. Another area to be promoted are communicational actions that encourage sustainable forms of mobility, such as walking, cycling, public transport or skateboarding, in a safe way.

It is necessary to work towards sending a message of road safety and sustainable mobility to the population that is cross-sectorial and that addresses society as a whole, which must have an impact on the safety of all road users and not only on the safety of drivers. In this regard, and as an example, institutions must continue to ensure that advertising messages from car and motorcycle manufacturers don't convey a positive image of speed, not even subliminally, as well as to avoid contents that violate the rights of a part of the population or that legitimize gender inequalities and are contrary to our society's values.

On the other hand, it is necessary to emphasize the importance of strengthening the communicative synergies between the different actors involved in mobility and to establish participatory mechanisms for administrations and civil society to be able to work together in order to be more efficient with a shared responsibility in mobility. It is necessary to build stronger dynamics between the different administrations, entities and media, associations and companies that work directly or indirectly in the fields of sustainable mobility, road safety and traffic in order to transmit the change in the existing mobility patterns.

In any event, the area of road education and training must continue to be strengthened as a basic pillar to achieve a cultural change, also in mobility, and for this reason it is important to extend it first of all to schools and high schools: including more content on safe and sustainable mobility in the curriculum to support the development of responsible mobility habits and behaviors and with a gender perspective approach. There must be an educational model that includes informative and conceptual content and skills, but also attitudes and emotions. That is why reflection, experimentation, practice and discovery are so important, without which mobility competencies cannot be acquired. Furthermore, what is learned must go hand in hand with what is experienced, which is why we must promote educational paths and an environment of educational facilities that consolidate this vision, allowing safe and accessible access to the center.

It is also necessary to promote continuous training for drivers, and to adapt this training to the new challenges of mobility so that they can improve their skills and update their knowledge in relation to new technological advances and new forms of mobility. However, continuous learning should not be limited only to vehicle drivers, but it is also essential to educate and raise awareness of safe and sustainable mobility among all citizens, regardless of the means of transport they use, with special emphasis on new modes of mobility, such as personal mobility vehicles.

Another aspect to rethink is the treatment of offenders who repeatedly fail to comply with the regulations on driving under the influence of alcohol, other substances or psychotropic drugs. For now, the treatment they receive is formative, but it is necessary to address the problem in a comprehensive manner, including therapeutic measures applied from the health field. This requires a review of regulations and proposals for legal reform.

Some examples of possible actions to be promoted would be to carry out an evaluation to detect possible risk behaviors at the time of license renewal, the creation of a registry of drivers who, for medical reasons, are unfit to drive without this involving access to their medical records, or the substitution of financial penalties for training and awareness courses or other treatment measures, if deemed necessary

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As for driving schools to obtain driver's licenses, it is essential to continue working to improve their quality by promoting actions such as the driving school seal of quality, and establishing evaluation and control mechanisms, without forgetting the promotion of training and refresher courses for their instructors by creating, for example, a series of advanced training activities or the promotion of a specific qualification for road safety instructors.

Finally, the communicational strategy must not overlook occupational road safety and the modal and intermodal shift in commuting to the workplace. Along these lines, it is important to continue working to incorporate this area into occupational risk prevention plans and to promote the development of company commuting plans, which should become basic tools for the promotion and dissemination of safe and sustainable mobility and training and efficient driving, both for commuting to and from work and for commuting during the working day.

In order to achieve more sustainable occupational mobility, it is essential for public institutions to encourage commuting to and from work by sustainable means of transport, as well as the use of public transportation. For this reason, it is important to create park-and-ride facilities at public transport stations and provide the existing public transport network with a better capacity to respond to the needs of commuters and to improve, for example, the frequency of commutes to and from work in industrial parks. In the event that the workplace has no or a poor connection to public transport, in addition to taking all the necessary actions to improve these situations, the option of carpooling or shared mobility services can also be promoted at the request of users.

The growing trend towards new forms of work organization, such as teleworking, also has positive effects on mobility, contributing to a rationalization and reduction of mobility, with the consequent environmental and road safety benefits that this entails.

For all these reasons, it becomes clearly necessary to work on the following sub-areas and strategic lines of action:

3.1 Communicational synergies for a more efficient impact on shared responsibility for mobility

3.1.1 Increase communication awareness-raising campaigns for safe and sustainable mobility

Agents involved: Departments of the Interior through the Catalan Traffic Service and the Directorate General of the Police; Territory and Sustainability; Education; Health; Labor, Social Affairs and Families; Justice; the ATM; provincial councils; town councils; local authorities; local police; the Catalan Institute of Women and other public and private entities.

- 3.1.1.1 Coordinate a communicational discourse focused not only on the consequences and dangers of engaging in risky behaviors, but also on the positive attitude of shared and compatible responsibility on behalf of all road users
- 3.1.1.2 Conduct communication campaigns, through media outlets and social networks, that encourage safe, active and sustainable modes of mobility
- 3.1.1.3 Disseminate a road safety and sustainable mobility message adapted to all road users
- 3.1.1.4 Increase road safety messages in the media
- 3.1.1.5 Take measures to ensure that crash tests conducted by vehicle manufacturers include dummies equitably
- 3.1.1.6 Program campaigns to promote collaborative driving as opposed to competitive driving

3.1.2 Disseminate knowledge and messages of sustainable and safe mobility through the participation and collaboration of universities and scientific institutes, and at events and conferences

Agents involved: Departments of the Interior through the Catalan Traffic Service and the Directorate General of the Police; Territory and Sustainability; Education; Health; Labor, Social Affairs and Families; Justice; the ATM; provincial councils; town councils; local police and other public and private entities.

3.2 Training strategy for children and young people on the current and future mobility model

3.2.1 Promote education about a future mobility model at schools, colleges, training centers and universities

Agents involved: Departments of the Interior through the Catalan Traffic Service and the Directorate General of the Police; Territory and Sustainability; Education; Health; provincial councils; city councils; local authorities; local police and other public and private entities.

- 3.2.1.1 Incorporate road safety training adapted to each level into the educational curriculum
- 3.2.1.2 Integrate cross-sectorial training in basic skills in sustainable, safe and healthy mobility with educational proposals for children and young people
- 3.2.1.3 Improve the training of professionals working in education for safe and sustainable mobility
- 3.2.1.4 Collaborate with administrations, organizations and public and private entities to expand education for safe and sustainable mobility.
- 3.2.1.5 Promote safe and sustainable mobility skills within the framework of pedagogy, psychology and teaching studies, among others, in order for future new educators, teachers and trainers to acquire these skills

3.2.2 Promote active, safe and sustainable mobility in schools and make a statement defending this mobility

Agents involved: Departments of the Interior through the Catalan Traffic Service and the Directorate General of the Police; Territory and Sustainability; Education; Health; provincial councils; city councils; local authorities and other public and private entities.

3.3 Lifelong learning to address risks and needs for safe, sustainable and healthy mobility

3.3.1 Promote continuous lifelong learning

Agents involved: Departments of the Interior through the Catalan Traffic Service and the Directorate General of the Police; Territory and Sustainability; Education; Labor, Social Affairs and Families; Health; Agriculture, Livestock, Fisheries and Food; provincial councils; city councils; local authorities; local police and other public and private entities.

- 3.3.1.1 Promote continuous lifelong experiential training in road safety and sustainable mobility, taking into account the different target groups and the different modes of mobility they choose
- 3.3.1.2 Adapt road training to the new technologies applied to mobility in order to be able to use them safely

3.3.2 Promote training in the field of transportation

Agents involved: Departments of the Interior through the Catalan Traffic Service and the General Directorate of the Police; Territory and Sustainability; Labor, Social Affairs and Families; Agriculture, Livestock, Fisheries and Food; Health (Sub-directorate General of Drug Addiction); the ATM; city councils; local governments; local police and other public and private entities.

- 3.3.2.1 Disseminate information on transport regulations

3.3.3 Disseminate information on environmental risks and risk factors in driving through awareness-raising communication campaigns

Agents involved: Departments of the Interior through the Catalan Traffic Service and the Directorate General of the Police; Territory and Sustainability; Labor, Social Affairs and Families; Health; provincial councils; town councils; local authorities; local police and other public and private entities.

- 3.3.3.1 Disseminate information on environmental risks through awareness-raising communication campaigns

3.4 Driver training adapted to new mobility challenges

3.4.1 Implement a comprehensive model of driver training for safe and sustainable mobility that combines education in values and experiential training

Agents involved: Departments of the Interior through the Catalan Traffic Service and the Directorate General of the Police; Labor, Social Affairs and Families; Health; local police and other public and private entities involved.

- 3.4.1.1 Train drivers in the challenges posed by new modes of mobility and make proposals to modify training content.
- 3.4.1.2 Promote the introduction of refresher training actions for drivers when renewing their driving licenses, enabling them to update their knowledge and adapt to the new challenges of mobility.

3.4.2 Promote the improvement of the quality of training centers and their professionals

Agents involved: Department of the Interior through the Servei Català de Trànsit (Catalan Traffic Service); other public and private entities.

- 3.4.2.1 Incentivize excellence in training and driver's license renewal centers through the promotion of mechanisms such as the high-quality driving school seal of approval

3.4.3 Promote training and refresher courses for school bus trainers

Agents involved: Departments of the Interior through the Catalan Traffic Service; Education; Health (General Sub-directorate of Drug Addiction); the Catalan Institute for Women and other public and private entities.

- 3.4.3.1 Promote the creation of a specific qualification for road safety teachers within the regulated education system
- 3.4.3.2 Encourage refresher courses and updating of knowledge of teachers and driving school staff through a training plan for the center
- 3.4.3.3 Include knowledge of gender perspective in the training of driving school instructors
- 3.4.3.4 Promote the driving school teaching profession so that it is not so masculinized

3.5 Preventive and control measures for offending and repeat behaviors

3.5.1 Address the problem of drivers and repeat offenders taking into account possible addiction problems and their therapeutic intervention

Agents involved: Departments of the Interior through the Catalan Traffic Service and the Directorate General of the Police; Health (Sub-directorate General of Drug Addictions); Labor, Social Affairs and Families; Justice and other public and private entities.

- 3.5.1.1 Detect possible risk behaviors at the moment of driver's license renewal, by performing a risk detection assessment, in order to identify possible problems or report existing risk factors

3.5.2 Promote new measures in road awareness and re-education

Agents involved: Departments of the Interior through the Catalan Traffic Service and the Directorate General of the Police; Health; Justice; local police and other public and private entities involved.

- 3.5.2.1 Promote improved effectiveness of training courses in road awareness-raising and re-education
- 3.5.2.2 Promote the implementation of training and awareness-raising courses as a substitute for applying financial penalties
- 3.5.2.3 Study and propose establishing positive reinforcement mechanisms for drivers and non-offending drivers
- 3.5.2.4 Propose measures aimed at drivers and repeat offenders such as doing community service work or limiting the renewal of drivers' licenses in the case of multiple offenders
- 3.5.2.5 Evaluate the points system and its impact on road safety violation

3.5.3 Disseminate repeat offenses that endanger people's safety

Agents involved: Departments of the Interior through the Catalan Traffic Service and the Directorate General of the Police; Health; Justice; local police and other public and private entities.

- 3.5.3.1 Conduct awareness-raising campaigns regarding the consequences of repeat offenses that jeopardize the safety of people's mobility

3.6 Increase actions to improve road safety in the workplace

3.6.1 Promote sustainable mobility and road safety at work in companies.

Agents involved: Departments of the Interior through the Catalan Traffic Service and the Directorate General of the Police; Health; Labor, Social Affairs and Families; Territory and Sustainability; Digital Policies and Public Administration; the Presidency; the ATM; provincial councils; the local police; city councils; local authorities and other public and private entities involved.

- 3.6.1.1 Integrate occupational road safety into occupational risk prevention plans.
- 3.6.1.2 Develop a guide for the management of work-related commuting travel in companies
- 3.6.1.3 Promote company commuter plans (PDE) to optimize employee mobility, encouraging the use of alternative means of transport to private vehicles, and rationalizing the use of cars
- 3.6.1.4 Promote specific mobility plans for industrial parks and zones of economic activity that require them in order to promote mandatory safe and sustainable mobility
- 3.6.1.5 Contribute to creating a healthier and more flexible work environment with better a balance between work and family life by promoting teleworking
- 3.6.1.6 Promote the use of sustainable means of transport for commuting to work

3.6.2 Obtain greater knowledge of occupational traffic accidents (during the working day and on the way to and from work) in line with the new characteristics of the accident rate

Agents involved: Departments of the Interior through the Catalan Traffic Service and the Directorate General of the Police; Health; Labor, Social Affairs and Families; provincial councils; local police; city councils; local authorities and other public and private entities involved.

- 3.6.2.1 Develop a better understanding of the casuistry of occupational traffic accidents in order to be able to take measures to prevent them.

3.6.3 Promote training in occupational road safety

Agents involved: Departments of the Interior through the Catalan Traffic Service and the Directorate General of the Police; Health; Labor, Social Affairs and Families; Agriculture, Livestock, Fisheries and Food; provincial councils; local police; city councils; local authorities and other public and private entities involved.

- 3.6.3.1 Design and promote occupational road safety courses tailored to the needs of specific target groups
- 3.6.3.2 Conduct awareness-raising campaigns at companies on the most sustainable, safe and healthy modes of transport to promote a modal shift in commuting to the workplace

Line 4 – Developing a space for strategic cooperation between the different sectors involved in intelligent mobility

As a result of the emergence of new means of transport with more sustainable fuels than those obtained from petroleum derivatives, the development of new technologies applied to driving and the new concept of mobility as a service, a series of challenges and opportunities have come to light that should serve to promote intelligent, automated mobility that is more respectful of the environment and people's health.

Electric vehicles, in this regard, have become one of the clearest bets in terms of the use of renewable energy sources in the transport sector. The use of electricity as a combustion source has many advantages in terms of the emission of polluting gases, provided that it comes from renewable sources, and in improving environmental quality in urban areas.

However, despite the trend towards the electrification of mobility, today the production and marketing of this type of vehicle is still in its early stages. In the coming years, the market supply of these vehicles is expected to increase, with lower prices, and a massive increase in this type of vehicles in line with the greater environmental awareness of users, which is becoming more and more important in the decision to purchase a vehicle.

To improve motor vehicle energy efficiency, it will also be necessary to pay attention not only to vehicles that consume electric energy, but also to those that have environmental benefits compared to combustion vehicles, such as hydrogen or hybrids, in order to minimize the use of petroleum-based fuels on the road to mobility decarbonization, prioritizing those that have a lower impact on atmospheric pollution

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All these points should be interrelated with current mobility, acting on existing problems and addressing constraints such as low vehicle occupancy, the extra commuting generated in cities by searching for a parking space or energy recharging, trying to promote multimodality between the most energetically and environmentally sustainable modes.

In addition, there will be a real cultural change in the prioritization of transport modes, giving more importance to public transportation and active mobility over motor vehicles.

In this social debate, it is important to highlight the work already carried out by the Government in the National Pact for Energy Transition, which establishes a series of guidelines to move forward towards a new energy model based on reducing dependence on the consumption of fossil fuels and promoting the use of renewable energies.

This document reveals that, given the future scenario of massive development of renewable electricity production technologies and growth in electricity demand associated with electric vehicles, and with the definition of an appropriate regulatory and technical framework, the Catalan electricity system must significantly increase the capacity of its electricity reserves, promoting the development of large, medium and small-scale electricity storage and distribution systems and increasing electricity interconnections with renewable energy sources. This deployment of renewable electricity generation and storage will entail making significant investments in electricity transmission and distribution networks.

In addition, Law 16/2017, dated August 1, on climate change, specifies that 30% of the vehicle fleet renewal should be electric by 2025 and states the intention of the Government of the Generalitat to promote the necessary measures in the automotive sector so that new motor vehicles should not be fossil fuel-based internal combustion vehicles as of 2030. In addition, it specifies that these priorities should be achieved with the development and promotion of a Catalan strategy for electric vehicle charging infrastructures.

In fact, the availability of charging points is key to the development of electric vehicles. It is necessary to emphasize the importance of adapting infrastructures for electric vehicles in view of the need to create storage and supply points that respond to the future mobility system. Similarly, it will be necessary to work on improving the charging time of vehicles so that they become a competitive solution in terms of fossil fuel consumption, as well as in terms of their useful life and the improvement of battery life.

Consequently, in order to make the electric vehicle an increasingly widespread mobility option, we face the challenge, among others, of increasing its autonomy and improving energy efficiency, and meeting the challenge of recycling or reusing batteries, especially in terms of components such as lithium, in order to avoid the environmental risks they may entail.

On the other hand, this environmental debate and change in market supply towards more sustainable options is closely tied to the emergence of new private operators in traffic and mobility management systems. The impact of the so-called Mobility as a Service (Maas), these new mobility operators underpinned by intelligent transport systems and new management and information technologies, becomes an opportunity on the road to greater efficiency and sustainability in mobility patterns.

It is important to highlight the importance of promoting integrated mobility services because they allow mobility in Catalonia to be understood as a global system that provides the most appropriate information in each case and for each user, with the common goal of achieving a more sustainable, healthy and safe mobility. It is clear that the new emerging forms of mobility will play a key role in the future, as will the development of new technologies that will allow all the available real-time information to reach a larger part of the population more quickly.

In this regard, it is important for public administrations to promote the accessibility of these mobility data in an open system within the framework of the general objectives of transparency that have been implemented in recent years, especially from the point of view that the availability of this data directly benefits the common good in favor of safer and smoother travel.

Otherwise, it will be necessary to develop specific rules that allow both private operators and the public administration to regulate the existing information and data, in order to achieve a new system that is as transparent as possible and avoid the creation of monopolies

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The future mobility model based on the self-driven and connected vehicle will in any case imply a radical change in the concept of mobility as we have understood it up to now. From a social perspective, this change may present many advantages with regard to the traditional negative externalities of the mobility system, such as accident rates and traffic congestion, and will contribute to greater energy and environmental efficiency. However, it can also lead to changes in time management, because free time will be available when commuting for work or leisure activities.

From the perspective of accident rates, the elimination of the human factor as a cause of accidents can lead to an almost total eradication of road accidents. In fact, in a fully automated horizon, the accident rate would be caused not by the human factor but by vehicle malfunction or external factors such as those related to weather conditions or factors related to cybersecurity, with the change that all this represents in terms of civil liability in driving.

Therefore, connected and autonomous mobility presents a series of advantages but also important challenges that include, among others, the development of intelligent technologies that make it possible, the necessary adaptation of infrastructures, especially in terms of investment and road management, considering the possibility of public collaborations and the need to establish security protocols to deal with possible cyber-attacks, and the establishment of rules and regulations in this regard.

The development and application of the Internet of Things technology in mobility provides the digital intelligence and automation necessary for the development of connected and autonomous vehicles. It also enables mobility as a service and has great potential to improve mobility and traffic management applied to connected and self-driving vehicles, infrastructure, public transport and traffic management in smart cities.

In any case, the transition to autonomous mobility must and will be gradual, as established by the US National Highway Traffic Safety Administration (NHTSA), which has defined five phases for its implementation, ranging from phase 1, where we find ourselves partially today, and where an increasing number of vehicles have a series of automated driving aids, to phases 2 and 3, where the vehicle is capable of acting independently in certain situations, even if it requires the driver's continuous attention, to phases 4 and 5, in which human supervision will gradually diminish until it disappears completely.

In short, it is important to bear in mind that in order to manage the transition period until fully automated mobility is achieved, a change in social mentality will be necessary to integrate connected and autonomous mobility into today's society, without it becoming a road safety problem or a problem of social exclusion.

To this end, we must continue working to define the future mobility model in accordance with the following sub-areas, which derive from the following strategic lines:

4.1 Improving the energy efficiency of motor vehicles. Mobility electrification

4.1.1 Promote energy and technological factors for a more sustainable mobility

Agents involved: Departments of the Interior through the Catalan Traffic Service; Territory and Sustainability; Business and Knowledge (Catalan Energy Institute - Directorate General of Industry); the Catalan Energy Agency; the ATM and other public and private entities.

- 4.1.1.1 Encourage the diversification of the sustainable energy supply by promoting, in addition to electric vehicles, the use of other vehicles that run on renewable energies.
- 4.1.1.2 Promote the search for new technologies aimed at reducing the environmental impact of mobility.

4.1.2 Promote mobility with more energy efficient and environmentally friendly modes

Agents involved: Departments of the Interior through the Catalan Traffic Service; Territory and Sustainability; Business and Knowledge (Catalan Institute of Energy - Directorate General of Industry); the MTA; provincial councils; city councils; local authorities and other public and private entities.

- 4.1.2.1 Promote electric vehicles and improvements in charging time and battery life
- 4.1.2.2 Create a network of infrastructures for electric vehicles with the expansion of charging points and electric charging stations throughout the territory
- 4.1.2.3 Optimize the vehicle technical inspection system to achieve clean mobilit
- 4.1.2.4 Promote multimodality with more energy efficient systems

4.2 Mobility as a service (Maas). Intelligent transport systems and new technologies for improved traffic management and information. The opportunity for new private operators in traffic management systems

4.2.1 Promoting mobility as a service

Agents involved: Departments of the Interior through the Catalan Traffic Service; Territory and Sustainability; Digital Policies and Public Administration; the MTA; provincial councils; city councils; local authorities and other public and private entities.

- 4.2.1.1 Promote integrative platforms of mobility services (Maas) adapted to Catalonia's different territorial realities and the different profiles and mobility needs of citizens, as well as the transport of goods.
- 4.2.1.2 Encourage the Administration to promote the management of private operators as providers of information to citizens and the public administration, establishing an agreement between the public and private sectors in terms of the regulation and transparency of the data they share.
- 4.2.1.3 Adapt mobility services to the different user profiles in relation to the vehicles they use and also with respect to mobility derived from the transport of goods.

4.2.2 Develop traffic management and information systems

Agents involved: Departments of the Interior through the Catalan Traffic Service and the Directorate General of the Police; Territory and Sustainability; Business and Knowledge (Sub-directorate General of Industrial Safety); Digital Policies and Public Administration; provincial councils; local police; city councils; local authorities and other public and private entities.

- - 4.2.2.1 Promote a cultural change that favors social adaptation regarding the use of intelligent systems applied to mobility, focusing educationally on responsible mobility adapted to new technologies and new forms of mobility.
- - 4.2.2.2 Stimulate the development of intelligent information systems for traffic management with the incorporation of new technologies.
- - 4.2.2.3 Encourage the dissemination of relevant information for drivers in order to improve road safety.
- - 4.2.2.4 Promote the development of technological improvements in driving to improve road safety.

4.3 The challenges of connected and autonomous mobility

4.3.1 Promote the development of self-driving vehicles

Agents involved: Departments of the Interior through the Catalan Traffic Service and the Directorate General of the Police; Territory and Sustainability; Business and Knowledge (Directorate General of Industry); Digital Policies and Public Administration; the ATM; provincial councils; city councils; local authorities and other public and private entities.

- 4.3.1.1 Promote infrastructures prepared with 5G connectivity throughout the territory for the implementation of self-driving vehicles and establish interconnectivity between roads, users and vehicles
- 4.3.1.2 Manage the impact on investment and infrastructure management derived from connected and autonomous mobility for both passenger and freight transport
- 4.3.1.3 Develop cybersecurity protocols with respect to the establishment of standards, regulations and approvals
- 4.3.1.4 Adapt current legislation to the requirements of connected and autonomous mobility
- 4.3.1.5 Encourage public collaboration to manage the sharing of data generated by self-driving vehicles
- 4.3.1.6 Work to improve the safety of road users with specific measures for gender, age or vulnerability issues

4.4 Management of the transition period to fully automated mobility

4.4.1 Managing the transition process towards connected and autonomous mobility

Agents involved: Departments of the Interior through the Catalan Traffic Service; Territory and Sustainability; Business and Knowledge (Directorate General of Industry); Health; Digital Policies and Public Administration; provincial councils; city councils; local authorities and other public and private entities.

- 4.4.1.1 Encourage the use of spaces to conduct pilot tests where connected and autonomous vehicles can be tested, such as the Catalonia Living Lab project
- 4.4.1.2 Design the transition process towards connected and autonomous mobility to guarantee a safe coexistence between current systems and the implementation of new systems derived from autonomous mobility
- 4.4.1.3 Work on the psychosocial acceptance of the social changes that the self-driving vehicle represents

Line 5 – Establishing strategic objectives for infrastructures regarding new mobility systems

The implementation of the future self-driving vehicle and its contribution to efficient, safe and sustainable mobility is no longer a scenario of the future but rather one of the almost immediate present. Therefore, the National Pact for Safe and Sustainable Mobility must take into account this social and technological evolution for the impact it will have as a cultural change, as a way to re-educate all mobility and also as a strategic tool to meet the road safety objectives of Vision Zero.

The challenge of adapting the road network to intelligent transport systems and connected and autonomous mobility presents great opportunities and challenges in terms of technology, legislation, finance and management of the services themselves. The new world that is opening up is now incalculable and very probably unattainable with the tools we have at our disposal and, therefore, the need for adaptation will also be very great.

The opportunities for connected and autonomous mobility range from optimizing the management of large volumes of vehicles and traffic to more efficient use of infrastructure and improved energy efficiency, as well as the safety and comfort of users.

To respond to the new needs of connected and autonomous driving, it is first of all necessary to equip roads with compatible and enabling capabilities that can meet the needs of this type of vehicle. Adapting the infrastructure to the circulation of the connected and autonomous vehicle involves a technical adaptation of the vehicle-vehicle and vehicle-infrastructure communication systems.

In this regard, and as we mentioned in the previous section, the development of the Internet of Things (IOT), which will transform roads into smart roads and enable the interaction of connected vehicles, provides the necessary digital interconnection network between devices and vehicle for interaction and data exchange, providing the vehicle with the digital intelligence necessary for its automation.

Otherwise, the same infrastructure must be subject to a standardization of design and maintenance parameters to facilitate the implementation of the technological systems necessary for the development of the connected and autonomous vehicle.

The deployment of 5G technology associated with the connected vehicle will, at the same time, enable the very development of self-propulsion by making it possible to transmit the amount of information required by the autonomous vehicle at high speed, in terms of digitization of driving, self-positioning systems, recording of vehicle status and data on the environment and the traffic situation.

Given all this, a framework must be defined for the exchange of vehicle data that incorporates rules, tools and methods for evaluating and validating systems, as well as establishing cybersecurity protocols that guarantee data security and, in short, adapting current legislation to the requirements of connected and autonomous mobility.

The hierarchization and sensorization of the infrastructure must make it possible to prioritize the application of mobility optimization criteria, with the possibility of rethinking infrastructures by putting the most vulnerable non-motorized users first, making them more permeable and adapting drivers' speeds to new criteria, as well as prioritizing collective public transport, goods distribution and emergency vehicles.

In relation to this point, the safe design of infrastructures for vulnerable groups highlights this opportunity to adapt the mobility scenario to a more human scale, with the revision of speeds on secondary roads and according to the different types of most common road users, both in interurban and urban sections, the design of a physical segregation to protect the different mobility groups, a greater adaptation of the infrastructure for all travel systems and a capacity to particularize traffic conditions according to accident rates or environmental capacity.

Consequently, the future development of the self-driving vehicle presents the challenge of access to safe, affordable, accessible and sustainable transport systems for all. However, if not used properly, automation and interconnection can also lead to more traffic, polluting emissions and opportunities for unequal mobility.

Finally, it should be emphasized that during the transition period to full implementation of the self-driving vehicle, road safety must be ensured in environments where vehicles with different degrees of automation will circulate in coexistence with pedestrians, cyclists and users of personal mobility vehicles.

Testing in real environments and on high-capacity roads such as highways can provide a unique controlled environment for the implementation of connected and autonomous vehicles, as these are environments with controlled access where friction is lower and where they are much more sensorized and prepared than the rest of the roads in the network.

This line of action is structured into the following sub-areas and strategic lines:

5.1 The challenge of adapting the road network to intelligent transportation systems and connected, autonomous mobility

5.5.1 Adapting infrastructures for the use of connected and autonomous mobility

Involved agents: Departments of the Interior through the Catalan Traffic Service; Territory and Sustainability; Digital Policies and Public Administration; provincial councils; city councils; local authorities and other public and private entities.

- 5.1.1.1 Promote the adaptation of infrastructures to connected and autonomous mobility
- 5.1.1.2 Hierarchize infrastructures by designing specific road corridors (rail/road, freight/passenger) and last mile corridors
- 5.1.1.3 Develop technological platforms that enable multimodal and sustainable management of the transport system
- 5.1.1.4 Establish sensorization of transport networks to obtain real-time data to improve management (big data) and to prevent accidents, accidents or congestion
- 5.1.1.5 Implement the new maintenance plan for ITS (Intelligent Transport Systems) equipment in Catalonia's road network
- 5.1.1.6 Identify the road network according to criteria such as speed, road capacity, number and type of users circulating in order to establish the priority for adaptation
- 5.1.1.7 Develop driver assistance systems that interact with the vehicle's environment
- 5.1.1.8 Redefine the maintenance model for mobility infrastructures
- 5.1.1.9 Study the infrastructure's basic minimum equipment required to make it suitable for autonomous mobility
- 5.1.1.10 Establish a standardization of road conditions (pavements, drainage system, intelligent materials, etc.) for the development of self-driving vehicles
- 5.1.1.11 Promote research and application of new advanced materials to mobility infrastructures

5.2 Safe design of infrastructures with specific dedication of spaces for vulnerable groups

5.2.1 Implement safer roads for all road users

Involved agents: Departments of the Interior through the Catalan Traffic Service; Territory and Sustainability; provincial councils; city councils; local authorities and other public and private entities.

- 5.2.1.1 Identify the safety requirements of different mobility users to improve their safety in the use of infrastructures
- 5.2.1.2 Incorporate road safety criteria in the design and maintenance of mobility and transport infrastructures and conduct road safety assessments
- 5.2.1.3 Adopt safe design criteria for mobility and transport infrastructures used by vulnerable groups.5.2.1.4
- 5.2.1.4 Deploy infrastructures to promote sustainable modes of transport
- 5.2.1.5 5.2.1.5 Establish a minimum level of 3 stars, according to the iRAP methodology, as a road safety objective for roads where 95% of the km traveled are focused

Line 6 - Deploying the necessary structure for the management of the change in order to involve society as a whole

In order to meet the challenges and needs of such a changing environment as transportation and mobility, it is a priority to rethink public policies on road safety and mobility.

In social environments where the difficulties to be overcome are increasingly cross-sectorial and don't only or exclusively affect one public policy or rather a single area, it is necessary to address the problems from an interdisciplinary perspective and less focused on just one objective, since road safety and mobility affect many areas, such as the environment and climate change, health and safety of people, education and training, urban planning or legal aspects.

So it is important to emphasize mobility policies, policies related to infrastructure and new technologies, road safety and traffic management policies, environmental policies, policies focused on people's health, education and training policies, all of which, without a cross-sectional approach, cannot create a framework for meeting the challenges of mobility.

This collaboration and coordination between the different public administrations must cover different fundamental aspects that until now have often been taken into account separately and often isolated in order to respond to the change in the mobility model that we have described throughout this document.

Faced with this new scenario, the Administration must regulate and promote the use of alternative fuels that don't depend on polluting energies, the implementation of driving aids, the development of autonomous vehicles with different levels of automation according to their evolution, the new traffic management scenario and the new types of personal mobility vehicles, among other aspects.

Implementing technological advances in the field of mobility entails, from the Administration, establishing the conditions and the appropriate legal framework for its development and taking advantage of the moment of the added impact of new technologies applied to mobility to offer better traffic management and information to end users, allowing them to make commuting decisions in the most efficient way possible

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Otherwise, the new sources of traffic data obtained through big-data technology and its processing and storage allow obtaining information on traffic and how it is circulating on that road, establishing new possibilities for improving traffic management and road safety.

In terms of mobility planning, it is important to continue working on sustainable urban mobility plans (SUMP), on supra-municipal mobility planning and on specific plans aimed at specific problems and target groups (company commuting plans, mobility assessment studies, etc.). Often these plans have treated mobility as an isolated element within the urban or interurban ecosystem, when in fact it is part of the basic machinery of our society, with a direct link to the territory, its economic activity and that of the major social trends.

Regarding road safety planning, it is considered important to continue developing local road safety plans to reduce accidents with casualties locally and improve road safety in the municipality. At the same time, however, urban mobility plans must be taken into account in order to promote active and safe mobility. Moreover, road safety must be present in the building of infrastructures for different modes of mobility, in the regulation of these modes, in the realization of urban transformations of our towns and cities, in the education of children and young people and in the continuous training of adults, as well as in the future in the new paradigms that are outlined from connected and autonomous mobility or mobility as a service.

Consequently, the National Pact for Safe and Sustainable Mobility should serve to strengthen the authority of the Catalan Traffic Service as the driving force of a more cross-sectional policy of the current competences. There is a need, therefore, for a benchmark and leading body in this field, within the Catalan territory and also one that provides advice on the subject to the rest of the Catalan public administrations, enabling the interconnection of proposals, ideas, suggestions and collaboration with public and private entities, as well as with civil society in order to be a benchmark in the field of research, investigation and innovation in these matters.

To this end, it is necessary to strengthen the mechanisms of collaboration and participation of civil society in the development and implementation of road safety and sustainable mobility policies.

Given the current mobility scenario and after more than twenty years since the entry into force of the Law created by the Catalan Traffic Service in 1998, it is necessary to establish a new regulatory framework with a new Law that integrates the functions that have been assumed by the CTS over time, in order to respond to the current mobility needs in a safe manner and where the competences and functions to be performed by the CTS, the dependent co-dependent bodies and the configuration of the necessary structure are defined.

Otherwise, it also becomes clear that there is a need to increase existing resources, for example in the management of fines resulting from an increase in control and disciplinary activity with the goal of matching the level of other leading European countries in this field.

The increase in resources also entails an increase in the planning and execution of projects to have a more cross-sectional and effective impact on safe mobility.

However, as a result of the last twenty years of the Catalan Traffic Service's competences as the traffic authority in Catalonia, it is clear that there is a need for more control over the tasks of the traffic police, especially on interurban roads, in areas ranging from data sharing to the planning of strategies and operations, as well as the allocation and provision of resources for these units, as is done in other neighboring countries.

As for the traffic police, given the increasingly widespread accident rate, it is necessary to establish control mechanisms via aerial means and with increased and more flexible police patrolling.

On the other hand, public administrations with different competences on the matter must work in coordination and collaborate with each other to continue advancing towards a safe and sustainable mobility model.

Associations and supramunicipal entities must play a key role in this greater coordination of mobility policies to create a common framework that establishes the basis for this mobility model. Therefore, appropriate governance mechanisms must be established to enable this interrelation and favor joint decision-making.

And municipalities also have a very important role in making mobility decisions locally. Measures to achieve safer, more sustainable and healthier mobility for people must be part of the public policies of each municipality. To this end, coordination, collaboration and advisory mechanisms will be established between the different administrations with competence in this area, and there must also be a commitment on behalf of municipalities in this regard.

It is necessary to respond to the new needs of prevention and control, within the scope of local governments, with regard to the needs of reorganizing road space, traffic calming and promoting a more sustainable mobility with a growing concern for environmental issues and for reorganizing road space to benefit vulnerable road users, whose protection must be guaranteed at the same time as new control needs arise with regard to their mobility.

It is important to continue working with municipalities in the field of improving road safety and mobility and in this regard it has been proposed to create a Council of Cities for safe and sustainable mobility, to exchange good practices and experiences, to share the challenges and, at the same time, the opportunities posed by new forms of mobility and to be able to make proposals.

The creation of this Council of Cities should promote safe and sustainable mobility as a public policy of municipalities, encourage the local world based on the good results obtained, improve the collection of information on accidents with victims in municipalities and the creation of a technical advisory committee on urban road safety.

It is essential to face the challenges and opportunities that lie ahead, and the paradigm shift that will lead to increasingly connected and autonomous mobility. Society in general, and public administrations in particular, must address many of the aspects that this change will raise, focusing on the changes that must take place for people, and on their protection. Therefore, it is necessary to address legal aspects, liability in case of accident, computer security, regulation of new technologies, while formulating legal proposals that take into account not only motor vehicles, but also all forms of mobility, mobility as a service, shared mobility and the distribution of goods to make it more efficient.

For all these reasons, it becomes clear that action must be taken in the following areas in accordance with the following sub-areas and strategic lines:

6.1 Public mobility and road safety policies: rethinking the structure needed to address new mobility challenges

6.1.1 Providing a new structure to address the new challenges of mobility

Agents involved: Departments of the Interior through the Catalan Traffic Service and the Directorate General of the Police; Territory and Sustainability; Labor, Social Affairs and Families; Business and Knowledge (Catalan Energy Institute); Justice; Health; Education; Agriculture, Livestock, Fisheries and Food; regional councils; city councils; local authorities and other public and private entities involved.

- 6.1.1.1 Provide the Catalan Traffic Service with the necessary structure to address the new challenges of safe and sustainable mobility by drafting a new Law of the Catalan Traffic Service defining the competencies and functions to be performed, the professional bodies and the structure necessary to exercise the competencies and functions granted
- 6.1.1.2 Implement the new road safety strategy in Catalonia in accordance with the National Pact for Safe and Sustainable Mobility (PNMSS)
- 6.1.1.3 Analyze the distribution of competencies among the different administrations in order to improve the effectiveness and efficiency of mobility and road safety policies
- 6.1.1.4 Define governance mechanisms for mobility and road safety that include the participation of the private sector and the network of associations
- 6.1.1.5 Define public policies aimed at promoting different clean energy sources
- 6.1.1.6 Establish cross-sectional policies to achieve active, healthy, safe and decarbonized mobility, through the different public administrations and public and private entities joining the Pact

6.2 Strengthen coordination and collaboration with supra-local and local entities

6.2.1 Promoting public policies for road safety and sustainable mobility at local and supra-local level.

Agents involved: Departments of the Interior through the Catalan Traffic Service and the Directorate General of the Police; Territory and Sustainability; Labor, Social Affairs and Families; Justice; Health; Education; Agriculture, Livestock, Fisheries and Food; provincial councils; city councils and local authorities.

- 6.2.1.1 Create a Council of Cities for Safe and Sustainable Mobility.
- 6.2.1.2 Promote safe and sustainable mobility policies at the municipal level, by means of:
    - Local road safety plans.
    - Integrating road safety in the POUM and in the urban planning mechanisms for its deployment, as well as in company commuting plans.
    - The preparation of reports and analysis of accidents on urban roads.
    - Technical advice to municipalities
- 6.2.1.3 Establish criteria to harmonize local public policies affecting safe and sustainable mobility with the collaboration of supra-local and local entities in relation to, among others:
    - Parking management regarding schedules, dissuasive effects, rates....
    - Sustainable modes of transport such as bicycles and personal mobility vehicles.
    - Bicycle lanes
    - Drop off / pick up
    - Electric vehicle bonus
    - Benchmark regulations
- 6.2.1.4 Promote and support activities to encourage active transport within the framework of the PINSAP (Interdepartmental and Intersectoral Public Health Plan).

6.3 Propose a legal framework to adapt safe and sustainable mobility to the cultural and paradigm shift

6.3.1 Arrange an adequate regulatory framework that responds to the challenges of current mobility

Agents involved: Departments of the Interior through the Catalan Traffic Service and the Directorate General of the Police; Territory and Sustainability; Labor, Social Affairs and Families; Justice; Health; Education; Agriculture, Livestock, Fisheries and Food; provincial councils; city councils and local authorities.

- 6.3.1.1 Make legal proposals to create a new Mobility and Road Safety Act and regulate new modes of mobility
- 6.3.1.2 Make legal proposals for the regulation and integration of connected and autonomous mobility
- 6.3.1.3 Promote legislative initiatives to achieve more sustainable and safer mobility

6.4 Planning strategies for safe and sustainable mobility

6.4.16.4.1 Planning safe and sustainable mobility to establish strategies and actions that respond to current mobility challenges

Agents involved: Departments of the Interior through the Catalan Traffic Service and the Directorate General of the Police; Territory and Sustainability; Labor, Social Affairs and Families; Business and Knowledge (Sub-Directorate General of Industrial Safety); Justice; Health; Health; Education; Agriculture, Livestock, Fisheries and Food; the ATM; provincial councils; local police; city councils; local authorities and other public and private entities involved.

- 6.4.1.1 Plan the different actions for safe and sustainable mobility by means of three-year road safety plans

- 6.4.1.2 Involve the different public-private institutions in the promotion, dissemination and planning of safe and sustainable mobility
- 6.4.1.3 Implement technical projects for the analysis and/or improvement of road safety

6.5 Care for traffic accident victims

6.5.1 Improving care for victims of traffic accidents

Agents involved: Departments of the Interior through the Catalan Traffic Service and the Directorate General of the Police; Territory and Sustainability; Labor, Social Affairs and Families; Justice; Health; Education; Agriculture, Livestock, Fisheries and Food; provincial councils; city councils; local authorities; victims' associations and other public and private entities involved.

- 6.5.1.1 Improve post-accident care for victims by expanding the services offered by the Information and Care Service for Traffic Accident Victims (SIAVT) and disseminating this service internationally
- 6.5.1.2 Improve immediate psychological care for traffic victims
- 6.5.1.3 Collaborate with victim organizations and associations in the implementation of projects related to road safety

Appendix 1. National Pact for Safe and Sustainable Mobility

On July 9, 2019, the Government of the Generalitat de Catalunya agrees to promote the National Pact for Safe and Sustainable Mobility (GOV/99/2019, July 9).

On the other hand, on July 12, 2019, the main strategic lines of action for this Pact are presented in front of the members of the Government and public and private entities related to road safety and mobility.

From that moment, the Pact's consultation process is developed as follows:

- November 12, 2019: constitution of the roundtable of entities of the mobility and road safety sector and presentation of the Pact's impulse document, where the creation of six working groups, one for each thematic line of action, is reported.
- The entities roundtable was attended by more than 100 people representing the Administration, the local world, the business world and the network os associations.
- From November 26 to December 9, 2019, six in-person sessions were held focusing on six defined thematic lines of action, with the following schedule:
    - **November 26: WG session Line 1**. Rethinking public space for more sustainable and safer mobility. 9 people participated (45% from the Administration, 14% from the business sector and 41% from the network os associations)
    - **November 27: WG session Line 2**. Adapting road safety policies to the new characteristics of the accident rate. 32 people participated (31% from the Administration, 23% from the business sector and 44% from the network of associations)
    - **November 28: WG session Line 3**. Creating an awareness-raising and educational strategy to involve society as a whole. 36 people participated (36% from the Administration, 22% from the business sector and 42% from the network of associations)
    - **December 3: WG session Line 4**. Developing a space for strategic cooperation between the sectors involved in intelligent mobility. 18 people participated (39% from the Administration, 28% from the network of associations and 33% from the business sector).
    - **December 4: WG session Line 5**. Establishing strategic objectives for infrastructures regarding new mobility systems. 18 people participated in the in-person session of this group (44% from the Administration, 22% from the business sector and 33% from the network of associations)
    - **December 9: WG session Line 6**. Deploying the necessary structure for the management of the change. Seven people participated in the in-person session of this group (4 on behalf of the Administration, 2 representing the network of associations and one from the business world)
- The development of the working groups consisted of answering some external online questionnaires for a subsequent summary and feedback of the answers in a working and group discussion of the attendees and sharing of the aspects worked on in each group.
- During the first quarter of 2020, an online participatory process was opened in order to make contributions to the National Pact.
- The second half of October 2020, a period of online contributions is opened to all members of the Interdepartmental Commission for the Improvement of Road Safety (CIMSV) and to all members of the Pact's entities roundtable.
- On October 27th the Pact is presented to the CIMSV and on November 3rd it is presented to the entities roundtable, in order to gather feedback on the contributions and present the text of the Pact document.

Appendix 2.
List of the mobility and road safety sector entities roundtable

- Abertis
- AECOC (Spanish Association of Commercial Codification)
- Barcelona City Council. Prevention and Safety Area
- Barcelona City Council. Directorate of Mobility Services
- Barcelona City Council. Mobility Department
- Igualada Local Police
- AMTU (Association of Municipalities for Mobility and Urban Transport)
- ANESDOR (National Association of Companies in the Two-Wheel Sector)
- Applus IDIADA

- Catalan Association of Municipalities and Counties
- ICIL Association (Institute for Careers and Innovation in Logistics & Supply Chain)
- ASTAC (Condal) Association of Grouped Transports)
- ATM (Metropolitan Transport Authority)
- AUDICA (Association of Discretionary Transport Businessmen of Catalonia)
- Autobuses de Lleida, SA (Sarbus Group) - Moventia
- Catalunya Camina
- CCOO (Comisiones Obreras)
- CCUB (Catalan Coordinator of Bicycle Users)
- CETC (Confederation of Road Transport Businesses of Catalonia)
- Colegio de Ingenieros de Caminos, Canales y Puertos de Cataluña (Association of Civil Engineers of Catalonia)
- College of Industrial Engineers of Catalonia
- Official College of Psychology of Catalonia. Traffic and Safety Psychology Section.
- Camp de Tarragona Public Transport Consortium.
- Department of Agriculture, Livestock, Fisheries and Food.
- Department of Justice. Directorate General of Penal Execution in the Community and Juvenile Justice.
- Department of the Presidency. Directorate General of Interdepartmental Coordination
- Department of Health. Secretariat of Public Health
- Department of Territory and Sustainability. Directorate General of Environmental Quality and Climate Change
- Department of Territory and Sustainability. Directorate General of Transport and Mobility
- Department of Territory and Sustainability. Directorate General of Mobility Infrastructures
- Department of Territory and Sustainability. Directorate General of Environmental Policies and Natural Environment
- Department of Labor, Social Affairs and Families. Directorate General of Equality.
- Promotion of Accessibility and Elimination of Barriers.
- Department of Education. Directorate General of Curriculum and Personalization
- Department of Business and Knowledge. Directorate General of Tourism
- Department of Enterprise and Knowledge. Directorate General for Energy, Industrial Safety and Mining Safety.
- Department of the Interior.
- Department of the Interior. Directorate General of the Police

- Department of the Interior. Directorate General of Civil Protection
- Department of the Interior. Police of the Generalitat of Catalonia - Mossos
- Department of the Interior. General Secretariat
- Department of the Interior. Catalan Traffic Service. General Sub-directorate of Traffic Management.
- Department of the Interior. Catalan Traffic Service.
- Department of the Interior. Catalan Traffic Service. General Sub-directorate of Road Safety.
- Department of Labor, Social Affairs and Families. Directorate General of Labor Relations, Self-Employment and Quality at Work - Catalan Institute of Occupational Safety and Health.
- Department of Labor, Social Affairs and Families. Directorate General of Civic and Community Action
- Barcelona Provincial Council
- Girona Provincial Council
- Lleida Provincial Council
- Tarragona Provincial Council
- EMT - CON (Metropolitan Transport Entity)
- FAC (Federation of Driving Schools of Catalonia)
- FECAV (Catalan Federation of Passenger Carriers)
- Federation of Municipalities of Catalonia
- FGC (Railways of the Generalitat of Catalonia)
- Fomento del Trabajo Nacional (National Work Promotion)
- Abertis Foundation
- Guttmann Institute Foundation
- RACC Foundation (Royal Automobile Club of Catalonia Foundation)
- Guardia Urbana de Barcelona (Barcelona City Police)
- ICD (Catalan Women's Institute)
- Infraestructuras de la Generalitat de Cataluña, SAU (Infrastructures of the Generalitat de Cataluña, SAU)
- MIFAS (Physically Handicapped Persons Association)
- OCUC (Organization of Consumers and Users of Catalonia)
- P (A) T (Spanish Association for the Prevention of Traffic Accidents)
- PIMEC (Small and Medium Enterprises of Catalonia)
- Jefatura Provincial de Tráfico de Barcelona (Provincial Traffic Headquarters of Barcelona)

- PrevenControl ITV
- PTP (Association for the Promotion of Public Transport)
- RACC (Royal Automobile Club of Catalonia)
- Cercanías de Cataluña
- SEAT
- SEM, S.A. (Medical Emergency Service)
- Territorial Services of the Interior in Tarragona
- STOP Accidents
- TRAM (Metropolitan Tramway)
- TRANSPRIME (Spanish Association of Loading Companies)
- UAB (Autonomous University of Barcelona)
- UCC (Consumers Union of Catalonia)
- UCEAC (Catalan Union of Insurance Entities of Catalonia)
- UGT (General Union of Workers)
- UNO-ACET (Logistics and Transport Business Organization)
- UPC (Polytechnic University of Catalonia)
- Network of cities and towns for sustainability

Appendix 3. List of the working groups members

WG Line 1. Rethinking public space for more sustainable and safer mobility

- FEM Bici (Catalan Federation of Entities for Bicycle Mobility)
- Barcelona City Council
- ACM (Catalan Association of Municipalities and Counties)
- ADEVIC (Association for the Development of Road Safety Education in Catalonia)
- Terrassa City Council
- IERMB (Institute of Regional and Metropolitan Studies of Barcelona)
- Applus IDIADA
- P (A) T (Spanish Association for the Prevention of Traffic Accidents)

- ATAAC (Assembly of Salaried Workers of Driving Schools of Catalonia)
- ATM Barcelona
- ATM Tarragona
- ATM Lleida
- AUDICA (Catalan Association of Discretionary Transport Employers)
- CCOO
- CCUB (Catalan Coordination of Bicycle Users)
- Clustermoto
- Department of Territory and Sustainability. Directorate General of Environmental Quality and Climate Change
- Department of Territory and Sustainability. Studies and Evaluation Service
- Department of Territory and Sustainability. Directorate General of Environmental Policies and Natural Environment
- Barcelona Provincial Council
- Catalan Automobile Federation
- RACC Foundation (Royal Automobile Club of Catalonia Foundation)
- PTP (Association for the Promotion of Public Transport)
- Catalan Traffic Service. Sub-directorate General of Traffic Management
- Somos Movilidad - We are Mobility
- Stop Accidents
- UNO-ACET (Catalan Association of Freight Transport Companies)

WG Line 2. Adapting road safety policies to the new characteristics of the accident rate

- Abertis
- ACM (Catalan Association of Municipalities and Counties)
- ADEVIC (Association for the Development of Road Safety Education in Catalonia)
- AECOC (Spanish Association of Commercial Codification)
- IERMB (Institute of Regional and Metropolitan Studies of Barcelona)
- ANESDOR (National Association of Companies in the Two-Wheel Sector)
- Applus IDIADA
- ASCREME (Catalan Association of Medical Examination Centers)
- ATAAC (Assembly of Salaried Workers of Driving Schools of Catalonia)
- Colegio de Ingenieros de Caminos, Canales y Puertos de Cataluña (Association of Civil Engineers of Catalonia)

- Department of Agriculture, Livestock, Fisheries and Food. Occupational Risk Prevention Service
- Department of Territory and Sustainability. Directorate General of Mobility Infrastructures
- Barcelona Provincial Council
- FECAV (Catalan Business Federation of Passenger Transport)
- Catalan Automobile Federation
- Motor Guild
- Guardia Urbana de Barcelona (Barcelona City Police)
- HIS (Honda Safety Institute)
- Infraestructuras de la Generalitat de Cataluña, SAU (Infrastructures of the Generalitat de Cataluña, SAU)
- Guttmann Institute
- ISTAS / CCOO
- P (A) T (Spanish Association for the Prevention of Traffic Accidents)
- PAD (Platform of Digital Driving Schools)
- Igualada Local Police
- Prevencontrol
- RACC (Royal Automobile Club of Catalonia)
- Catalan Traffic Service. General Sub-directorate of Road Safety
- Stop Accidents
- UNESPA (Spanish Union of Insurance and Reinsurance Entities)

WG Line 3. Creating an awareness-raising and educational strategy to involve society as a whole

- EGARSAT
- ACV GLOBAL
- ADEVIC (Association for the Development of Road Safety Education in Catalonia)
- Barcelona City Council
- CON / IERMB (Institute of Regional and Metropolitan Studies of Barcelona)
- ATAAC (Assembly of Salaried Workers of Driving Schools of Catalonia)
- CCOO (Comisiones Obreras)
- Colegio de Ingenieros de Caminos, Canales y Puertos de Cataluña (Association of Civil Engineers of Catalonia)
- Official College of Psychology of Catalonia
- Department of Territory and Sustainability. Directorate General of Environmental Quality and Climate Change

- FAC (Federation of Driving Schools of Catalonia)
- FAST Parcmotor
- Catalan Automobile Federation
- Guardia Urbana de Barcelona (Barcelona City Police)
- IMU (International Motorcyclist Defense Union)
- Mossos. Coordination of EMS monitors
- P (A) T (Spanish Association for the Prevention of Traffic Accidents)
- PAD (Plataforma de Autoescuelas Digitales - Digital Driving Schools Platform)
- RACC (Royal Automobile Club of Catalonia)
- SER Catalonia
- Catalan Traffic Service. Territorial Traffic Service of Barcelona
- Catalan Traffic Service. Press Office
- Catalan Traffic Service. General Sub-directorate of Road Safety
- Stop Accidents
- TRACE (Catalan Association of Cranioencephalic Trauma and Cerebral Damage)
- UAB - ERES'V research group.
- Department of Labor, Social Affairs and Families. Directorate General of Labor Relations, Self-Employment and Quality at Work - Catalan Institute of Occupational Safety and Health

WG Line 4 – Developing a space for strategic cooperation between the different sectors involved in intelligent mobility

- Abertis
- ADEVIC (Association for the Development of Road Safety Education in Catalonia)
- CON-IERMB (Institute of Regional and Metropolitan Studies of Barcelona)
- Applus IDIADA
- ATM Barcelona
- ATM Tarragona
- AUDICA (Association of Discretionary Transport Entrepreneurs)
- Clustermoto
- Department of Territory and Sustainability. Directorate General of Mobility Infrastructures
- Department of Territory and Sustainability. Directorate General of Transport and Mobility

- Department of Digital Policies and Public Administration. Secretariat of Digital Policies
- FECAV (Catalan Business Federation of Passenger Transport)
- Catalan Automobile Federation
- RACC Foundation (Royal Automobile Club of Catalonia Foundation)
- Infraestructuras de la Generalitat de Cataluña, SAU (Infrastructures of the Generalitat de Cataluña, SAU)
- P (A) T (Spanish Association for the Prevention of Traffic Accidents)
- UNESPA (Spanish Union of Insurance and Reinsurance Entities)
- UNO-ACET (Business Organization of Logistics and Transport)

WG Line 5. Establishing strategic objectives for infrastructures regarding new mobility systems

- Abertis
- CON-IERMB (Barcelona Institute of Regional and Metropolitan Studies)
- Applus IDIADA
- ASETRANS Girona - CETC (Association of Transport Entrepreneurs) and (Road Transport Business Confederation of Catalonia)
- ATM Camp de Tarragona
- Chamber of Commerce of Barcelona
- College of Civil Engineers of Catalonia
- Association of Technical Public Works Engineers of Catalonia
- Cycloc: safe cycling network
- Department of Territory and Sustainability. Directorate General of Environmental Quality and Climate Change
- Department of Territory and Sustainability. Directorate General of Mobility Infrastructures
- Barcelona Provincial Council
- Catalan Automobile Federation
- Infraestructuras de la Generalitat de Cataluña, SAU (Infrastructures of the Generalitat de Cataluña, SAU)
- P (A) T (Spanish Association for the Prevention of Traffic Accidents)
- Catalan Traffic Service. Sub-directorate General of Road Safety
- Polytechnic University of Catalonia - BIT
- UNO-ACET (Logistics and Transport Business Organization)

G Line 6. Deploying the necessary structure to manage the change

- IERMB (Institute of Regional and Metropolitan Studies of Barcelona)
- ATAAC (Assembly of Salaried Workers of Driving Schools of Catalonia)
- ATM Camp de Tarragona
- Department of Territory and Sustainability. Directorate General of Mobility Infrastructures
- Department of Territory and Sustainability. Directorate General of Environmental Quality and Climate Change
- and Climate Change
- RACC Foundation (Royal Automobile Club of Catalonia Foundation)
- UGT Catalonia