

RACC

Annual Report RACC Foundation **2019**



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RACC Foundation
2019





DIARI SPORT/VALENTI ENRICH

Working for a mobility in the grips of change

For some time, probably more than we would like, we will be living under the effects of the pandemic that is impacting society since early 2020, which, in the absence of a vaccine, is forcing us to restrict or change our way to move. The initiatives and studies that we have carried out in 2019, which are gathered in this report, stem from the culture of transformation and innovation, the respect for the environment and the view to the future, which have always characterised the RACC and which, now more than ever before, are essential to face the challenges of this new reality.

True to our social vocation, we have once again devoted our efforts to

improve mobility, and make it safer, more sustainable, affordable, intelligent and intermodal. Bearing in mind that the spearhead of big changes in these fields are the urban environments, and taking advantage of the fact that there were municipal elections in 2019, the Club submitted to town councils, political parties and the society, an exhaustive work on mobility in cities.

The RACC organised the conference “Let’s Turn Barcelona into a Mobility Benchmark”, putting forward 45 proposals for Barcelona and its metropolitan area, which are also applicable to other cities that are facing a mobility in which the

privately-owned car will reduce its presence in urban centres, having to integrate new modes of transport, such as bicycles and electric scooters, and to promote and regulate the shared and connected mobility.

Following this same line, we have conducted specific studies dedicated to high-impact topics, such as the use and the capacity of the public transport network, railway, metro and bus; the traffic congestion on the access roads to the city or the habits in the use of shared mobility systems. **The RACC extended its work on a greener mobility with the second edition of the Barometer of Urban Bicycle Riders and the participation in the European Consortium Green NCAP,** created this year to analyse the environmental performance of vehicles, to provide independent rigorous information to users and to encourage manufacturers to produce greener cars.

During 2019, the administrations promoted initiatives to improve

the air quality, such as the traffic restrictions in low emission zones in Barcelona, which, despite having a welcomed positive goal are not accompanied by improvements in public transport or aids for users with economic difficulties to be able to change their vehicle for a greener one.

Therefore, **the RACC has asked for an urgent investment plan for public transport, to increase the capacity in metropolitan transport** and to give priority to the improvement of the commuter train network and the Park & Ride facilities at train stations. The Club held meetings with all of the involved administrations, including thirty mayors of the affected towns, in order to request for economic support for low-income citizens.

The launch of the eighteenth edition of EuroRAP, the most important road safety assessment study in our country; the creation, together with Deloitte, of the Mobility Institute, the knowledge platform to analyse the current and future mobility trends aimed at companies; or the different international projects in which we participated as FIA members, are other actions developed by the RACC in 2019.

Thanks to this endeavour, the rigour in our work and our involvement, **the Club has received wide social recognition both at national and international level; and due to its commitment to road safety in Barcelona, we were awarded this year with the Merit Award by the Traffic Police.**

The world changes, sometimes in a surprising and unexpected way, as it is happening now with the Covid-19

pandemic, which has led to a significant drop in the public transport demand and an increase in the use of cars, motorcycles, bicycles, scooters and walking, which have become the main alternatives while things get back to "normal".

Right now we have to be flexible and provide for a transversal view, an open and integrating perspective, and it is time to make all of our knowledge and efforts available to adapt to scenarios which were totally inconceivable a short while ago.

The experience gathered and the work done during these years, an example of which you will find in this publication, with the summary of the actions carried out in 2019, place our Club in a privileged position to be able to approach and lead, under full guarantee, the challenge we are facing and to move forward towards this new mobility, adapted to the new health, social and economic situation that will mark our immediate future.

We are ready. The RACC is ready to help the society, the people and especially our members, to boost a mobility that is accident-free, more sustainable, connected and affordable for all, and also, in this times of transformation, safer for our health.



Josep Mateu
RACC President

Mobility Commission

Josep Mateu
RACC President

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Board of Directors

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Board of Directors

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In memoriam (1932-2019)

Sebastià Salvadó, a life dedicated to safe and sustainable mobility

Sebastià Salvadó, RACC President from 1985 to 2015, passed away on 15 April 2019, leaving behind a successful personal and professional career. He was the driving force behind the creation of the RACC Foundation in 1994, which was born with the aim of gathering all the activities that the Club was performing in the field of road safety.

Salvadó contributed decisively to reduce the accident rate on our roads. Thanks to his involvement, the Foundation had a significant influence on the adoption of road safety measures that are fully standardised today, such as the use of helmets and the safety-belt. In 1994, he started to put intense pressure on the introduction of the points-base driving license in Spain, a decision that was eventually taken in 2006.

Today, and largely due to the involvement of Sebastià Salvadó, the RACC has turned into a mobility benchmark at a local and global level, and continues to work in order to transmit to society and the administrations an own style, based on rigour, independence, credibility and innovation.

1. With the current RACC President, Josep Mateu.
2. “Attention, we are all pedestrians”, prevention campaign in Madrid (2008). **3. 20th anniversary of the RACC Foundation, celebrated in Barcelona, with Mayor Xavier Trias and Josep Mateu.**





Renewed commitment to the mobility of the future

The commitment of the RACC Foundation along these three decades, actively participating in the improvement of mobility, became especially relevant in recent years, considering that the concept of “mobility” has reached a huge social, economic and cultural transcendence. The factors that have boosted this qualitative leap are the technological development, the protection of the environment as a global priority, and the decided commitment to put an end to the scourge of road accidents.

The UN Sustainable Development Goals (SDG) recognise this relevance, as it can be considered as a global issue having an effect on all societies, and **include the question of mobility in two of their specific targets:** Target 3.6 of chapter “Health and Well-being” (halve the number of global deaths and injuries from road traffic accidents) and Target 11.2 of chapter “Cities” (provide access to safe, affordable, accessible and sustainable transport systems for all and improve road safety).

These UN targets have been part of the work done by the RACC Foundation from its beginnings, focussing on a safe, sustainable and affordable mobility.

At the start of these decade, which must be decisive to reach these targets, the RACC Foundation brings in deep knowledge in the sector from an independent and objective perspective, which has allowed the Club to gain recognition and respect from the main national and international specialised bodies. The opinion and the capacity of the



RACC to engage in dialogue are taken account of, as shown by the “RACC Achievements” which are included in several pages of this Report.

This ability to have a positive influence is increased by the impact generated in public opinion by the dissemination of the RACC’s actions. The Foundation works in order to reach users through the media, digital platforms and social networks, with the aim of getting the campaigns, studies and proposals to the whole society.

Today, the work of the Foundation combines the continuity of projects and methodologies with recognised rigour on the one hand, focussing on the reduction of the road accident rate and the environmental impact of transport and, on the other, the participation in international projects dealing with the opportunities of the new technologies applied to mobility. All of this is described in detail in this report, which shows a selection of the ten most relevant projects of the year and a second chapter with a complete list of the activities carried out in the field of safe, sus-

tainable, affordable, intelligent and intermodal mobility.

A highlight among the milestones described in the following pages is the commitment of the Foundation to the improvement of the metropolitan area of Barcelona by means of the publication “Let’s turn Barcelona into a mobility benchmark”, conducting studies on the new urban mobility and defending the rights of users with the introduction of the low emission area and the new CO2 tax in Catalonia. Other facts worth mentioning are the relaunch of the Club’s education programme for schoolchildren and the creation of the Mobility Institute, to help companies and administrations interpret and make use of the opportunities for a change that are offered by the field of mobility.

With this activity report, the RACC Foundation reaffirms the wish to continue being an independent expert, essential and committed, in this decade of deep changes, which we are starting right now and which, with no doubt, will lead our society to a new mobility culture.



The 10 most relevant projects in 2019

The actions performed by the RACC in support of a safer, sustainable and affordable mobility for people has been reflected in several activities during 2019. Some of these initiatives of the Foundation stood out for their special relevance, their impact on public debate or their pioneering character in the defence of the rights of users. These are the 10 most relevant projects.





01

Let's turn Barcelona into a mobility benchmark

Just like in other large cities, Barcelona is facing the challenge of **adapting the urban space in order to move forward towards a new mobility model** that integrates trends like limitations for private vehicles to improve the air quality and the growing use of shared vehicles and personal mobility, with the priority aims of improving the quality of life of citizens, the competitiveness of the city and the decarbonisation of transport.

The RACC wanted to contribute to this change in paradigm and **place the people in the centre of mobility**, regardless of the means of transport they use. Consequently, and based on experi-

ence and technical rigour, the Foundation produced the publication *“Let's turn Barcelona into a mobility benchmark”*, which proposes **45 measures to improve the current and future mobility**, and turn the city into an engine of progress.

The plan has three fundamental objectives: **zero road accident fatalities** in the city, to advance resolutely towards the **electrification of vehicles** in order to fight against the climate change, and to **prepare metropolitan Barcelona**, beyond the city in itself, in order **to face the mobility challenges of the future** with a long term perspective.



RACC ACHIEVEMENTS

- Development of an urban master plan for the Park & Ride facilities (ATM).
- Calming the traffic in school surroundings.
- Adaptation of the fees of blue and green parking areas to the pollution potential of the vehicle.
- Extension of the fee for Zone 1 and Zone 2 of the metropolitan area of Barcelona.

Three mobility development axes

The proposals of the document *Let's turn Barcelona into a mobility benchmark* are summarised in three axes:

1.

Improving the current model

- **Safer mobility:** protecting pedestrians and riders; improving the co-existence of all means of transport; and protecting the children's trip to school.
- **More sustainable mobility:** progressively eliminating the most polluting vehicles using compensatory measures.
- **More affordable mobility:** reducing congestion, improving public transport and re-organising taxation, guiding it towards the principle "the polluter pays".

2.

Approaching the future mobility

- **Zero emissions mobility:** accelerating the electrification of the vehicle fleet and the public service fleet.
- **Connected mobility:** increasing safety, optimising traffic flows, contributing to reduce the environmental impact and an open data-sharing policy.
- **Intermodal mobility:** planning "mobility as a service", by means of agreements between public and private operators, and finding a frame to integrate shared vehicles.

3.

Resolving the Big Actions that are pending

- **Avoiding new project delays,** such as finishing the central section of the underground line 9, the refurbishment of the La Sagrera station, the splitting of Line R3 of the commuter train service (Barcelona-Vic) or the train access to the port, among other actions.
- **Boosting strategic infrastructures** such as the Mediterranean Corridor, the refurbishment of the Sants station and, especially, the growth planning for the port and airport.

The 45 proposals of the RACC for a safer, more sustainable and more accessible urban mobility

- 1 To develop the Motorcycle Plan.
- 2 To promote a better co-existence between road users.
- 3 To control the compliance with the regulations on secondary streets.
- 4 To protect the elderly from being run over.
- 5 To calm the traffic in school surroundings.
- 6 To reinforce the control of distractions, speeding and alcohol.
- 7 To promote the renewal of the car fleet.
- 8 To relaunch the corporate travel plans.
- 9 To create more BUS-HOV lanes in the accesses.
- 10 To improve the capacity and efficiency of public transport.
- 11 To make urban goods logistics greener.s.
- 12 To promote the co-existence of bicycle riders and the rest of means of transport.
- 13 To increase the protection of bicycle riders.
- 14 To improve the quality of the bicycle lane network.
- 15 To promote and credit the use of bicycles to go to work.
- 16 To create safer parking areas for bicycles.
- 17 To promote the use of Park & Ride facilities
- 18 To have fast tow trucks on the main roads.
- 19 To improve the accesses to the ring roads in Barcelona.
- 20 To simulate the changing mobility scenarios.
- 21 To give priority to high occupancy vehicles (HOV).
- 22 To establish taxation neutrality and let the polluter pay.
- 23 To help those drivers affected by low emission zones (LEZ) to renew their vehicles.



Let's Turn
Barcelona
Into a Mobility Benchmark

- 24** To link the circulation tax to emissions.
- 25** To adjust the regulated parking fees to the pollution potential of the vehicle.
- 26** To extend the metropolitan flat rate to the municipalities of Zone 2.
- 27** To deploy a large recharging network for electric vehicles.
- 28** To boost the shared electric vehicle.
- 29** To encourage users to buy electric vehicles.
- 30** To extend parking bonuses to vehicles with an ECO label.
- 31** To introduce low emission vehicles in public services.
- 32** To improve the logistics of urban goods transport.
- 33** To lead autonomous and connected mobility.
- 34** To turn the city into a technological hub.
- 35** To implement on-demand transport.
- 36** To introduce autonomous driving.
- 37** To regulate the access of new operators of shared cars and scooters.
- 38** To develop the data governance policy.
- 39** To have a MaaS governance model.
- 40** To adapt urban planning to the new ways of mobility.
- 41** To transform the taxi and the transport network companies (TNC).
- 42** To facilitate shared personal mobility vehicles (PMV).
- 43** To inform users about the PMV regulations.
- 44** To evolve the PMV regulations.
- 45** To promote PMV safety.

02

Respect for the environment and the rights of users

The reduction of the air pollution, the mitigation of the climate change and the development of **alternative vehicle propulsion systems** to fossil fuels **with an affordable cost** for users are some of the main challenges of the current mobility. The United Nations have established the reduction of the air pollution as one of the global targets to be met by 2030, within the Sustainable Development Goal “Sustainable Cities and Communities” (no. 11).

In addition to the growing awareness among citizens and the technological development of the manufacturers, the administrations have promoted increasingly stronger measures to reach this common target. **The RACC has welcomed these actions** by the public powers, provided that they include compensatory measures for users.

As an expert and reference entity in the field of mobility and due to its vocation to the defence of the rights of users, **the RACC proposed improve-**



ments that will allow achieving the established environmental targets without the need to generate inequalities among the affected groups. At the same time, the Club insisted on the need that the information given by the administration must be clear and direct.

Two examples of actions performed by the RACC stood out in 2019 in this field: the **critical review of the implementation of the low emission zone**



(LEZ) in Barcelona and the **comments** provided with regard to the amendment of the **Law on the Climate Change of the Catalan Government**.

A fairer and equitable LEZ

During the consultation phase of Barcelona's Municipal Ordinance regulating the LEZ, the RACC submitted proposals for a higher effectiveness and

equity of the measure. For example, a **compensation with direct aids** for owners of vehicles without a label or low income, the extension of the restrictions to foreign cars visiting the city for a short period of time, or exemptions for vehicles carrying three or more passengers.

The Club also **reported the initially planned fines as excessive** - especially if compared with those applied in other European cities - and added that



Green NCAP, assessment of the energy efficiency and real emissions of vehicles

The year 2019 witnessed the creation of the European Consortium Green NCAP, with the aim of **providing independent and rigorous information to users** and boosting manufacturers to develop greener vehicles. They follow a specific methodology and a result system using stars, similar to those used by Euro NCAP for the assessment of the vehicle

safety. **Green NCAP analyses the performance of the vehicles in real traffic conditions** submitting them to tests that are stricter than those demanded for their homologation.

Twenty popular models in Europe were analysed in 2019, analysing the energy used by the vehicle while travelling, but they are working to

include in the future the **impact of their emissions during the whole life cycle** as well, from the manufacturing process to their dismantling and recycling.

The Green NCAP consortium is made-up of administrations, universities and automobile clubs, **with the participation of the RACC** as an FIA member.



the restrictions must also be **applied to vans and heavy vehicles**, under the same terms as cars.

With the aim of securing clear and reliable information for the club members and all of the citizens, **the RACC launched a campaign through its usual means of communication**, with complete information **on the consequences of the implementation of the LEZ**.

A highlight among the performed actions is the creation of a specific website, which provided information to more than 9,000 people during its first two months of activity, and the implementation of a user assistance service, which solved 300

personalised queries during the same period of time.

Allegations against the tax on the emission of CO₂

As regards the amendment of Law 16/2017 on the Climate Change, and the tax on the emission of carbon dioxide, the RACC welcomes the interest of the Catalan Government in promoting technologies to reduce the impact on the climate change. However, **the tax does not fulfil the general principle of “the polluter pays”**, as it taxes the vehicle ownership and not its use.



Thus, an old vehicle that is hardly used and therefore does emit hardly any CO₂ will have to pay more taxes than a new vehicle that is intensively used. Moreover, **the tax does not include heavy vehicles**, which generate large amounts of CO₂ and cover more kilometres.

The document submitted by the RACC includes several proposals of measures, such establishing a maximum limit to the tax rate, **not applying the tax during the first four years of the vehicles** to avoid the loss of fleet vehicle registration and **providing more financial resources to the so-called “Climate Fund”**, aimed at promoting the renewal of the fleet of owners with vehicles that have no label.



RACC ACHIEVEMENTS

LEZ:

- Halving of the sanction for undue circulation within the LEZ.
- 10-day authorisation per year for vehicles that have no label.

Tax on CO₂:

- Creation of the Climate Fund to renew the vehicle fleet.

03

Promotion of the use and improvement of public transport

One of the 45 measures included in the document *Let's turn Barcelona into a mobility benchmark* (see page 14) is to “improve the capacity and efficiency of public transport”. To be precise, the RACC considers that it is “essential” to increase the capacity and the reliability of the commuter train network to turn it into a true alternative to the privately-owned vehicle to access the city.

As regards travelling in the city by public transport, the document proposes to apply **improvements to the orthogonal bus network to increase the current low commercial speed**, which causes delays in their timetable and loss of time for users.

Growing user demand due to the LEZ

The need to have a quality public transport network becomes especially relevant in view of the entry into force of the **low emissions zone (LEZ)**, which, according to calculations made by the RACC in 2017, would affect around 150,000 people, which



had been accessing the city so far using vehicles not carrying the environmental label issued by the Traffic Authorities (DGT). Weeks before the start of the restrictions, the RACC analysed the occupancy of the metropolitan transport system that connects Barcelona with the surrounding municipalities and its **capacity to absorb the increased demand expected from users affected by the LEZ**, especially from the start of the economic sanctions.



On the one hand, the RACC conducted a survey among people affected by the restrictions, which resulted in **around 50% of users declaring that they wish to change to public transport**. On the other hand, the Club analysed the occupancy of the Renfe commuter train lines, the metropolitan lines of the Catalan train network (FGC) and the express bus during peak times (from 7:30am to 09:30am) accessing Barcelona.

To improve the commercial speed of the orthogonal bus network

Another study conducted by the RACC, *Analysis of the competitiveness of the new orthogonal bus network in Barcelona*, assessed in 2019 the average commercial speed of one of the main orthogonal high-performance lines, introduced by the Barcelona City Council to increase the demand of bus users in accordance with the Plan for a Sustainable Urban Mobility (PMUS) 2013-2018.

The study analysed 13 of the 28 new lines and came to the conclusion that the **commercial speed of these lines in 2019 was below the target** established by the PMUS (13 km/h) in more than 50% of the covered kilometres.

Therefore, the Club recommends acting against the main causes of the reduction of the average speed: wrongly parked vehicles that obstruct the bus lane, other drivers turning to the right, incidences during bus stops, congestion...

Likewise, **the RACC recommends improving the functionalities of the App and the WIFI of the bus company Transportes Metropolitanos de Barcelona (TMB)**, in order to know the position of the buses and their real-time occupancy level, using data for the operative improvement of the service with demand prediction algorithms, and applying the T-Mobility contactless technology to facilitate the access of users to the buses.

The conclusions show that before the implementation of the LEZ, five commuter train lines had already reached more than a 100% occupancy during peak time services, while FGC had an average occupancy of 63%, except for the Vallès-Terrassa line which recorded an occupancy of more than 100% during peak times.

Urgent need for investment

According to the study conducted by the RACC, the Express Bus lines recorded an average occupancy of 75% and could be able to absorb new users without having to exceed their capacity limits,

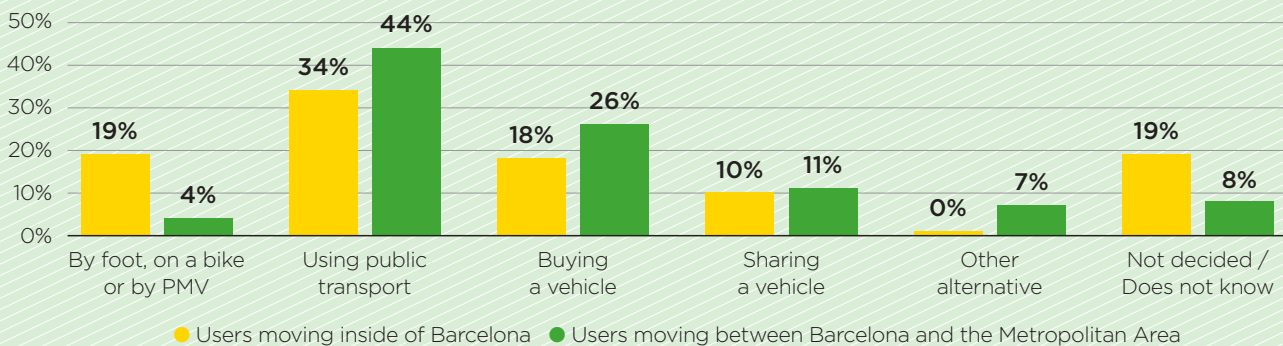
but their slow speed makes them uncompetitive compared to the privately-owned vehicle.

Therefore, the report demands from the administrations the drawing up of a **massive emergency investment plan** to allow for the increase of the frequencies and the capacity of the commuter train network, the extension and improvement of the Park & Ride facilities at Renfe and FGC train stations, and the improvement of the Express Bus competitiveness implementing exclusive BUS-HOV access lanes. The RACC has also requested the use of technology to develop an app that integrates real-time occupancy information of Park & Ride facilities and the metropolitan public transport.



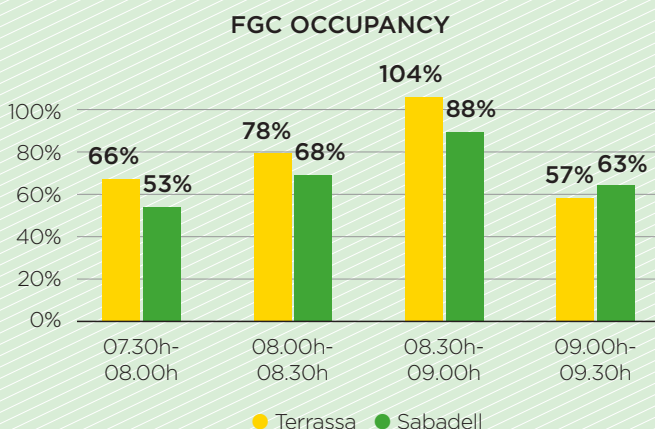
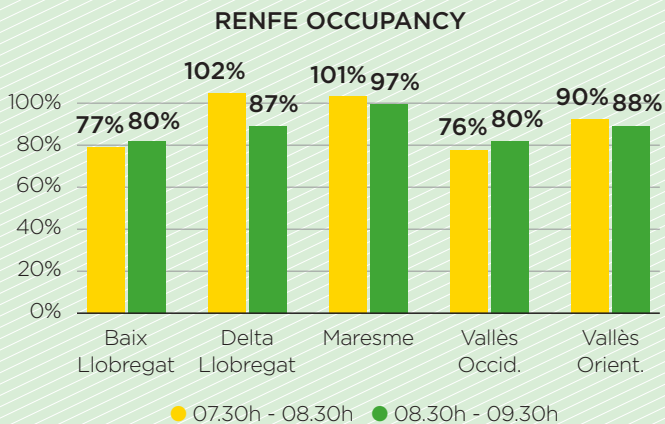
Which transport alternative are the users considering in view of the traffic restrictions?

Survey among users of vehicles that do not carry the environmental label.

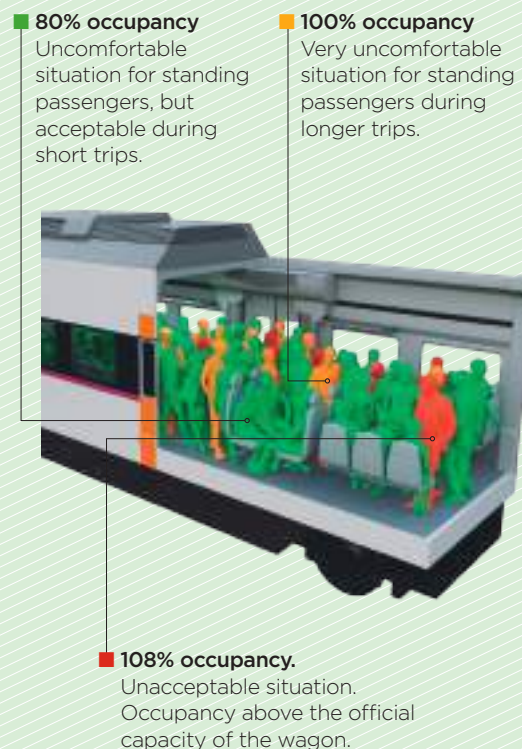


Is the commuter train network a valid alternative?

Six commuter train lines (Renfe) and FGC's Terrassa line recorded an occupancy of more than 100% at morning peak times before the implementation of the LEZ.



OCCUPANCY EXAMPLES IN PUBLIC RAIL TRANSPORT AT PEAK TIMES



04

Mobility Institute, innovation for the future mobility

Within the framework of a global debate on sustainable development, **mobility has become an element with a growing global impact** affecting several, very different sectors that have an influence on some of the trends that are transforming the society most, such as environmental awareness, the technological revolution or the new business models.

This social and economic frame has caused mobility to be perceived as a market opportunity for companies from different branches, not necessarily related to the traditional actors of people and goods transport.

In order to give a response to the needs of these new companies and of the traditional actors, the **RACC and Deloitte launched in 2019 the Mobility Institute platform**, with the aim of analysing the new mobility models in Spain from the perspec-



tive of the promotion of corporate collaboration. Its mission is monitoring the new **habits and trends of mobility in the current times of change** and providing the keys that will help to decode their complexity.

Services for the new mobility of the future

The Mobility Institute wants to become a benchmark entity showing the impacts of mobility on



Independent knowledge platform

The activity of the Mobility Institute is gathered in the platform **mobilityinstitute.es**, which provides access to varied exclusive content to their members. For example, in 2019 they launched studies on the new habits to purchase and have access to a private vehicle, or the main expenditure items of the family budgets in Spain dedicated to transport.

The platform does also draw up regular reports **analysing the trends**, and sends a monthly newsletter to its members with the latest novelties in the world of mobility. A highlight among the face-to-face activities was the organisation, in November, of the **first Mobility Talks meeting**, which was the official launch of the Mobility Institute and included a conference on the strategy of the TNC operator Uber for the coming years.

society in order to create new services and products that will give shape to a green and advanced mobility, thus contributing to the creation of more inclusive, sustainable and resilient cities in the future. The three great working lines planned are: the creation and dissemination of high added-value market contents and data, the creation of meeting spaces for members, and the development of specific collaboration projects.

The Mobility Institute was created as an **independent platform based on rigour**, oriented both to-

wards public administrations and private companies from very different sectors: transport operators, manufacturers, the public sector, engineering, insurances, retail, financing, telecommunications, utilities, health, etc.

The RACC contributes with its experience and objective analysis of mobility, which has been recognised by the main national and international bodies in this field, while **Deloitte has a clear multisectorial expertise** about the needs of companies and a large international expert network.

05

Evolution of congestion on the access roads to Barcelona

In 2007, the RACC developed an own methodology to **quantify the collective and individual impact of traffic jams**, based on indicators such as lost time and economic cost. This ground breaking methodology was applied in studies performed by the RACC on the congestion at the accesses to Barcelona, Madrid, Sevilla and Valencia.

The study has been conducted in Barcelona three times and shows the **evolution of congestion at three very significant stages**: before the start of the economic crisis (2007), after the recession (2016) and during the months before the start of the restrictions in the low emission zone (2019).

Higher economic and environmental impact

The results of the latest edition of the study have shown an increase in traffic: traffic-jams affected already more than 320,000 people

every day and **the hours lost in a traffic-jam increased by 19.5%** compared to 2016.

The economic impact of **congestion amounted in 2019 to a total cost of 169 million €**, 23 million more than in 2016. In addition to the damages caused to citizens (lost time and money), the RACC highlights the negative collective consequences: loss of productivity and competitiveness, and higher air pollution.

RACC proposals

Faced with this scenario, the RACC calls for an **emergency investment plan in public transport**. Among the measures proposed by the Club there are the creation of low-cost BUS-HOV lanes on the access roads to the city, the extension and improvement of Park & Ride facilities, the execution of the pending railway infrastructures and the intelligent management of the road network using ITS systems.

OF THE
320,000
USERS
AFFECTED BY
CONGESTION
EVERY DAY, 78%
TRAVEL WITH
A PRIVATELY
OWNED VEHICLE
AND 22% USE
PUBLIC MODES
SUCH AS
INTERURBAN
BUSES.

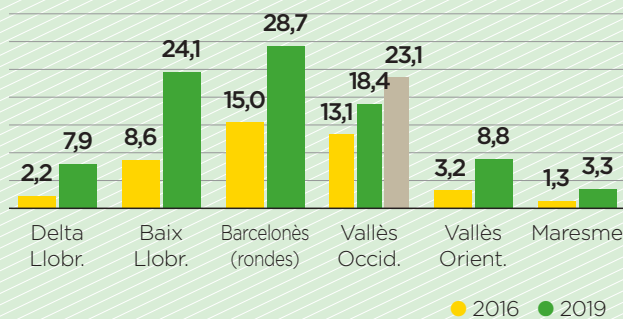
Keeping a constant eye on the traffic conditions

Traffic congestions have become a chronic problem for thousands of users who do not have a reasonable alternative in public transport.

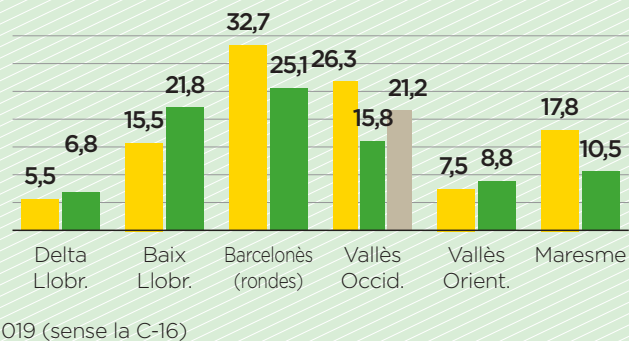
Lost time

- Users loose up to **63,000 hours** every working day on the access roads to Barcelona.
- Every year, **15.3 millions of hours are lost** due to congestion (19.5% more than in 2016).
- **In average, every user loses 15.2 minutes** (between 7:00am and 8:00am).

MINUTES LOST USER/CORRIDOR
FROM 7AM TO 8AM



MINUTES LOST USER/CORRIDOR
FROM 8AM TO 9AM



People affected

- **More than 320,000 people** have to stand congestions every working day to access Barcelona.

Speed

- The average speed **has dropped by 3.2 km/h** in the past three years.

Most affected roads

- The corridors of the Vallès Occidental and Baix Llobregat **gather almost 80%** of the congestion, although, in overall terms, Vallès Occidental is the **corridor with the highest number of lost hours**.
- The increase of traffic on the C-16 **(+52.5%)** and C-33 **(+35.4%)** roads is particularly significant.

What do those affected think about it?

- **81% of the people** travelling with their private vehicle along the access roads to Barcelona perceive that there is congestion.
- **Speed and comfort** are the main reason to use the privately-owned vehicle.
- **Only 22%** would be willing to pay 1 or 2 € in order to save 20 minutes per journey.

Social cost

- **169 million euros per year** is the global economic cost, **528€ per user/year** (23% more than in 2016).
- **86% of the cost is taken in by users** as their own lost time.

Peak times

- In the morning runs **from 6:00am to 9:15am** (one hour earlier than in 2016). The worst moment is at **7:30am**.
- In the afternoon, the peak time does also move one hour forward and starts at **4:30pm**.

WOULD YOU CHANGE YOUR HABITS?

Sharing a vehicle

YES **45%** NO **55%**

Park & Ride + public transport

YES **36%** NO **64%**

06

The challenge of improving urban road safety

2019 was the year of the **25th anniversary of the Barcelona Road Safety Forum**, a yearly meeting organised by the Barcelona City Council, the RACC, the Association for the Prevention of Road Accidents P(A)T and the Catalan Traffic Authority (SCT). Along its history, the forum has debated on many different topics related to road safety and urban mobility, and it has been the starting point of joint initiatives among administrations and the participating entities.

This edition raised the need **to continue working towards “vision zero”** - zero fatalities in road accidents - and has reflected on the challenges raised by the cities of the 21st century in terms of road safety and sustainability. In this sense, and on the occasion of the 25th anniversary of the forum, the RACC and the other entities in-

involved in the meeting, signed an institutional declaration of commitment to road safety, which was joined by the Spanish Traffic Authority (DGT) as well.

The commitment of the RACC

The document highlights the advances achieved since 2004 in the reduction of fatalities and serious injuries, but reminds of the target to achieve zero fatalities by 2050. It also highlights that 90% of those who lost their lives in a road accident are motorcycle riders or pedestrians (vulnerable users), and gathers the **co-existence challenges associated to the modes of mobility**. To be precise, it includes eight specific targets which can be summarised in one: the commitment to work “for a safer and friendlier city for the people”.

SINCE 2004 THE NUMBER OF ROAD **ACCIDENT FATALITIES HAS BEEN REDUCED BY 68%** AND BY **50%** THE NUMBER OF **SERIOUS INJURIES**, BUT THE TARGET IS STILL **ZERO FATALITIES**.



RACC recognised by the Barcelona City Council

The Barcelona City Council has recognised **the work done by the RACC and its Foundation to the benefit of mobility and road safety** in the city. To be precise, the City Council highlighted the work done, “identifying the new challenges for the cities and proposing alternatives, **keeping a critical spirit but with the will to find agreed solutions**”. The distinction was received by RACC President, Josep Mateu, during the presentation ceremony of the Merit Medals of the Traffic Police (Guardia Civil), which is held every year.

Institutional Declaration to improve road safety

1. To have a friendlier city, in which priority is given to the most vulnerable groups, especially pedestrians.
2. To calm school surroundings.
3. To promote the use of public transport and make it safer and more inclusive.
4. To encourage the co-existence of the users of different urban means of transport in order to avoid accidents.
5. To implement a strategic plan for motor-cycle riders, since they are the group with the highest accident rate.
6. To involve companies in workplace health with regard to travel safety.
7. To improve motor vehicle safety.
8. To improve the integration of bicycle riders and users of personal mobility vehicles in the mobility of the city.



07

New mobility habits: shared vehicles in the city

One of the trends that is transforming mobility in a more visible way in the main cities is the **use of shared vehicles**: bicycles, motorcycles, cars and, increasingly electric scooters. The RACC has analysed the habits of bikesharing, motosharing and carsharing users in the Study *The use of shared vehicles in Barcelona*. The report shows that the use of these service is now emerging - in early 2019 **only 10% of the population had tried these services** - but quickly increasing, especially shared motorcycles or bikes among people under 35 years of age.

Promotion and control of the system

The shared vehicles, which are mainly used to move around the city, have a low percentage of users who own a private vehicle. In any case, the shared vehicle option has positive effects due to the lower occupancy of the urban space and their contribution to the air quality (electric bikes and motorcycles). The recommendations made by the study to the administrations point to two directions.



On the one hand, the **promotion of a Mobility as a Service model (MaaS)** with flat rate packs linked to public transport, in order to encourage users of privately-owned vehicles. On the other hand, the licence control, in order to secure an orderly growth and make the integration of all road users easier. The aspects to be improved include **a better knowledge of the regulations** by the users and the introduction of reserved parking areas in these vehicles.



RACC ACHIEVEMENTS

- Drawing up of a code of best practices for a safe operation of the shared vehicle services in Barcelona.

Which is the profile of shared vehicle service users?

The economic factor and the chance to have a means of transport whenever needed, without having to buy it and maintain it, are some of the biggest reasons to use shared vehicles.

- Around **10%** of the population in Barcelona has used a shared vehicle.
- Most of the users are young people aged less than **35 years**.
- **70%** does not own a motorcycle or car (basically due to economic issues: purchase and maintenance).

Bikesharing

- **10%** of shared bicycle users used to travel by car or motorcycle.
- **60%** are workers, **30%** students and the rest have other occupations.
- **97%** of the travels are less than 10 km long.

Motosharing

- **21%** of motossharing users used to travel on a motorcycle (12%) or a car (9%).
- **89%** has been using this service for less than two years.
- **56%** of the motossharing users do only have a class B driving license.

Carsharing

- **41%** used to travel with a motor vehicle.
- **80%** do not make a regular use: occasionally (18%), once a month (11%), 2-5 times a month (51%).
- **63%** of the users make trips of more than 20 km.

08

The quality of the road network to the test

After a few years of strong decreases in the number of victims, the stagnation of the road accident rate in Spain that has been recorded since 2013 has led to a detailed review of the factors that are involved in the accident rate. With this aim in mind, the RACC introduced in 2017 the document “20 Road Safety Measures for 2020”, which included proposals, most of which are still in force, including watching over the quality of infrastructures using specific measures like **extending the inspections and audits to roads all over the network.**

Identifying the sections with higher risks

The road assessment using methodologies like EuroRAP allows analysing a complete network and identifying the sections with the highest risk in order to establish the causes and make adequate in-



vestments in maintenance, signposting and safety systems. For example, the yearly studies made by EuroRAP have repeatedly alerted about the fact that **the roads with the highest risk are single-carriageways**, stating that 50% of the accidents involving motorcycles, mopeds and heavy vehicles are gathered in specific sections that represent approx. 10% of the network, a fact that should make prevention easier.

The involvement of the RACC in the application of EuroRAP methodologies started back in 2002,



With the EuroRAP methodology, the RACC has audited the road network safety in several countries in Europe, America and Asia.

EuroRAP 2019 in Spain and Catalonia

The RACC has been involved in road assessment based on the EuroRAP protocol for eighteen years now. The results of the latest studies conducted in Spain and Catalonia were presented in December, with the following conclusions.

- In Spain (17th edition) 25,100 kilometres of the Spanish Road Network have been analysed so far, representing 52% of the road mobility. The results show a reduction by 1.2% of the kilometres with a high or very high risk; Aragón (26%), Castilla y León (14%) and Catalonia (13%) being the communities with the highest number of dangerous kilometres.
- In Catalonia (18th edition) more than 6,370 kilometres have been analysed, which gather 90% of the mobility, showing a reduction by 4% of the road sections with the highest risk.

with the publication of the first results applied to the Catalan road network. The study was later extended to the whole Spanish road network.

Using the same methodology, **the RACC** has crossed borders **auditing more than 53,000 kilometres of the road network in different countries in Europe, Asia and Latin America**, always with the aim of contributing to the reduction of the number of fatalities, providing information to users and action guidelines to administrations to let them improve their road networks.



RACC ACHIEVEMENTS

- **Reduction of the road accident rate by 63% in the section Altafulla-Villafranca and by 39% in the section Alcanar-l'Hospitalet de l'Infant after the diversion of the trucks from the N-340 road to the highway.**

09

Relaunch of the educational bid: “Mou-te bé! Play & Learn”

In 2010, the RACC launched the on-line programme “RACC Educa”, an educational programme promoting sustainable mobility and road safety, adapted to the new technologies which are increasingly found in classrooms. This platform has been completely renewed in 2019, with a new design and **interactive games adapted to the current mobility habits** for primary school children.

Free resource for schools and families

The new on-line space is integrated in the global road education programme for schoolchildren developed by the RACC called “Mou-te bé! (Move right!)” and has been renamed to “Mou-te bé! Play



& Learn”. This resource, which is completely free, can be used in classrooms or at home, in groups or individually. It is structured as an interactive on-line game, and the main aims are **raising awareness and responsibility among schoolchildren about their own decisions with relation to sustainable mobility** and road safety.

It includes a specific space for teachers, trainers and parents, with didactic guidelines, and the chance to generate competitions among children, dealing with the mobility contents.



“Young People and Mobility”: raising awareness about safe mobility among young people aged 13 to 18 years

The education-offer made available by the RACC to young people under the age of 18 is completed with the programme “Young People and Mobility”, aimed at teachers wishing to work on safe mobility with secondary school, high school and professional education students. The programme offers two main resources: the website **jovesimobilitat.cat**, with a mobility content library and didactic proposals for teachers; and **the contest “Young People and Mobility”**, which invites young people to offer their own view about mobility and road safety. The contest was held for the twelfth time in 2019, with the participation of 2,349 students from 76 education centres in Catalonia and was dedicated to the use of the mobile telephone as a factor for distraction. Since its first edition, **more than 17,000 students** have taken part in the contest.

“Mou-te bé! Play & Learn” has versions in Catalan and Spanish and it is **available at the website www.raccmoutb.cat**.

Mou-te bé “on tour”

The “Mou-te bé!” programme offers also an **on-site activity called “Mou-te bé! On Tour”**, aimed at children aged 8 to 12 years. It includes an initial theory session with monitors and a role game on a circuit that simulates mobility situations in a 30km/h-

zone on personal mobility vehicles (bicycles, electric bicycles, electric scooters, skates or electric platforms) or as pedestrians.

The RACC Foundation offers this activity to town councils, local police forces and other mobility actors, both public and private, to be set-up during mobility days, town festivals, fairs, road-safety playgrounds for children, etc. In 2019 it was set-up in cities like Barcelona, Madrid or Terrassa and counted on the participation of more than 800 boys and girls.

10

New European projects for innovation in mobility

One of the identifying features of the RACC is the **participation in international mobility projects** and the relationship with the main worldwide organisations of the sector, a feature that has been intensified in the past 25 years with the work done by the RACC Foundation.

This international perspective has allowed the Club to become a pioneer in the implementation and dissemination, in Spain, in general and specifically in Catalonia, of the most advanced tools for the assessment of road safety and the environmental impact of vehicles (EuroRAP and Green NCAP) as well as independent methodologies to audit the quality of the mobility services offered to users.

The link to this type of projects has increased as a consequence of the **acceleration of the technological development** and its applications in the field of intelligent transport systems. This type of research demands for highly specialised equipment in various fields and major investments,

which is why they are usually managed through public-private consortia. **The RACC contributes to these consortia with tools and methodologies for the analysis of mobility**, as well as with its ability **to bring the developed solutions closer to end users.**

Relevant R&D&I initiatives

Among the new international projects in which the RACC is involved, there are three R&D&I projects which are especially relevant, and cover three of the main challenges of the sector: the safety of infrastructure and the preparation for transport automation (Slain project), the impact of traffic on the air quality (Modales project) and the adaptation of users to the autonomous vehicle (Drive2theFuture project). Modales and Drive2theFuture form part of the EU research and innovation project Horizon 2020, while Slain is framed in the Connecting Europe Facility 2014-2020 programme.



The mobility of the future in three new projects

In 2019, the RACC was chosen to take part in these three new European projects:



Target: to implement a new safety assessment system for the trans-European road network according to the SRS (Star Rating Score) protocol.

Methodology: analysis of the constructive elements of a road that have an influence on the probability of having an accident or on the seriousness, if it happens. Based on the results, the roads are scored with stars (from 1 to 5).

Participation of the RACC: responsible to apply SRS training and analysis on the trans-European network in Spain (TEN-T), together with the Catalan Government, the Catalan Traffic Authority (SCT) and the Spanish Traffic Authority (DGT).



Target: to change the behaviour of users to reduce the emissions caused by driving, by means of awareness raising campaigns and a driver assistance app.

Methodology: investigation of the relation between the driver behaviour, the vehicle maintenance and the emissions generated by the engine, the brakes and the tyres. Subsequent development of resources and training tools.

Participation of the RACC: validation of the resulting tools with end users and dissemination of the results. Barcelona will be host to one of the pilot tests that will implement the developed tools.



Target: to prepare future drivers, travellers and vehicle operators to accept and use connected, cooperative and automated modes of transport, as well as to understand and satisfy the needs of users.

Methodology: analysis of the behaviour of drivers in different autonomous driving scenarios and development of specialised training tools, which shall be validated in 12 pilot programmes in Europe.

Participation of the RACC: leading the dissemination of the project in Europe.



The background of the page is a photograph of a city street. In the foreground, there is a lush green hedge. Behind it, a red bus is visible, partially obscured by tree trunks. To the left, a black sign with yellow text is mounted on a pole. The overall scene is a typical urban environment with trees and infrastructure.

Activities of the RACC Foundation in 2019

On the road towards a new mobility culture, we should not forget the true targets: zero road accident fatalities, zero emissions, zero delays, zero excluded citizens... The following pages gather the work done by the Foundation along the year 2019, to achieve these aims, which implies the use of tools like technology, research, regulation and intermodality.

The RACC Foundation, main actor of the new mobility

Electric vehicles, shared mobility services, MaaS (Mobility as a Service), autonomous driving, cooperative transport systems... these are concepts that define a new mobility model. The RACC Foundation shares this view and participates actively in this transformation phase, both developing own actions (studies, campaigns, conferences, etc.) as well as by means of the participation in several collaboration projects with other entities.

WE ARE DRIVEN BY THREE BIG TARGETS



SAFE MOBILITY

Procuring the best infrastructures, the best vehicles and the best drivers to achieve the target of zero road accident fatalities by 2050.



SUSTAINABLE MOBILITY

Promoting actions to eliminate the emission of polluting gases to enjoy a good air quality and stop the climate change.



AFFORDABLE MOBILITY

Promoting measures and disseminating recommendations to reduce the economic cost of mobility for people.

ESSENTIAL INSTRUMENTS THAT MUST BRING US CLOSER TO OUR TARGETS



INTELLIGENT MOBILITY

Achieving a more agile and integrated mobility, making use of the possibilities offered by technology and connectivity.



INTERMODAL MOBILITY

Linking and combining different means of transport according to the current needs, for a better travel experience from the first to the last mile.





Activities for a safe mobility

SAFE PEOPLE

25TH BARCELONA ROAD SAFETY FORUM: “ROAD SAFETY, THE CHALLENGES OF THE CITIES IN THE 25TH CENTURY”. The 25th Barcelona Road Safety Forum debated on the challenges of 21st century cities in terms of road safety. On the occasion of the 25th anniversary of this conference, the organising entities and administrations (Barcelona City Council, the RACC, the Association for the Prevention of Road Accidents and the Catalan Traffic Authority) signed an institutional declaration of commitment to improve road safety, which was joined by the Spanish Traffic Authority (DGT). More information on page 28.

EDUCATIONAL PROGRAMME “MOU-TE BÉ! PLAY & LEARN”. Technological update of the on-line programme “Mou-Te Bé! Play & Learn”, with a new design and new interactive games with the aim of educating in sustainable mobility and road safety. It includes new resources for teachers, trainers and parents, with new didactic guides and news about mobility and road safety. More information on page 34.

STUDY “RACC BAROMETER OF URBAN BICYCLERIDERS IN BARCELONA” The second edition of the study analyses the habits and the opinion of those moving around the city of Barcelona on

a bicycle. It shows a significant increase of users in only one year - around 68,000 people use the bike on a daily basis, 8% more- and more than half of them (55%) feels vulnerable while travelling on public roads.



PIONEERS PROJECT (PROTECTIVE INNOVATIONS OF NEW EQUIPMENT FOR ENHANCED RIDER). Project funded by the European Union with the aim of improving the safety for conventional and electric motorcycles by means of an approach that is integrated into the protection of motorcycle riders. Started in May 2018 and with



a planned duration of three years, the project launched the results of the first studies in 2019 and boosted its communication activities.

EDUCATIONAL ACTIVITY “MOU-TE BÉ! ON TOUR”. On site activity dealing with the importance of the correct co-existence of sustainable modes of transport while moving around the city. It consists of a brief theory session and a practical part that simulated a route along the urban 30 zone. In 2019, it was set-up at the Bicycle Festival in Barcelona, the Bicycle Festival in Vallecas (Madrid),

the Day of the Traffic Police in Barcelona, the Mostra de Comerç in Sant Gervasi (Barcelona) and the European Mobility Week in Terrassa, with the participation of a total of more than 800 boys and girls.

THEATRE PLAY: PERFORMANCE OF THE PLAY “STOP, A NEW ADVENTURE OF KETTY’S SUPER-AGENTS” IN SALOU. Performance of this theatre play in the auditorium of the Salou Town Council, aimed at children aged 3 to 9 years of age, with road education as background theme and showing the meaning of traffic signs.



Activities for a safe mobility

SAFE PEOPLE



12TH CONTEST “YOUNG PEOPLE AND MOBILITY”.

Contest organised by the RACC with the collaboration of the Catalan Traffic authorities and the Education Department of the Catalan Government, which counted on the participation of 2,349 secondary school, high school and professional education students (38% more than in the previous year), from 76 education centres in Catalonia. This edition focussed on the topic “Young people, mobile telephones and road safety. What do we

do?”. Since its launch 12 years ago, the contest has counted on the participation of more than 17,000 students.

FIA MOTOSHARING SAFETY PROJECT. Development of the project, supported by the FIA, for the promotion of best practices in road safety among motosharing users, by means of the analysis of the service and a communication campaign in the cities of Barcelona and Milan, planned for 2020.

CONFERENCES

“#2SECONDS” CAMPAIGN. Boosted by the RACC and the Fédération Internationale de l’Automobile (FIA) the awareness raising campaign “2#seconds” highlights the fact that only a short time of distraction is enough to have a road accident. The messages of the campaign have been disseminated in digital channels and through the main social media of the RACC.



“2ND ROAD EDUCATION DAY IN BADALONA (MOBILONA)” [BADALONA, 20/03/19]. The day, promoted by the Badalona Town Council, is aimed at favouring the acquisition of abilities and knowledge by children about their rights as pedestrians, vehicle passengers or bicycle riders. The RACC participated with the activities of the Club’s mobility education programme.

ROUND TABLE: “HEALTH AND DRIVING” [BARCELONA, 04/06/19]. Organised jointly by the Agrupació Foundation and the RACC Foundation, the conference was focussed on the challenges and opportunities of mobility for the elderly. The RACC launched a self-assessment tool, to check the cognitive abilities needed for safe driving, aimed at elderly people (<http://saludyconduccion.es>).

WORLD DAY OF REMEMBRANCE FOR ROAD TRAFFIC VICTIMS [17/11/19]. Celebration of the world day with the motto “Life is not a car part”, which approaches the question of the road accident rate from a double perspective: the number of fatalities and serious injuries in road accidents and the fatal diseases related to pollution. The RACC collaborated disseminating the campaign in its digital platforms.



Activities for a safe mobility

SAFE VEHICLES

STUDY: "THE USE OF SHARED VEHICLES IN BARCELONA". Analysis of the mobility habits of the users of bicycle, motorcycle and car sharing services in Barcelona. The results show that 10% of the citizens have already used shared mobility services at some point and that 49% of them usually made these travels by public transport, while the remaining 51% used other means. More information on page 30.

PARTICIPATION IN THE SPANISH ALLIANCE FOR CHILD ROAD SAFETY (AESVI). The RACC forms part of the table of the Spanish Alliance for Child Road Safety (AESVI) with the aim of contributing to achieving the figure of zero fatal victims among children as a consequence of road accidents, with the commitment of all stakeholders. In addition to disseminating advice for safe travelling, the first training courses for salespeople dealing with child retention systems were designed and convened in 2019.

SAFE ROADS

ACCIDENT RISK BALANCES. Continuous follow-up of the road accident rate in Spain and Catalonia, with the conduction and dissemination of reports and analysis of the evolution. Three reports were published in 2019: after Easter, after summer and at the end of the year. The studies showed a significant improvement of the road accident figures compared to 2018, although they are far from the targets established at European level for 2020.

REPORT: "THE COST OF THE ROAD ACCIDENT RATE IN CATALUNYA". Analysis of the investment made by the institutions in charge of the roads in Catalonia, compared with the costs of the road accident rate of the same roads. The conclusions alert about the drop of the maintenance investment despite the increase of the costs due to the rebound of the road accident rate. The data about the road accident rate were taken from the EuroRAP study.

EURORAP 2019. The 17th edition of the study drawn-up by EuroRAP (European Road Assessment Programme, www.eurorap.org) analysed 25,100 km of the State Road Network (52% of the road mobility in Spain) and 6,370 km of the network managed by the Catalan Government (90% of the mobility in Catalonia). More information on page 32.



AUDIT: “QUALITY OF URBAN RING ROADS IN MUNICIPALITIES IN TARRAGONA”. Seventh audit of the quality of urban ring roads that analysed the roads in eighth municipalities in the province of Tarragona (Alcanar, Ascó, Corbera d’Ebre, Torredembarra, Tortosa, Valls, Vila-seca and Vilafortuny). The audit concludes that the main deficiencies are insufficient lighting and narrow pavements. With this study, the RACC has already assessed 36 ring roads in Catalonia; most of them with a wide margin for improvement.

IMPLEMENTATION OF THE IRAP METHODOLOGY.

Within the framework of the implementation of the road assessment programme iRAP (International Road Assessment Programme), the RACC continued executing the agreement signed in 2017 with the Spanish Traffic Authority (DGT), after choosing this methodology to determine the sections with the highest risk rate of the Spanish road network. The RACC applied the iRAP methodology in Brazil and Italy as well.

PROJECT SLAIN (SAVING LIVES ASSESSING AND IMPROVING NETWORKS).

Project framed within the European programme Connecting Europe Facility 2014-2020 (<https://ec.europa.eu/inea/en/connecting-europe-facility>), focussed on the implementation of a new assessment and system and the improvement of road safety in the trans-European road network, based on the application of the SRS protocol (Star Rating Score). The RACC works together with the DGT and the department for Territory and Sustainability of the Catalan Government in this project. More information on page 35.



Activities for a sustainable mobility

STUDIES



ANALYSIS AND USER INFORMATION ABOUT THE LOW EMISSION ZONE IN BARCELONA (LEZ).

On the occasion of the entry into force of the LEZ on 1 January 2020, the RACC Foundation conducted several analyses about the suitability and the impact of this measure, and the implementation criteria (affected vehicle, application period, fines, etc.). At the same time, user information campaigns were launched, as well as a telephone assistance service. More information on page 17.

GREEN NCAP CONSORTIUM: DISSEMINATION OF RESULTS.

New European consortium specialised in measuring the environmental impact of cars with the aim of promoting the use of cleaner models. Three waves of the study were performed in 2019, analysing 20 of the most popular models in Europe, which are scored from 1 to 5 stars to offer a clear guideline for consumers about the cleanest option on the market. More information on page 18.

STUDY: "PRACTISING SPORT AND AIR QUALITY IN URBAN SETTINGS".

Analysis of the impact of pollution on people practising open-air sports, based on the concentration differences of pollutants at different times of the day and in different places. Conducted in five cities (Barcelona, Madrid, Sevilla, Málaga and Donostia), in collaboration with the insurance company Zurich.

RACC RECOMMENDER TO MAKE THE CHANGE TO ELECTRIC MOBILITY

Creation of an interactive chart aimed at users to check if it is worth changing to electric mobility, based on the parameters established in the study "The electric vehicle and its growth potential" (covered kilometres, use in the city or on open roads, available parking space, potential maintenance costs, etc.). Available on the

PROJECTS

RACC Foundation's website (<https://fundacion.racc.es/recomendador-para-cambiar-a-movilidad-electrica>).

STUDY OF THE CO-EXISTENCE CONFLICTS ON THE ROADS ARISING OUT OF THE IMPLEMENTATION OF THE BIKE LANE NETWORK IN BARCELONA. Conducted on behalf of the Ombudswoman of Barcelona, the study on the conflicts arising out of the implementation of the bike lane network focussed on observing the situations that might result in a conflict. Ten different points of the bike lane network in Barcelona were analysed with the aim of determining the causes of the conflicts and making mitigation and improvement proposals.

STUDY ON THE RENEWAL OF THE VEHICLE FLEET OF THE CATALAN RAILWAY (FGC). Analysis of the criteria for the purchase and renewal of FGC's vehicle fleet, considering environmental, cost-related and operative parameters.

PROJECT MODALES (MODIFY DRIVER'S BEHAVIOUR TO ADAPT FOR LOWER EMISSIONS).

Research project with the aim of developing training resources for a more sustainable driving, including an assistance app for the driver and awareness raising campaigns. Developed by a consortium of European organisations, including user organisations such as the FIA or the RACC. More information on page 37.





Activities for a sustainable mobility

CONFERENCES

WORKSHOP: “ENERGY AND MOBILITY” [BARCELONA, 29/04/19]. Workshop organised by the Efficient Energy Cluster of Catalonia (CEEC), in collaboration with the project Live, to boost sustainable mobility in Barcelona and Catalonia. The aim of the workshop is to boost the relationship between the members and collaborators of the CEEC. The RACC participated with the launch of projects related to the topic of the workshop.

LAUNCH OF THE REPORT “TOWARDS A LOW-CARBON AUTOMOBILE. CHALLENGES AND OPPORTUNITIES FOR SUSTAINABLE INVESTMENT” [BARCELONA, 30/04/19]. Attendance to the launch of the report published by the Social Innovation Institute of ESADE and the Caja de Ingenieros Foundation, explaining the need to involve manufacturers, suppliers, consumers and the public sector to incentivize the transition towards a more sustainable mobility.

1ST CONGRESS ON AIR QUALITY [SABADELL, 24-25/10/19]. Congress oriented towards reflecting on the impact of air pollution on health, based on the involvement and the joint work of the different agents involved. Co-organised by the Sabadell Town Council, the Barcelona County Council, the Catalan Government and the Metropolitan Area of Barcelona (AMB). The RACC participated in the session “Taxation tools for the improvement of the air quality”.





Activities for an affordable mobility

STUDIES

AUDIT: “EVOLUTION OF THE CONGESTION ON THE ACCESS ROADS TO BARCELONA”. Third analysis of the traffic jams on the access and exit roads in Barcelona, after the analysis made in 2007 and 2016. This edition compares the results with the results achieved in 2016: in three years, the time lost in traffic jams has increased by 19.5%. More information on page 26.

STUDY: “ANALYSIS OF THE CAPACITY OF PUBLIC TRANSPORT ON THE ACCESS ROADS TO BARCELONA”. The report assesses the occupancy of the metropolitan transport system and calculates the demand of new passengers from 1 January 2020 onwards, with the entry in force of the Low Emission Zone (LEZ) on the ring roads in Barcelona. The conclusions alert about the fact that several commuter train lines already exceeded a 100% occupancy during peak times in the morning, which is why they demand for an urgent investment plan for the commuter train network. More information on page 20.

STUDY: “ANALYSIS OF THE COMPETITIVENESS OF THE NEW ORTHOGONAL BUS NETWORK IN BARCELONA”. Ground breaking research work on the orthogonal bus network based on the indicators that have a greater influence on users: the

travelling speed, the timeliness and the traveller demand. Launched within the framework of the European Mobility Week it proposes the implementation of improvements in order to increase the commercial speed of buses. More information on page 21.

EDI PROJECT (EUROPEAN DATA INCUBATOR)
Programme focussed on encouraging the collaboration between start-ups that are experts in exploiting the big-data technologies and companies with large information volumes to resolve business challenges. Managed by a consortium consisting of more than 20 entities from 10 European countries, in which the RACC participates as data provider and supplier of challenges to be faced with data from different mobility sources.

MY CAR, MY DATA CAMPAIGN. Boosted and managed by FIA Region I, this initiative is mainly aimed at defending the right of users to manage the data provided by their vehicles. Within the My Car My Data campaign, the Club conducts surveys among users and develops specific campaigns.



Activities for an intelligent mobility

PROJECTS



ADAS&ME. Development of advanced driving assistance systems (ADAS) based on the information gathered about the condition of the driver and his/her surroundings. After three years researching, the final event was held in Barcelona (03/12/19), with an active participation of the RACC.

DRIVE2THEFUTURE. European project launched in November 2019 and focussed on preparing drivers, travellers and operators for the connected cooperative and automated transport of the future. The RACC leads the dissemination in Europe. More information on page 37.

C-MOBILE (ACCELERATING C-ITS MOBILITY INNOVATION AND DEPLOYMENT IN EUROPE). Project for the deployment of large-scale cooperative systems in different European cities, including Barcelona. The RACC participates with its real-time traffic data, creating solutions for the optimisation of traffic lights, the prioritisation of emergency vehicles, etc.

BRAVE (BRIDGING GAPS FOR THE ADOPTION OF AUTOMATED VEHICLES). European project focussed on the development of autonomous driving. Among other actions, the RACC validates the acceptance and the impact of this technology on users, by means of tests in different driving environments.

C-ROADS SPAIN (CONNECTED ROADS). Project promoted and co-funded by the EU with the aim of setting the bases for the use of cooperative transport systems V2I (communication between vehicles and infrastructures) and V2V (communication between vehicles), and the autonomous driving systems, ensuring their interoperability in Europe. The RACC forms part of the consortium led by the Spanish traffic authority, DGT, in Spain. The advances of the project were launched in 2019, and workshops were organised, as well as test days of the developed solutions.

CONFERENCES

“19TH SPANISH CONGRESS ON INTELLIGENT TRANSPORT SYSTEMS” [MADRID, 01-03/04/19]. Yearly congress organised by ITS Spain, with the launch of the latest novelties in terms of new technologies for transport. The RACC participated with the launch of the European project Pioneers, on innovations for motorcycle rider safety.

C-MOBILE TRAINING FOR END USERS[BARCELONA, 10/05/19]. Congress organised by the RACC, Applus+ IDIADA and IRU (International Road Transport Union) as part of the European project C-MobILE and dedicated to the training on connected vehicles and the different C-ITS services to be deployed in the city of Barcelona and its metropolitan area. Held in the RACC headquarters in Barcelona.

2ND FORUM ON THE AUTONOMOUS VEHICLE: “CONNECTIVITY” [BARCELONA, 13/11/19]. Forum organised by the Association of Industrial Engineers of Catalonia to debate about connectivity among vehicles and between vehicles and infrastructures, and the impact on road safety. Participation of the RACC in the block about infrastructures with the launch of the C-Roads and C-MobILE projects.

TRAFFIC INFORMATION

OFFICIAL SUPPLIER OF TRAFFIC DATA FOR THE CATALAN TRAFFIC SERVICE. The RACC is the real-time traffic data provider of the Catalan public administration, including congestion levels, travel times on the whole Catalan road networks and constantly updated incidences.

RACC INFOTRANSIT. Launched in 2011, RACC Infotransit offers real-time information about the traffic conditions on the whole road network and a large part of the urban networks in Spain through its website (<http://infotransit.racc.es>) and their free app, which was downloaded more than 315,000 times in 2019. It is the only service offering a forecast of the traffic conditions, up to 12 hours in advance, information on fuel stations, traffic cameras and car parks, including metropolitan Park & Ride facilities in Madrid and Barcelona.





Activities for an intermodal mobility

STUDIES AND PROJECTS

DOCUMENT: “LET’S TURN BARCELONA INTO A MOBILITY BENCHMARK”. Preparation and launch of a document that proposes 45 measures to improve the quality of life of people and turn mobility into a lever of progress, competitiveness and the growth of the city. The document was launched during a conference performed by RACC President Josep Mateu in March in Barcelona, with the attendance of institutions, entities and companies from Barcelona and Catalonia. More information on page 12.



GALILEO FOR MOBILITY PROJECT. European project that pursues the introduction of the positioning technology of the Galileo satellite system into the MaaS services (Mobility as a Service). The RACC leads a pilot test dealing with motosharing services in Barcelona. Among other actions, 2019 marked the completion of the pilot test to show how Galileo improved the precision of the geolocation signal in the City Trips application, developed by the RACC.

KIC URBAN MOBILITY PROGRAMME (KNOWLEDGE INNOVATION COMMUNITY ON URBAN MOBILITY). Creation, in Barcelona, of the Kic Urban Mobility community, promoted by the European Institute of Innovation and Technology (EIT) in charge of developing innovation projects of urban mobility. The community is led by the MOBILus consortium (Mobility for Livable Urban Spaces), led by the city of Barcelona and made up of a partnership with 48 members from 15 countries. The RACC participates in the innovation community together with the Barcelona City Council, the UPC, SEAT and the CARNET hub (Cooperative Automotive Research Network).

CONFERENCES



CONFERENCE “SMART CITY SMART COMPANY”
[PORT AVENTURA, 15/03/19]. Organised by Etecnic and Deloitte with the aim of debating about the application of new intelligent technologies in cities and the development options offered to companies. The RACC participated in the round table that assessed the creation of intelligent cities from the perspectives of public and private environments.

“POSTGRADUATE COURSE ON SMART CITIES: TOWN PLANNING, TECHNOLOGY AND SUSTAINABILITY” [BARCELONA, 25/03/20]. Participation in a postgraduate course of the Polytechnic University of Catalonia (UPC) with a paper on the positioning of the RACC with regard to mobility and smart cities. The aim of the postgraduate course is to train specialists in innovative urban management tools.



Activities for an intermodal mobility

CONFERENCES



WORKSHOP: “THE POWER OF DATA ANALYTICS IN ASSESSING VALUE OF TIME FOR MOBILITY AND TRANSPORT PLANNING: UNCOVERING USERS’ MOBILITY BEHAVIOUR” [BARCELONA, 18/09/19]. Workshop organised by Eurecat - Technological Centre of Catalonia with the aim of analysing the preferences, behaviours and needs of users while travelling and identifying the factors that have the biggest influence on them. The RACC participated in the round table dedicated to the analysis of the behaviour data about mobility.

“SHARING: THE SOLUTION TO THE MOBILITY PROBLEMS IN CITIES? [BARCELONA, 08/10/2019]. Participation in the round table organised by the Club Automobile and Mobility ES-ADE Alumni, within the framework of the conference cycle “MoBiendo”, which deals with different topics related to the new ways of mobility and their impact on the automobile sector. The congress allowed to discover the advantages and the challenges raised by shared vehicles (carsharing, motossharing, bikesharing...) for mobility in the cit-

ies. The RACC Foundation launched the study on shared mobility in Barcelona.

“TRAFFIC2019 - INTERNATIONAL SAFE AND SUSTAINABLE MOBILITY TRADE FAIR” [MADRID, 08-10/10/19]. Sixteenth edition of the international trade fair dedicated to the management of the new safe and sustainable mobility, with the participation of more than 4,600 professional visitors and 70 exhibitors. The RACC introduced the activity of the Mobility Institute and an analysis of the environmental sustainability in the six most populated Spanish cities.

CONFERENCE: “MOBILITY TALKS” [BARCELONA, 18/11/19]. First edition of the Mobility Talks meetings, organised by the Mobility Institute, with the launch of the platform’s activity and speeches by representatives of the RACC and Deloitte, driving forces of the platform. It also included a conference on the strategy planned by Uber for the coming years. More information on page 24.

CONFERENCE: “SHARED MOBILITY: GETTING READY FOR THE MAAS ERA” [BARCELONA, 19/11/19]. Conference held within the framework of the Smart City Expo World Congress and dedicated to the new challenges raised by the shared mo-

bility. The RACC participated in a panel of experts held under the title: “Moving Towards Demand-responsive and Sharing Transport Systems”.

“TRADE BIKE DAY 2019” [BARCELONA, 21/11/2019]. Participation in the first edition of a meeting focussed on the analysis of the main challenges and problems which the bicycle sector will be facing in the coming years. The RACC participated with a paper in the round table “Mobility: an essential opportunity”, during which the attendants debated on how to promote bicycle mobility in Spain.

CONFERENCE: “MOVING MAAS AHEAD: USING GALILEO AND OTHER TECHNOLOGIES TO ACCELERATE MOBILITY AS A SERVICE” [BARCELONA 21/11/19]. Participation in a congress organised within the framework of the Smart City World Congress to introduce the targets of the European project Galileo For Mobility. The RACC explained its participation in the project.

Participation in Commissions and Bodies



Higher Traffic and Road Safety Council. Body created to promote and improve traffic and road safety, reporting directly to the Ministry of the Interior and made up of representatives from the administration and entities related to traffic and road safety. The working groups debate on the plans and regulations that the Spanish Traffic Authority needs to boost in the coming years.



Catalan Commission for Traffic and Road Safety. Participation and advisory body of the Catalan Government in terms of traffic and road safety, and forum for the analysis, reflection, debate and participation, made up of public and private entities related to traffic safety and management. The RACC does also participate in the working groups Motorcycles and Signposting.



Social table for the climate change. A body that reports to the Department of Territory and Sustainability, with competence in issues dealing with the climate change, the function of which is to channel the participation, information and consultation of the most representative entities and organisations of the social, economic and environmental network in Catalonia, about climate policy.

Round table on Bicycles.

Group that gathers all organisations, federations, user associations, companies of the sector and several public and civil society entities, related to the world of cycling, with the aim of boosting cycling mobility in Catalonia.

Mobility Council. Consulting, advisory, dialogue and participation body for administrations, bodies, corporations, entities and social sectors related to mobility.

Toll Working Group. Multisectoral working group in which to debate on the policies to follow with regard to payment per use of the infrastructures in Catalonia and with regard to the rest of the Spanish State.

Airport Coordination Group.

Made up of local administrations (El Prat and Barcelona), autonomous governments (Catalonia) and state administration bodies, Ministry of Public Works, Aena, Chamber of Commerce, Fomento del Trabajo and the RACC, to coordinate the policies and guidelines that regulate the airport facilities.

Following the aim of achieving a safer, more sustainable and affordable mobility for all, the RACC participates in different specialised working groups. Below is a selection of the main bodies and entities with which the RACC has actively collaborated during 2019.



Mobility Pact. A space of participation and dialogue for associations, entities, administrations and municipal bodies, to progress towards a sustainable and safe mobility in Barcelona, as well as towards a quality public space and a healthy city. It is structured by working groups on road safety, sustainable mobility and road education.

Table against Air Pollution.

Cross-sector space for the agents involved in mobility in order to analyse the situation of the air quality in the city, propose and develop corrective measures, inform and raise awareness, do the follow-up and analyse the needed actions in cases of pollution, in which the RACC gives voice to the needs of its members.

City Council. Highest consulting and participation body of the Barcelona City Council, in which representatives debate on the main issues of the city, constantly searching for commitment and co-responsibility.



Mobility Council. Consulting body that gathers the social agents from the metropolitan area involved in mobility. The aim is to set solid and agreed bases for a greener and more sustainable metropolitan mobility, establishing criteria for the implementation of the PMM and PDU in the 36 municipalities as consistently as possible.



Mobility Council. Civic and social consulting and participation body with regard to the working of the public collective transport system and mobility, as well as certain planning actions, such as the Mobility Master Plan (PDM) and the Infrastructure Master Plan (PDI).



Mobility Table. Participation body for entities related to mobility, to debate about the municipal policies for a more sustainable and safer mobility.

Participation in Commissions and Bodies



The RACC, as a full-right member of the FIA since 1997, participates actively in the governing bodies. It forms part of the Euroboard and its coordination group, and of the technical, legal, transport and mobility working groups. It is also a member of the Policy Commission and the Services Commission.



The RACC forms part of its governing bodies (General Assembly) and holds a permanent position as founding member in the Board of Directors. EuroRAP is an international programme that analyses the quality of road infrastructures to introduce improvements to reduce both accident risks and their consequences.



Board of Directors. ITS Spain has the aim of associating the public, private and academic sectors related to Intelligent Transport Systems, to make the mobility of people and goods safer, more sustainable and efficient using different means of transport. The RACC forms part of the Board of Directors.



Since 2002, the RACC is a member of the European organisation for the implementation of intelligent transport systems (ERTICO) and participates in two of its governing and strategy bodies, the Supervisory Board and the Strategy Committee.



The RACC is a **member of the Maas Alliance** since its creation in 2016, when it was established as a public-private association. The alliance pursues the overcoming of technical and legal or administrative barriers to achieve a framework that allows for the development of the highest potential of mobility as a service with a single digital access for any European citizen.



Spanish Child Road Safety Association (AESVI). Association of companies and Institutions, both public and private, dealing with child road safety. It is made up of almost all manufacturers and distributors of child retention systems and associations related to health and safety. The RACC is one of the three associated automobile clubs.



Cambra de Comerç
de Barcelona

Commission of Infrastructures and Transport.

The RACC chairs this consultative commission that focusses on town and country planning, infrastructure planning, public investment, management and funding deficit, especially as regards high-performance road networks, commuter trains and the Mediterranean corridor, port and airport, as well as people and goods transport.



Asociación Técnica
de Carreteras
Comité nacional español de la
Asociación Mundial de la Carretera

Road Safety Committee. It is made up of several national bodies, both from the Spanish general administration and the autonomic and local administrations, universities, companies, engineering companies and associations from the road sector, all of them dealing with traffic on Spanish roads.



Energy and Enterprise Forum.

Meeting space for the dissemination and the exchange of experiences about the energy sector in business, understood as an element for management, economic competitiveness and social progress. The RACC contributes with the perspective of mobility and the impact on the energy sector, especially as regards the implementation of the electric vehicle.



Smart Mobility Group. The RACC, as a member of Railgrup, the railway mobility cluster, participates in the working group "Smart Mobility", which is used to exchange best practices in projects and initiatives related to the digitalisation of transport.



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Canals i Ports - Catalunya

Mobility, Transports and Logistic Commission.

Group made up of civil engineers from different entities which gather every month with the aim of generating knowledge and opinion about relevant mobility aspects at a global level, offering a stream for public opinion by means of technical conferences or informational activities.

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