

Metropolitan Urban
Mobility Plan
2019-2024.
Synthesis of the Plan

**Metropolitan Urban
Mobility Plan
2019-2024.**
Synthesis of the Plan

PUBLICACIONS PMMU 06

Metropolitan Urban Mobility Plan 2019-2024. Synthesis of the Plan

This issue is published in print in Catalan and in electronic version in Catalan, Spanish and English.

Under the Direction of:

Mobility, Transport and Sustainability Department of the Barcelona Metropolitan Area (AMB)

Sustainable Mobility Services Directorate

Transport Management Services Directorate

Coordination and drafting

Barcelona Institute of Regional and Metropolitan Studies (IERMB)

Technical assistance

Barcelona Regional

DOYMO

Edenway

Institut Cerdà

Institut de Salut Global

Mcrit

TMB

UTE AIM-VAIC

Urbaning

In collaboration with

AMB Mobility Council, PMMU Committee of Experts,

Metropolitan Taxi Institute, Metropolitan Urban Master Plan (PDU) drafting team,

AMB technical and management teams.

Publishing coordination

Barcelona Metropolitan Area (AMB). General Manager Bureau

Graphic design and layout

Barcelona Metropolitan Area (AMB). Communication Service

Kern editorial

ISSN 2385-3433 (print)

ISSN 2385-3441 (electronic)

© edition: Barcelona Metropolitan Area

© texts: the authors

Barcelona, October 2020

**METROPOLITAN URBAN
MOBILITY PLAN
2019-2024
SYNTHESIS OF THE PLAN**

- 5** Presentation
- 6** 1. Object, nature and scope
- 8** 2. Plan Guidelines
- 9** 3. The great challenges of metropolitan mobility
- 12** 4. Future mobility model for the metropolitan area: a strategic vision
 - Strategic objective 1. Healthy mobility
 - Strategic objective 2. Sustainable mobility
 - Strategic objective 3. Efficient mobility
 - Strategic objective 4. Equitable mobility
- 19** 5. Strategic axes, lines and action plan 2019-2024
 - AXIS A. Urban model and metropolitan mobility networks
 - AXIS B. Safe, healthy and equitable spaces and streets
 - AXIS C. Integrating, efficient and quality public transport
 - AXIS D. Efficient and flexible governance of metropolitan mobility
 - AXIS E. Intelligent mobility management
 - AXIS F. Encouraging behavioural change
- 66** 6. The contribution to the achievement of the mobility model
- 71** 7. Management of the Plan
 - Economic valuation and temporal schedule
 - Monitoring and evaluation of the Plan
 - Institutional coordination and collaboration with metropolitan municipalities

PRESENTATION

The unanimous approval in the Catalan Parliament of Law 31/2010, of 3 August, on the Barcelona Metropolitan Area, and the subsequent constitution of the Barcelona Metropolitan Area (AMB), on 21 July 2011, was a significant milestone for the integrated management of metropolitan mobility policies.

The document presented here – the Metropolitan Urban Mobility Plan (PMMU) 2019-2024, definitively approved by the Metropolitan Council of the AMB in October 2020 – marks out the important shape of things to come, in the sense that it will help to culminate the deployment of these new mobility policies and the lines of action that derive from them and to concretise them in the metropolitan municipalities, in accordance with the new powers that the aforementioned Law grants to the AMB.

The PMMU 2019-2024, drafted under the direction of the Mobility, Transport and Sustainability Department of the AMB, has counted with a wide and plural collaboration of mobility experts and has been enriched with the contributions obtained from the participatory process which has been carried out by, among others, the Mobility Council of the AMB and the metropolitan municipalities.

Mobility, both of people and of goods, with its transversal character, can serve as the motor to face up to the main current metropolitan challenges, be they social, economic, environmental, territorial or institutional. Through the public policies and mobility actions presented here, we will be able to reduce social inequalities, mitigate the main externalities (health problems, accidents and climate change), open the metropolitan city to all citizens and make it accessible for everyone, bringing the residential city closer to the functional city, optimising the transport of goods and coordinating the different institutions to work for the common good. Building a more equitable, fairer, more sustainable and healthier metropolis is the main goal.

It is time to bravely confront each of the measures contained in the Plan and to work hand in hand with the administrations and actors involved, but also with the public, companies and the third sector, in an act of co-responsibility. The future of the metropolis and of all citizens demands it.

Antoni Poveda

Vice-President of Mobility, Transport and Sustainability
of the Barcelona Metropolitan Area

1. OBJECT, NATURE AND SCOPE

The Metropolitan Urban Mobility Plan (PMMU) 2019-2024 is the document that shapes the strategy of sustainable mobility of people and goods in the metropolitan area of Barcelona. This is a new instrument that derives from the implementation of Law 31/2010, of 3 August, on the Barcelona Metropolitan Area, and also from the provisions contained in Law 9/2003 referring to mobility, with respect to supra-municipal urban mobility plans, based on the existence of interdependent mobility patterns in metropolitan municipalities. However, and given that the metropolitan dynamics extend beyond the administrative limits of the AMB, the Plan will serve as a bridge with the rest of the Barcelona region.

In general terms, the PMMU allows the expansion and specification of what is established in the Mobility Master Plan for this territory and set criteria and guidelines for the development of sustainable urban mobility plans (PMUS) for the 36 metropolitan municipalities, so that the local strategies are compatible with an overall metropolitan strategy. This articulation, in addition to contributing to improving the efficiency of mobility policies in the metropolis, will help strengthen relations and institutional collaboration.

Mapa 1 Municipal boundaries in the metropolitan area of Barcelona



Basic data on the metropolitan area of Barcelona (year 2018)

Area: 635.4 km²

Population: 3,260,268 inhabitants

Population density: 5,110.6 inhabitants / km²

Unemployment rate (province of Barcelona): 11.3 %

Annual change in GDP (Catalonia): 2.6 %

The Plan, in addition to drawing the future mobility model from a strategic position to be achieved in the medium and long term, establishes the planning of the policies and lines of action that the AMB will promote and execute in the next six years. Consequently, on the one hand, it will focus on the areas in which the AMB has competences:

- Planning and management of bus networks and other means of collective urban public transport for surface passengers, except trams.
- Provision of metro and underground public passenger transport services.
- Arrangement of taxi services and rental of vehicles with driver.
- Definition of the basic metropolitan road network and participation in traffic management in this network, together with the Government of Catalonia.
- Management of the "Rondes" (inner ring roads) of Barcelona.
- Promotion of transport and sustainable mobility.

On the other hand, in accordance with the transversal nature of mobility, the Plan includes proposals that affect other administrations and is, therefore, configured as a multilevel plan. That is to say, meeting the challenges of metropolitan mobility requires the contribution of the agents and of all the administrations with competences.

2. PLAN GUIDELINES

The PMMU 2019-2024 does not start from scratch, but aligns with the reference of international, European, national and Catalan level frameworks, which guide it in terms of the future vision of metropolitan mobility and, particularly, in determining the objectives that must be assumed and achieved.

The initial position established in the PMMU is the assumption that metropolitan mobility has major implications for the quality of life and health of the people who live there and those of the economic sectors that are present. More specifically, and in line with what is done in most European metropolitan areas, the PMMU is committed to a more sustainable model of mobility in which the citizen's right of access to goods, services or people is exercised also taking into account the right to live in a healthy environment.

The guidelines that guide the different phases of the PMMU, which are listed below, indicate that metropolitan mobility needs to be treated in a more reflective, smarter and more realistic way:

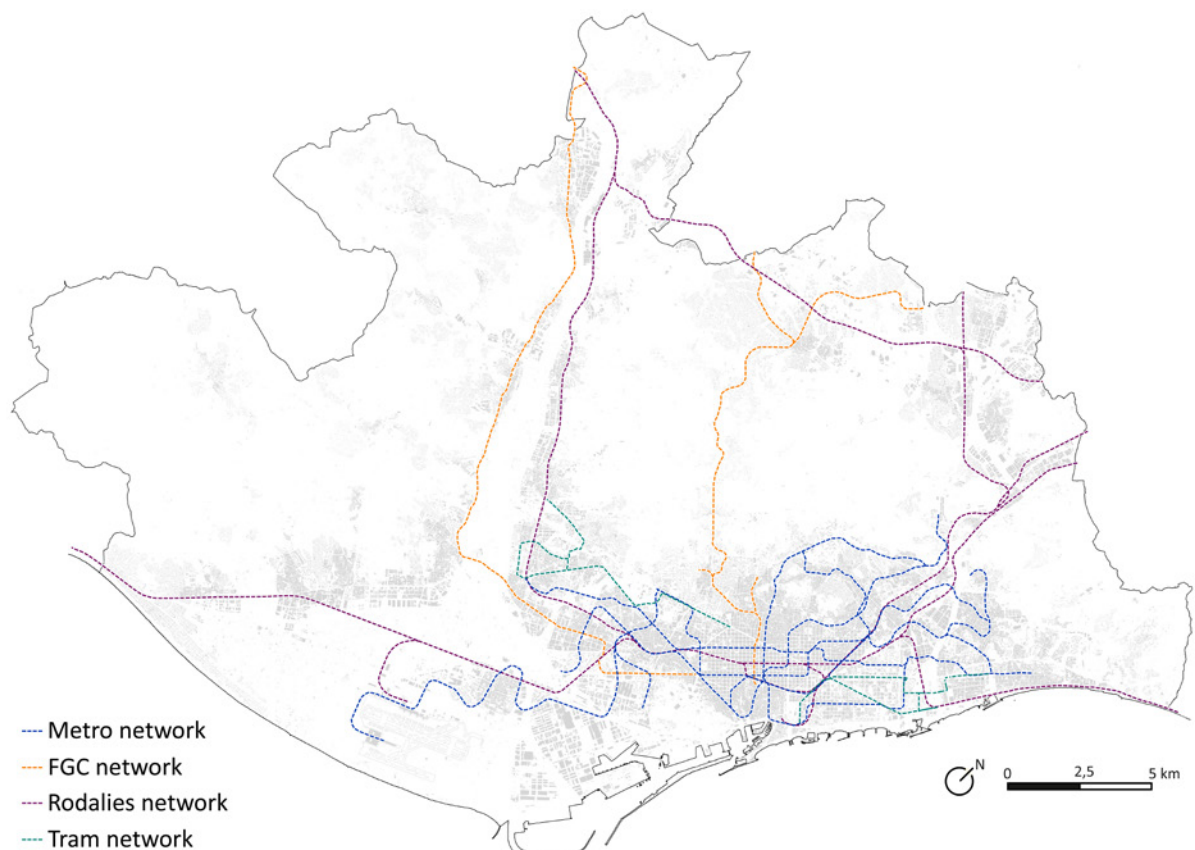
- More realism. The actions taken by the PMMU must be realistic in accordance with the planning deadlines and available funding. We need to commit to transport systems that are designed more intelligently and have a lower cost. In this sense, both buses and other low-impact systems can cover several needs in the metropolitan area. However, it is also important to complete the implementation of the present major planned and pending transport infrastructure.
- More quality. While there have been significant improvements in public transport, bicycle services and public space in recent years, it has been noted that a new qualitative leap needs to be made. It is about giving a boost to the public transport system to improve its efficiency and competitiveness over private vehicles (better integration of networks through coordinated information systems, T-mobilitat, giving more priority to surface public transport, among others).
- More rational use of private vehicles. It is necessary to reduce the heavy dependence on private vehicles (especially in some mobility corridors, labour mobility and freight transport) to reduce the impacts it generates on people's health and, at the same time, to comply with environmental regulations.
- More prominence for pedestrians and cyclists. The main actors in the PMMU must be pedestrians and cyclists, both because they are the majority group in daily mobility – as demonstrated in travel surveys – and because of the capacity and growth potential they still have in inter-municipal mobility.
- More institutional coordination. There is a need to establish, by establishing protocols, new work dynamics between administrations with different competencies on mobility and urbanism, as well as other agents involved in transport management, with the aim of improving the functioning of the system.
- More knowledge of reality. The information systems linked to mobility and transport in the metropolitan area and in the municipalities need to be improved, with the aim of being able to carry out good planning and management of the system.
- More environmental and social awareness. Citizen awareness is the lever of change needed to be able to face up to the transformations of the future, and the role of the Administration is fundamental to achieve this.

3. THE GREAT CHALLENGES OF METROPOLITAN MOBILITY

The organisation of complex transportation systems is one of the main features of metropolitan areas, as a need to respond to the high volumes of travel in such regions. Nowadays, therefore, the competitiveness of large cities in the globalised environment lies, in part, in the availability of a transportation system that solves people's mobility effectively and in the most efficient way possible; that is to say, with the minimum energy and environmental expenditure and, at the same time, guaranteeing accessibility to the population as a whole, whether or not this population has access to a private vehicle.

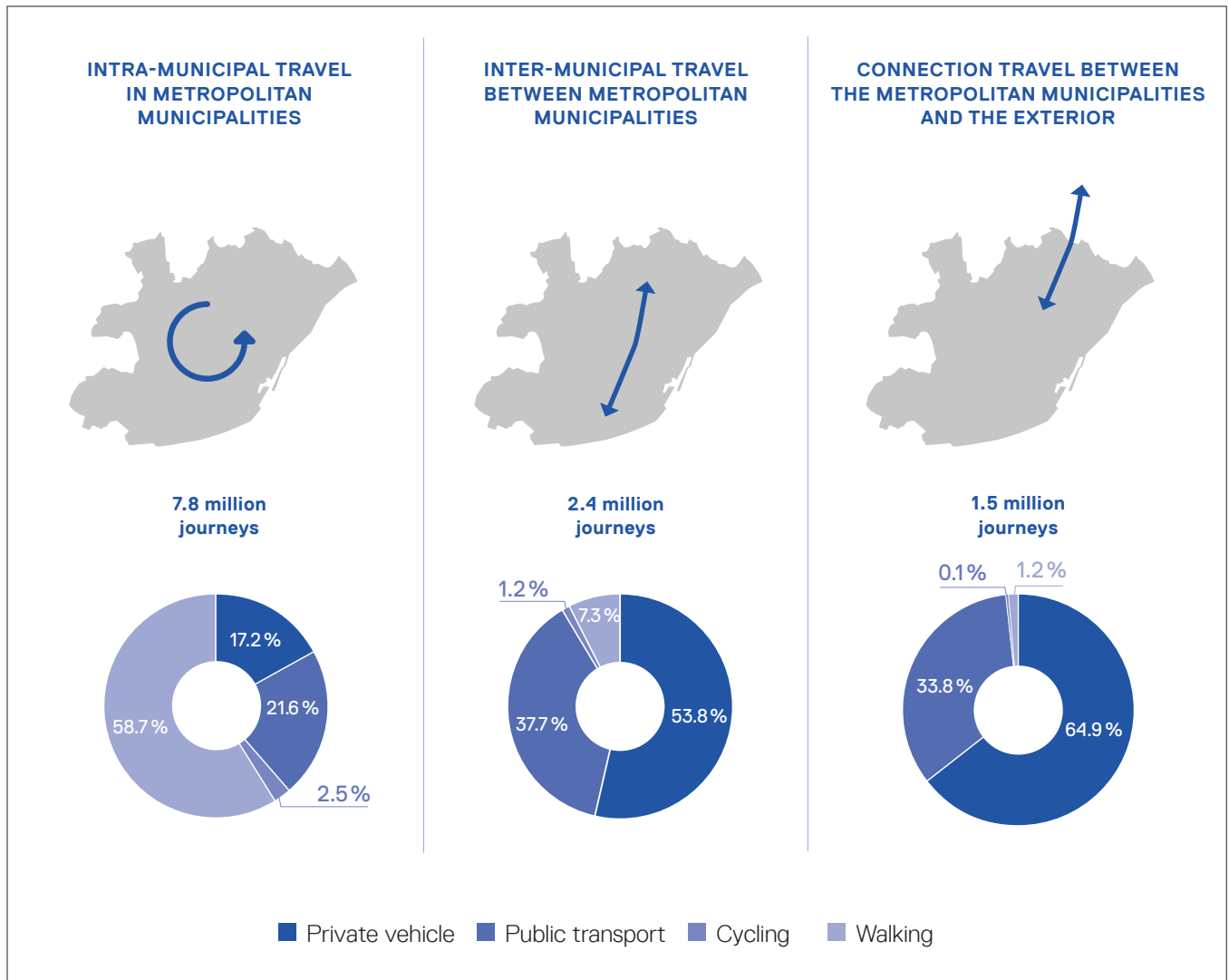
In the metropolitan area of Barcelona, a significant volume of investments has been made in recent decades to expand the public transport network, with the aim of responding to the increase of population mobility (tram network, L9 / L10 and other extensions of the urban railway). The bus fleet has also been modernised, more rational schemes have been introduced in the operation of bus services, and the integrated fare system for the whole metropolitan region has been consolidated. In addition, the regulation of residential and non-residential parking in Barcelona has been extended, and urban environments have been transformed so that private vehicles have ceased to be the protagonist, thereby generating environments of more human size and scale. The bicycle, on the other hand, has experienced a remarkable growth –particularly in Barcelona–, due to the extension of the cycling infrastructure, which has allowed gains in safety when riding.

Mapa 2 Metropolitan passenger rail network (excluding high-speed rail)



Overall, it can be stated that the metropolitan mobility model is satisfactory from many points of view. The high number of journeys on foot in everyday mobility is, in fact, one of the main strengths of our model that needs to be preserved. Also, in the area of the central conurbation, the quality of public transport and its modal share are high, while the polycentric system of towns in the whole metropolitan region, joined together by a wide system of open spaces, allows for a moderate balancing of the territorial relations in the metropolitan area.

Graph 1 Modal split of metropolitan travel made by residents within the integrated fare system



Source: EMEF 2018.

It must be said, however, that from the point of view of the use of motorised means our model is not so satisfactory. Although the implementation of these investments has led to an increase in passenger demand for public transport, overall the growth of mobility in public transport in recent decades has been substantially lower than the growth experienced in the demand for private transport. Private vehicle flows of both people and goods are excessively high, which has a negative impact on the metropolis. This is clearly seen in the values related to air quality and noise, in which each year the recommended thresholds that ensure the health of the population are exceeded.

The reasons for this situation are diverse and must be linked to such heterogeneous aspects as the configuration of the metropolitan urban system, governance, the configuration of the transport system and the financing system of public transport.

The urban system of the metropolitan area, which is closely related to the position of the geographical elements of the region, forms a metropolis with a central urban continuum characterised by a highly intensive occupation of the territory, a high population density (in Barcelona there are up to 16,316 inhabitants per km²) and a high density of vehicles (which reaches 6,950 cars per km² in Barcelona). It is precisely in this area where most of the flows in private vehicles that occur in the metropolis are concentrated, and where actions are needed to reduce their use. That is, although it is the area with the highest user-share of active modes and public transport and is the one with the highest supply of public transport services, it concentrates more journeys than it can absorb, when taking into account its urban characteristics. The challenge, therefore, is that we take the requisite measures to achieve mobility guidelines that are much more oriented towards public transport and active mobility, if we want to reduce the socio-environmental impacts that are generated there.

In terms of governance, the existence of numerous administrations involved hinders the efficient achievement of metropolitan transport policies and makes the processes of planning, decision-making, design and execution of public transport infrastructures excessively long. In fact, this has conditioned, in part, a commuter rail network (Rodalies) that suffers from problems of accessibility and inadequacy to cater for the growth of demand. The role of complementarity with the surface transport network, which in some areas suffers from the problems of road network congestion, has also been forgotten. That is, the road network is not planned, designed or managed in order to favour surface public transport systems, which have a much greater capacity to transport people than the private vehicle in metropolitan areas. Mention should also be made of the fragility of the current model of financing public transport, which is highly dependent on political conjuncture. In this domain, a model that guarantees a higher stability and financial capacity is needed.

Another challenge is to increase the permeability of active modes to the whole metropolis, to highlight the need to remove the barrier effects created by the presence of large transport infrastructures, and to extend the model of urban centres of metropolitan towns (which are usually much more liveable) to neighbourhoods and to the metropolitan residential fabric in general.

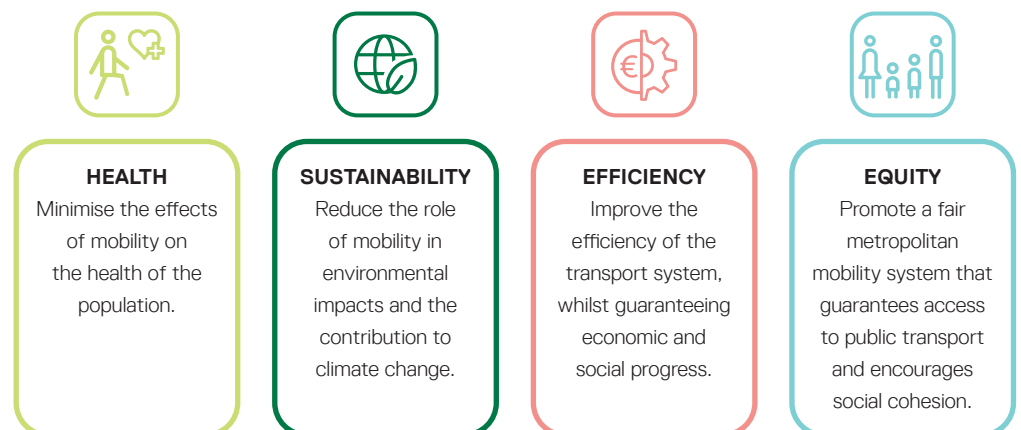
Finally, the growth of the movement of goods as a result of the generalisation of online shopping is leading to an increase in externalities in highly urban environments. In this respect, it is necessary to undertake innovative measures and include this issue in the agenda of metropolitan policies.

All these elements demonstrate that the metropolitan area of Barcelona still has many challenges to overcome and that a political commitment is required to carry out courageous measures that face up to these challenges for the next decades. The AMB can play an important role in this commitment. The level of intervention of its policies can overcome the shortcomings of a framework for planning and mobility management at the regional level and, at the same time, it can articulate municipal policies in accordance with a metropolitan strategy.

FUTURE MOBILITY MODEL FOR THE METROPOLITAN AREA: A STRATEGIC VISION

The PMMU outlines a metropolitan model of healthy, sustainable, efficient and equitable mobility, strategic principles or pillars that define the socio-economic progress and habitability of today's global metropolises. More specifically, the PMMU aspires to be:

- A unitary plan for the whole of the metropolitan area in which the inequalities generated by the mobility system between municipalities, districts, neighbourhoods and individuals are minimised, and a dialogue is established with the rest of Barcelona's area of regional influence.
- A plan that minimises the effects of the mobility system on the health of the population and the environment.
- A plan that guarantees the flow of passengers and goods to allow the efficient development of economic activity.
- A plan that guarantees equal opportunities for citizens and satisfies their right of access to goods and services to be able to freely carry out their professional and personal activities.



The aim is to achieve a change in people's habits and economic activity in daily mobility, through a modal shift towards more sustainable transport, an improvement in the efficiency of the use of the private vehicle and a reduction in dependence on private vehicles. The transversality of the actions in areas, sectors and responsible bodies requires the effort and coordination of all the administrations and actors that are involved in the Plan.

The objectives and indicators can be derived from this model that are particularly aligned with those established in the AMB's 2030 Climate and Energy Plan, the Paris Agreement on Climate Change and the Sustainable Development Goals of the UN. Nevertheless, the PMMU has the premise of being a realistic plan. Therefore, taking into account that mobility tends to show a scenario that foresees an increase in mobility in line with the current trend of economic recovery (after the decline experienced in the period of recent economic crisis), the Plan, despite having the vision of achieving its goals at 100 % by 2030, sets more affordable goals in its time scenario. Therefore, the aim is to reverse the current trend, and this Plan is a first step on a long path to reach the desired metropolitan mobility model.



Strategic objective 1. Healthy mobility

Mobility generates externalities that impact the health of the population. First of all, we must mention the accident rates caused by the mobility of people. In recent years, the number of traffic accidents and casualties (injured and killed) has increased significantly, particularly in the urban environment. The PMMU proposes the goal of reducing the accidents associated to mobility by 50 %.

Air pollution is a cause of cardiovascular and respiratory diseases and mainly affects the most vulnerable population (infants, children and the elderly), reducing life expectancy and causing premature deaths in this sector. Similarly, traffic noise has been shown to cause as many illnesses as pollution. The Plan aims to reduce emissions of contamination and noise due to surface transport to achieve a healthy metropolitan environment and restore levels of air quality and acoustic comfort.

Finally, the PMMU aims to combat sedentary lifestyles (the fourth leading factor in global mortality and the leading cause of overweight and obesity in our society), encouraging active mobility and helping to increase physical activity among the population. The PMMU assumes the goal set by the WHO for 2030 to increase physical activity in adults and adolescents by 10 %.

Table 1 PMMU evaluation and monitoring indicators of healthy mobility

	Unit	2016	Objective 2024
O1.1. REDUCE ACCIDENTALITY ASSOCIATED WITH MOBILITY AND TRANSPORT			
Victims in traffic accidents	injured and deaths	18,989	-50% (vision 0)
Traffic accidents with victims	accidents	14,610	↓
O1.2. REDUCE THE EFFECTS OF MOBILITY ON ATMOSPHERIC POLLUTION			
Emissions of NO _x derived from mobility	t NO _x	7,398	↓
Emissions of NO ₂ derived from mobility	t NO ₂	1,572	↓
Emissions of PM ₁₀ derived from mobility	t PM ₁₀	545	↓
Emissions of PM _{2,5} derived from mobility	t PM _{2,5}	398	↓
Points that exceed EU legal threshold of NO ₂ (annual average = 40 µg/m ³)	XVPCA stations	4	↓
Points that exceed EU legal threshold of PM ₁₀ (annual average = 40 µg/m ³)	XVPCA stations	0	↓
Points that exceed EU legal threshold of PM _{2,5} (annual average = 20 µg/m ³)	XVPCA stations	0	↓
Population exposed to poor quality air (annual average NO ₂ > 40 µg/m ³)	%	51.3	-50% (vision 0)
Mortality from air quality levels	premature deaths	2,260	-10%
O1.3. REDUCE THE EFFECTS OF MOBILITY ON NOISE POLLUTION			
Population exposed to noise levels Ln ≥ 55 dB(A)	%	47.8	↓
Population exposed to noise levels Lden ≥ 65 dB(A)	%	44.2	-50% (vision 0)
O1.4. PROMOTE ACTIVE MOBILITY AND EXERCISE			
Travel on foot, by bicycle and PMV on weekdays	million journeys	4.8	+10%
Average travel time in active modes	minutes	16.9	↑
Active mobility of the elderly (65 +)	% of journeys / day	63.7	↑

Note: the highlighted indicators correspond to indicators for evaluating the Plan; the remaining ones, to indicators for monitoring the plan.

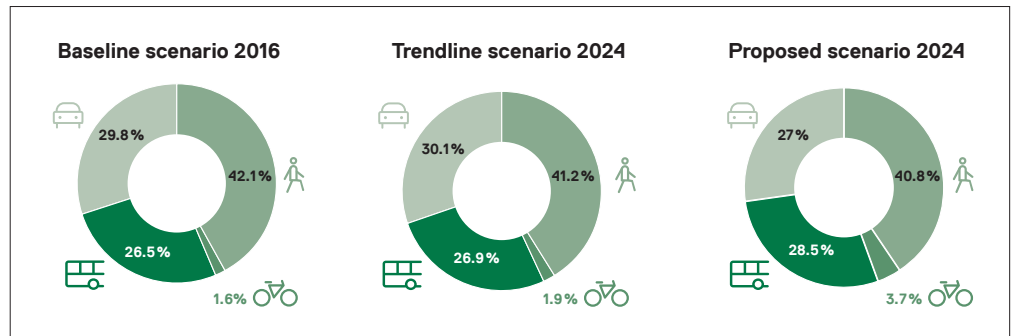


Strategic objective 2. Sustainable mobility

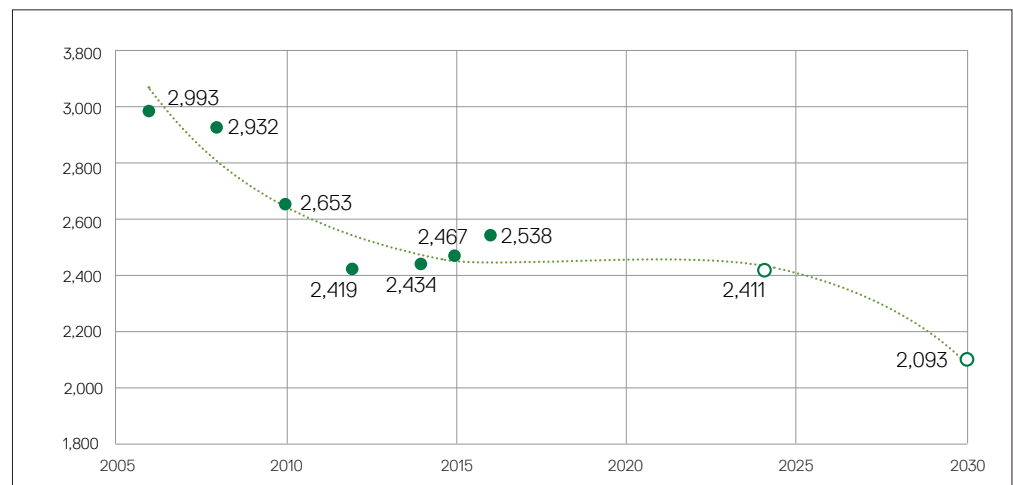
The current mobility system requires a high energy consumption and a strong dependence on fossil fuels, which translates into a serious impact on climate, on the consumption of resources and on greenhouse gas emissions. Reducing energy consumption and GHG emissions from transport is one of the European Union's strongest environmental commitments. The PMMU assumes this commitment and specifies it in the goal of reducing of GHG¹ emissions by 5 % in 2024 (compared to 2016), with a vision for 2030 to comply with the Paris Agreements and the AMB climate and energy plan. To achieve this goal, a reduction in both the travel quota share by private vehicle, and the distance of these trips is proposed, as well as encouraging the modal shift of the population to sustainable means of transport and promoting the renewal of vehicles and vehicle fleets to low-emission ones.

Due to the intrinsic relationship between mobility and urbanism, the PMMU is committed to a model of urban settlement that promotes sustainable mobility, reducing the impact of the transport system on the ecological functionality of the landscape, the promotion of green infrastructures for active mobility and access to green spaces by citizens. Urban development in the coming years should be consistent with ecosystem urbanism and assume the principles of proximity, habitability, complexity, green space, social cohesion, governance and participation, in order to promote a model of sustainable mobility.

Graph 2
 Modal split within the AMB area for the different scenarios of 2016 and 2024



Graph 3
 Forecast of t CO₂ emissions for 2024 and 2030, in accordance with the established objectives



¹The adaptation to the metropolitan area of the EU decisions to share the effort to reduce CO₂ emissions, 406/2009 / EC and COM (2016) 482 final, is the commitment to reduce CO₂ emissions in 16% by 2020 and 30% by 2030. In the Plan time horizon (compared to 2016) these goals have resulted in 5% reduction in CO₂ emissions.

Table 2 PMMU indicators to evaluate and monitor sustainable mobility

	Units	2016	Objective 2024
O2.1. REDUCE ENERGY CONSUMPTION AND GREENHOUSE GAS EMISSIONS (GHG) FROM PASSENGER AND FREIGHT TRANSPORTATION			
Energy consumption derived from mobility	M tep	0.87	↓
Emissions of CO ₂ derived from mobility (× 1,000)	t CO ₂	2,538	- 5 % (-19% with respect to 2006*)
Emissions of CO ₂ derived from mobility per capita	t/inh.	0.78	↓
O2.2. PROMOTE MODAL TRANSFER TO SUSTAINABLE AND DEMOCRATIC MODES OF TRANSPORT			
Modal share of travel by foot on a working day	%	42.1	↑
Modal share of cycling trips on a weekday	%	1.6	↑
Modal share of journeys by public transport on weekdays	%	26.5	↑
Modal share for travel by private vehicle on a working day	%	29.8	27.0
Mobility in private vehicle	M veh-km	13,647	- 3.6 %
Average distance of interurban travel by private vehicle	km	5.3	↓
Inter-modality between private vehicle and public transport	%	4.6	↑
Cycle network (bike lane, greenway and traffic-calmed road)	km	1,496	2,000
O2.3. PROMOTE THE TRANSFER TO LOW EMISSION VEHICLES (LEV)			
Electric vehicle registrations	registrations	1,588	↑
Penetration of low-emission vehicles (LEV) in the registered fleet	%	0.3	5,0
Percentage of surface public transport fleet environmentally friendly (hybrid, electric, CNG)	%	31.3	↑
Percentage of environmentally friendly taxi fleet	%	31.9	↑
Electric vehicle charging points	points	20 (2017)	↑
CNG and LPG charging points	points	36	↑
O2.4. REDUCE THE IMPACT OF THE TRANSPORT SYSTEM ON THE ECOLOGICAL FUNCTIONALITY OF THE LANDSCAPE AND STRENGTHEN GREEN INFRASTRUCTURES FOR ACTIVE MOBILITY			
Deployment of the cycling network (Bicivia)	km	249	↑
Urban population living <300 m from an urban green space (minimum 0.5 ha)	%	84.9	↑
O2.5. COMMITMENT TO AN URBAN SETTLEMENT MODEL PROMOTING SUSTAINABLE MOBILITY			
Municipal self-contention	%	70.4	↑
Urban self-contention due to work	%	70.7 (2017)	↑
Vulnerable services (health and education) exposed to heavy traffic	services	299	↓
Residential urban areas with low urban liveability	% surface	33.6	↓

* The value has been calculated with respect to 2006, as the reference data for 2005 are not available.
 Note: the highlighted indicators correspond to indicators for evaluating the Plan; the remaining ones, to indicators for monitoring the plan.



Strategic objective 3. **Efficient mobility**

The mobility model presented aims to maximise the efficiency of the mobility system by improving the overall quality of public transport services, increasing, among other things, the speed of bus services and the punctuality of commuter rail services (Rodalies). It is also committed to increasing the occupancy of vehicles. This improvement in quality aims to increase satisfaction with public transport services.

At the same time, the aim is to promote a more efficient distribution of goods. The increase in the number of products purchased through e-commerce also increases the mobility required for their distribution and the consequent externalities of this activity. In this respect, we must try to manage the distribution of urban goods in a more efficient and homogeneous way in the metropolitan area.

Table 3 PMMU evaluation and monitoring indicators of efficient mobility

	Units	2016	Objective 2024
O3.1. REDUCING CONGESTION AND IMPROVING THE EFFICIENCY OF PUBLIC TRANSPORT			
Average calculated car occupancy	people/vehicle	1.16	+ 5 %
Commercial speed of bus services under direct city management (TMB)	km/h	12.1	+ 10 %
Commercial speed of AMB bus services under indirect management (integrated daytime service)	km/h	14.0	+ 10 %
Commercial speed of AMB bus services under indirect management (integrated night time service)	km/h	16.9	↑
Priority bus lane road network	km	211	↑
Punctuality of commuter rail services	%	94.0	98.0
O3.2. IMPROVING THE INTEGRAL QUALITY OF PUBLIC TRANSPORT SERVICES			
Ratio between the average travel time by public transport and by private vehicle (for work reasons)	minutes	1.55	↓
Personal security offences on public transport	%	29.2	↓
Level of satisfaction of the public transport collective	punctuation 0-10	7.2	7.5
O3.3. FOMENTAR UNA DISTRIBUCIÓ MÉS EFICIENT DE LES MERCADERIES			
Railway quota for access and exit of freight from the port of Barcelona	%	7.5	12.0
Covered surface area for urban freight distribution micro-platform service	km ²	7.8	30.0

Note: the indicators shown correspond to indicators for evaluating the Plan; the remaining to indicators monitoring the Plan.



Strategic objective 4. Equitable mobility

The configuration of the mobility system also conditions the quality of people's lives. The PMMU considers mobility as a universal right as it allows the population access to basic activities such as education, employment, economic exchange, health and the coexistence of people. The most sustainable means of transport have been shown to foster an inclusive and equitable model of mobility, particularly in terms of gender. Accordingly, the PMMU assumes the goal of ensuring the accessibility and affordability of these modes of transportation.





Regarding the first objective, the aim is to increase the territorial coverage of public transport by improving its territorial accessibility. In terms of physical accessibility to public transport, the aim is to make a new qualitative leap to reach 98 % of accessibility to railway stations and 60 % of bus stops being adapted to special mobility needs. With regard to the second objective, it should be noted that the economic crisis has led to an increase in the number of individuals at risk of social exclusion, as situations of vulnerability among citizens have increased. This fact, together with the progressive aging of society, has increased the percentage of the population potentially likely to require concessionary passes, so it is key to promote the affordability of metropolitan public transport.

Table 4 PMMU evaluation and monitoring indicators of equitable mobility

	Units	2016	Objective 2024
O4.1. GUARANTEE ACCESSIBILITY TO PUBLIC TRANSPORT			
Population with high levels of public transport service	%	67.1	75.0
Adapted bus stops (first metropolitan ring)	%	35.6	60.0
Adapted railway stations	%	90.0	98.0
Ratio of the average duration of interurban travel between women and men	%	6.4	↓
O4.2. ENSURE THE AFFORDABILITY OF PUBLIC TRANSPORT			
Ratio between the year-on-year change in the average fare and the CPI		-0.9	1.0
Population without a public transport travel card	%	16.1	↓

Note: the highlighted indicators correspond to indicators for evaluating the Plan; the remaining ones, to indicators for monitoring the plan.

Table 5 Summary of strategic principles and objectives

	<p>Strategic objective 1. Healthy mobility</p>	<p>1.1. Reduce accidentality associated with mobility and transport</p> <p>1.2. Reduce the effects of mobility on atmospheric pollution</p> <p>1.3. Reduce the effects of mobility on noise pollution</p> <p>1.4. Promote active mobility and exercise</p>
	<p>Strategic objective 2. Sustainable mobility</p>	<p>2.1. Reduce energy consumption and greenhouse gas emissions (GHG) from passenger and freight transportation</p> <p>2.2. Promote modal transfer to sustainable and democratic modes of transport</p> <p>2.3. The transfer to low emission vehicles (LEV)</p> <p>2.4. Reduce the impact of the transport system on the ecological functionality of the landscape and strengthen green infrastructures for active mobility</p> <p>2.5. Commitment to an urban settlement model promoting sustainable mobility</p>
	<p>Strategic objective 3. Efficient mobility</p>	<p>3.1. Reducing congestion and improving the efficiency of public transport</p> <p>3.2. Improving the integral quality of public transport services</p> <p>3.3. Promoting a more efficient distribution of freight</p>
	<p>Strategic objective 4. Equitable mobility</p>	<p>4.1. Guarantee accessibility to public transport</p> <p>4.2. Ensure the affordability of public transport</p>

5. STRATEGIC AXES, LINES AND ACTION PLAN 2019-2024

The strategic axes and lines of action described below explain the measures of the Plan, in the framework of a vision that will serve as a reference framework for the development of metropolitan mobility policies in the coming years.

This strategic vision also serves to set priorities and the path to be taken beyond the Plan period, which has a six-year horizon. In other words, many measures will be initiated during the Plan scenario that, in the medium and long term, should make it possible to overcome many of the socio-environmental challenges generated by the current mobility model. Many of these initiatives that need to be launched are related to the need to improve the governance model of the metropolitan mobility system, as well as to assume and deploy the new powers that the AMB has been attributed as a result of Law 31/2010, of August 3, on the Barcelona Metropolitan Area. The development of the measures of the PMMU will be done without prejudice to the competencies held by other administrations or entities and will be adapted to the regulations and sectorial legislation in the field of transport, mobility, land use planning or other applicable measures.



AXIS A. URBAN MODEL AND METROPOLITAN MOBILITY NETWORKS

- A.1. Mobility in urban planning
- A.2. Basic road network at the service of the metropolitan mobility system
- A.3. Metropolitan connectivity for active mobility
- A.4. Infrastructures to consolidate metropolitan public transport
- A.5. Metropolitan system of multimodal exchange nodes
- A.6. Infrastructures to organise the transport of goods



AXIS B. SAFE, HEALTHY AND EQUITABLE SPACES AND STREETS

- B.7. Urban habitability and low emission zones (LEZs)
- B.8. Accessible and inclusive high-quality public space
- B.9. Road safety: vision zero
- B.10. Parking and road pricing model
- B.11. Low emission vehicles (LEV)



AXIS C. INTEGRATING, EFFICIENT AND QUALITY PUBLIC TRANSPORT

- C.12. Improving bus and rail services in the metropolitan area
- C.13. Public transport fleets and more sustainable and efficient facilities
- C.14. Public transport for everyone
- C.15. Homogenisation of the image and information of mobility services
- C.16. Pricing system sensitive to the socio-environmental context
- C.17. Attractive and competitive metropolitan taxi
- C.18. Bicycles on public transport



AXIS D. EFFICIENT AND FLEXIBLE GOVERNANCE OF METROPOLITAN MOBILITY

- D.19. Governance and inter-administrative agreement
- D.20. Metropolitan integration of municipal policies
- D.21. Metropolitan strategy for tourist mobility
- D.22. Financing of public transport



AXIS E. INTELLIGENT MOBILITY MANAGEMENT

- E.23. Integrated information and communication systems
- E.24. New mobility monitoring systems
- E.25. Optimisation of the management of urban freight transport
- E.26. New paradigms of mobility and energy transition



AXIS F. ENCOURAGING BEHAVIOURAL CHANGE

- F.27. Sustainable access to work and mobility generating centres
- F.28. Education for sustainable mobility
- F.29. Awareness and promotion of sustainability in mobility



AXIS A. Urban model and metropolitan mobility networks

This strategic axis highlights, on the one hand, the importance of the urban model and urban planning in achieving more efficient and sustainable patterns and models of mobility and, on the other, how the structure of the transport networks must be aimed at promoting higher efficiency, equity and sustainability of travel in the metropolis of Barcelona.

This transformation must be understood in the context of a long journey. That is, urban settlement models and the structure of networks can lead to changes in the generation of certain patterns of mobility in the medium and long term. However, without forgetting this long-term vision closely related to the urban planning work carried out by the AMB, the PMMU incorporates a proposal of priority actions that must be promoted or executed in the coming years. In fact, the AMB wants this prioritisation, made in collaboration with the metropolitan councils, to be a guidance for future sectorial plans developed by other administrations responsible for infrastructure in the metropolitan area. The implementation of these infrastructures is considered necessary to achieve the PMMU's sustainable mobility model.

In planning and designing future mobility infrastructures, it must be borne in mind that the useful life of these infrastructures far exceeds the horizon of the plans from which they are collected. That is why, as fixed structures, they must provide mechanisms to be able to adapt to climate change and the increased likelihood of extreme weather events. Therefore, and in accordance with the potential impact of climate projections on infrastructure, it will be necessary to consider the necessary rethinking from now on.

Image 1
The town square of Sant Climent de Llobregat is a space with vitality in a residential environment that also includes facilities and shops



Source: IERMB.

A.1 Mobility in urban planning

MEASURE 1

Introduce new criteria for parking in metropolitan urban planning

MEASURE 2

Modify and strengthen regulations for increasing charging facilities

MEASURE 3

Increase the area of land for logistics use and its associated needs

Models of urban implementation that further a more compact, dense use of space that facilitates integration and connectivity or that generate multifunctional spaces with more vitality and more diversity of uses, are fundamental in defining sustainable mobility patterns among citizens. At the same time, they make it possible to create more liveable, safe and healthy environments in which more and better living and relationship spaces are guaranteed and, in this way, contribute to the improvement of the social cohesion of its citizens. This model, which must be extended to new urban developments, must also be implemented in urban renewal and improvement areas, which will become crucial in the coming years. In fact, it is expected that the process of urban expansion experienced in recent decades will be replaced by new processes of densification, reform and urban improvement, which will make the existing built environment more efficient.

The AMB is currently in the process of redefining the city model based on the Metropolitan Urban Master Plan (PDU), seeing as Law 31/2010, on the Barcelona Metropolitan Area, grants new powers in matters of urban planning to this administration. These new competencies, both in mobility and urbanism, in addition to contributing to advance new and better metropolitan urban and mobility policies, open the door to a better link between mobility and urban planning. As is widely recognised, these are two closely related concepts, with many points of intersection. We are therefore facing a unique opportunity to establish more trans-disciplinary regulatory mechanisms, with common goals: sustainable mobility, healthier cities with a better quality of life and a more efficient use of resources.

However, we should bear in mind that these are two different instruments, both in terms of the object of application, the proposed measures or regulations and in terms of the time horizon they propose. Simply put, the PDU aims to regulate land use in the metropolitan area and has a long-term horizon (working with a future horizon of approximately 25 years). The PMMU, on the other hand, as a strategic instrument with an action plan with a six-year horizon, is configured as a key plan to offer dynamic and flexible solutions. Nevertheless, the interaction between the physical support, the function and the interaction between the short and long term are very difficult to separate. Therefore, during the deployment of this PMMU, and as the future work of the PDU is developed, progress will be made in the decisions that will improve the integration between both instruments. Consequently, thematic areas are established on which work will be carried out in a coordinated manner through monitoring and working bodies from the PDU's drafting teams and those responsible for deploying the PMMU. As a complement to this medium and long-term background work, the PMMU envisages three measures that are considered as priority, which focus on parking and logistics land use planning.

Regarding parking, it is proposed to generally decrease building parking standards for four-wheeled vehicles, which may vary depending on the type of use and other parameters linked to public transport availability or density. In addition, the aim is to encourage the design of urban environments which are practically free of cars on surface level, and which must also have a significant degree of accessibility by public transport. In addition, more prominence will be given to two-wheeled motor vehicles, bicycles and electric vehicles.

With regard to logistics and associated land needs, the AMB will strengthen relationships with the competent administrations to establish a joint territorial plan that prioritises the consolidation of logistics activity estates in the Llobregat delta logistics platform.

A.2 Basic road network at the service of the metropolitan mobility system

MEASURE 4

Define, prioritise and manage the basic metropolitan road network (XVBM)

In accordance with Law 31/2010, of 3 August, on the Barcelona Metropolitan Area, the PMMU must have among its objectives the definition of the basic metropolitan road network (XVBM), which “entails the participation of the AMB in the programming and the management of the traffic in this network, jointly with the department of the Government of Catalonia competent in the matter”. In addition, the AMB will consolidate the management of the inner ring roads, as specified in the sixth additional provision of the aforementioned Law: “The AMB assumes the management of Barcelona’s inner ring roads, [...] and is subrogated in all the rights and obligations of the competent administrations until the entry into force of this Law, in the agreements with other administrations and in the resources they contribute to finance the management of the inner ring roads.”

The PMMU understands the need to define this basic metropolitan road network as a key element to generate a road structure that specifies different uses and functions and that, at the same time, determine shared responsibilities between different administrations. The aim is to achieve a more humane road network adapted to a territory that has a strong urban character, integrating other modes of transport that have not been considered so far or in which insufficient intervention has been taken, such as public transport, bicycle and pedestrians.

On this network, it will also be necessary to establish metropolitan mobility management policies to reduce the main externalities: congestion, accidents and pollution. Specifically, issues such as road safety, environmental control, signalling and information, speed management, lane management for public transport and bicycles and traffic light priority systems in the urban area among others will be of special interest. This new dimension will allow the AMB to take a more holistic approach to mobility policies, so that, in addition to providing and managing public transport services, it will be involved in managing the demand for private vehicles.

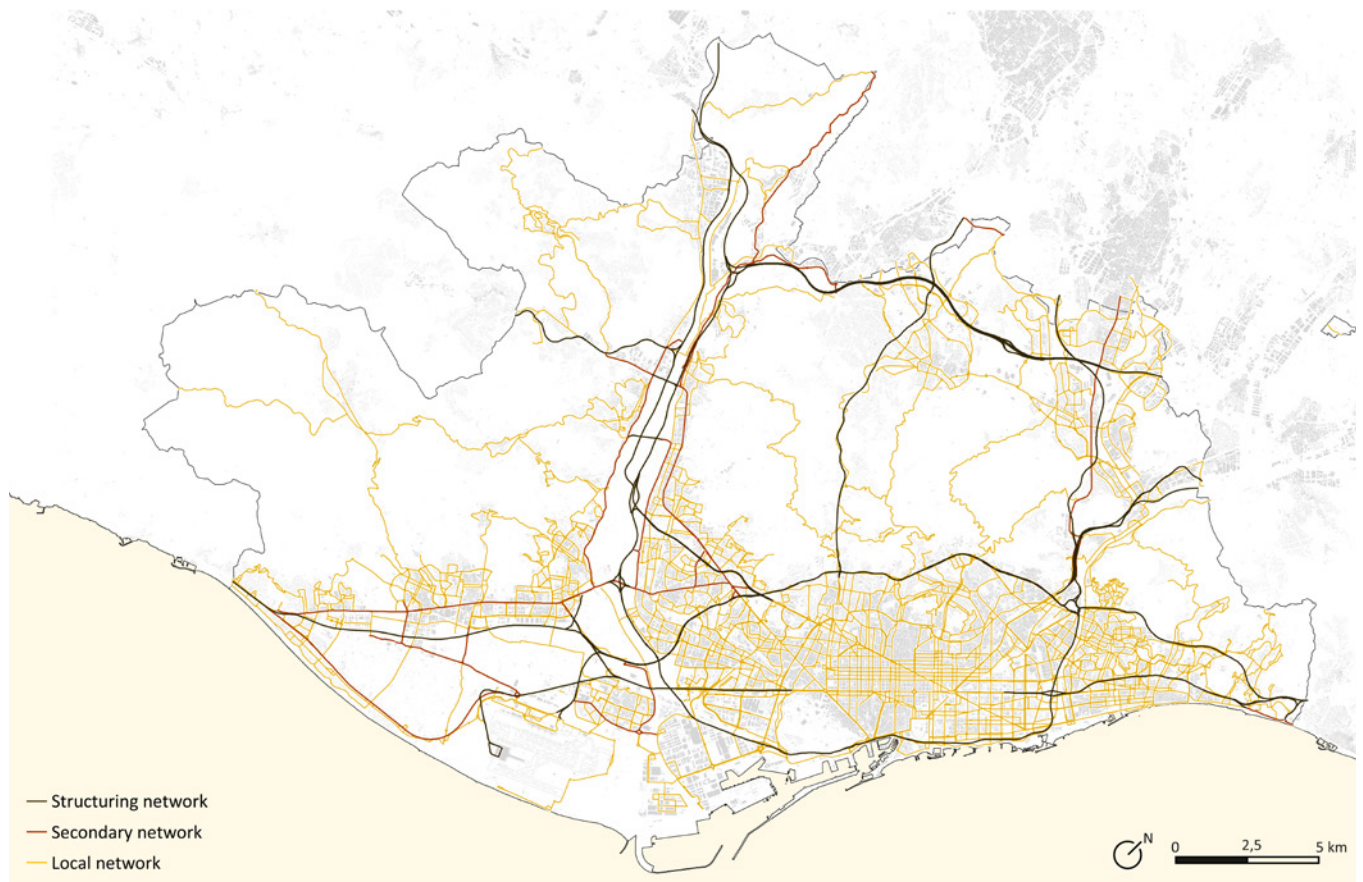
The AMB will create working groups with the different administrations currently in charge of the XVBM, with the aim of seeking agreements or consensus to achieve a new governance model of this network that favours the achievement of the objectives described. Specifically, the full PMMU document incorporates some legal considerations regarding this issue.

Image 2
On the AP-7, in the Vallès area, traffic passing through, internal traffic and traffic heading in all converge



Source: IERMB.

Map 3 Initial proposal of the basic metropolitan road network (XVBM)



MEASURE 5

Improve road network connectivity

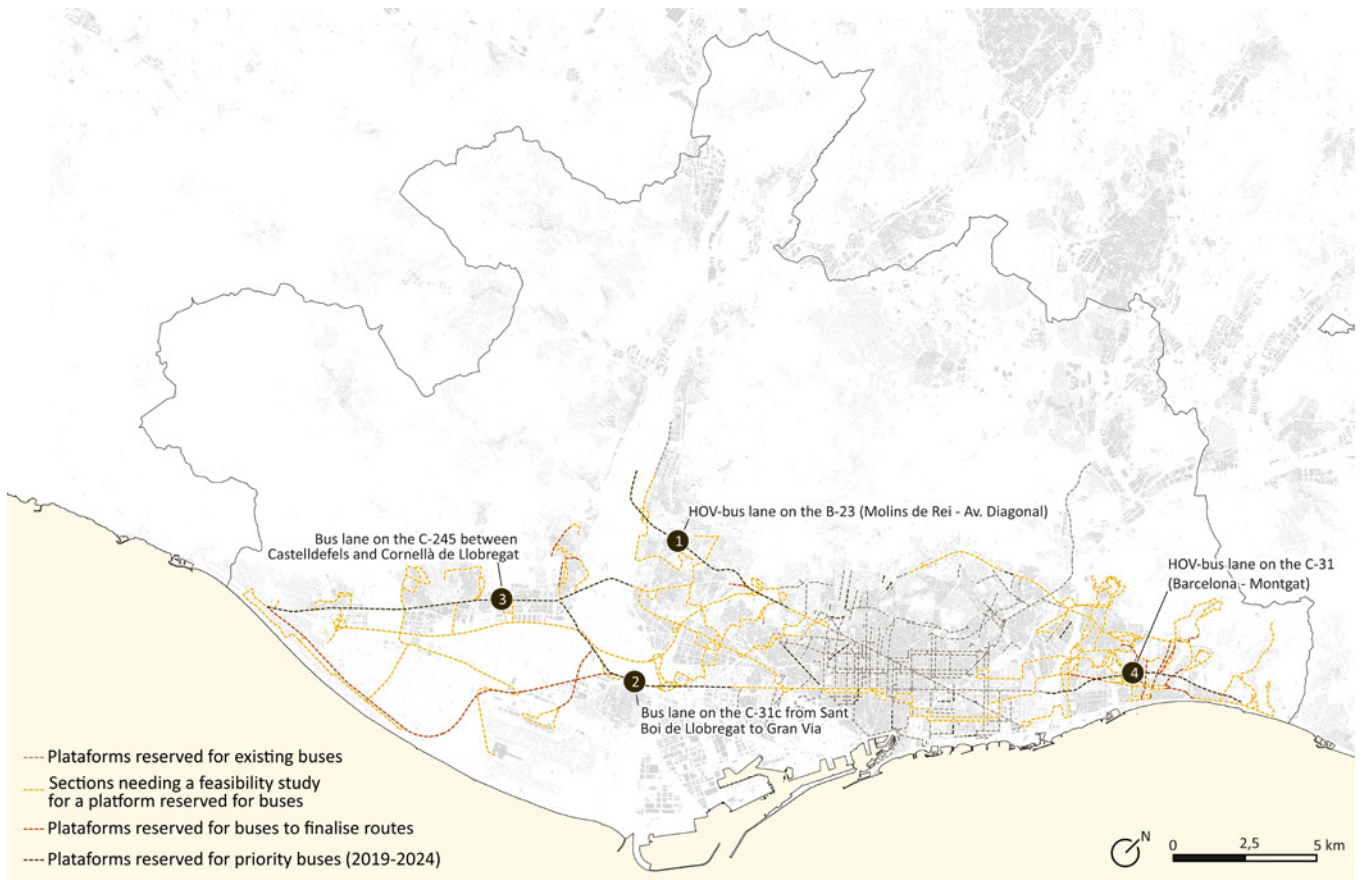
MEASURE 6

Road network with bus priority

The XVBM is presented as a dynamic network, which can be adapted to different needs, to possible urban transformations and, above all, to the new determinations that derive from the PDU. In fact, this planning instrument envisages a change of priorities, by giving priority to the people and the territory and creating an urban structure that is committed to the urban cohesion of the metropolis, its habitability and a healthier city.

While in general this network has good territorial coverage, it is true that there are shortcomings in terms of the connection or articulation between high-capacity roads and local networks. That is why actions are proposed to improve its functionality. In parallel, with the aim of ensuring that the road space guarantees the speed and reliability of surface public transport, a network of priority corridors is defined with a lane reserved for buses, which will be closely linked to the high-performance bus network (measure 42). These corridors will be completed in the entire metropolitan area when the transfer of urban transport services becomes effective. At the same time, the functionality of the network and the priority corridors will be adapted to the determinations and transformations that derive from the future PDU and, in particular, the focus will be on the future metropolitan avenues.

Map 4 Metropolitan road network with bus priority



A.3 Metropolitan connectivity for active mobility

MEASURE 7

Extend the metropolitan network for bicycles (Bicivia)

MEASURE 8

Identify and signal the cycle routes

MEASURE 9

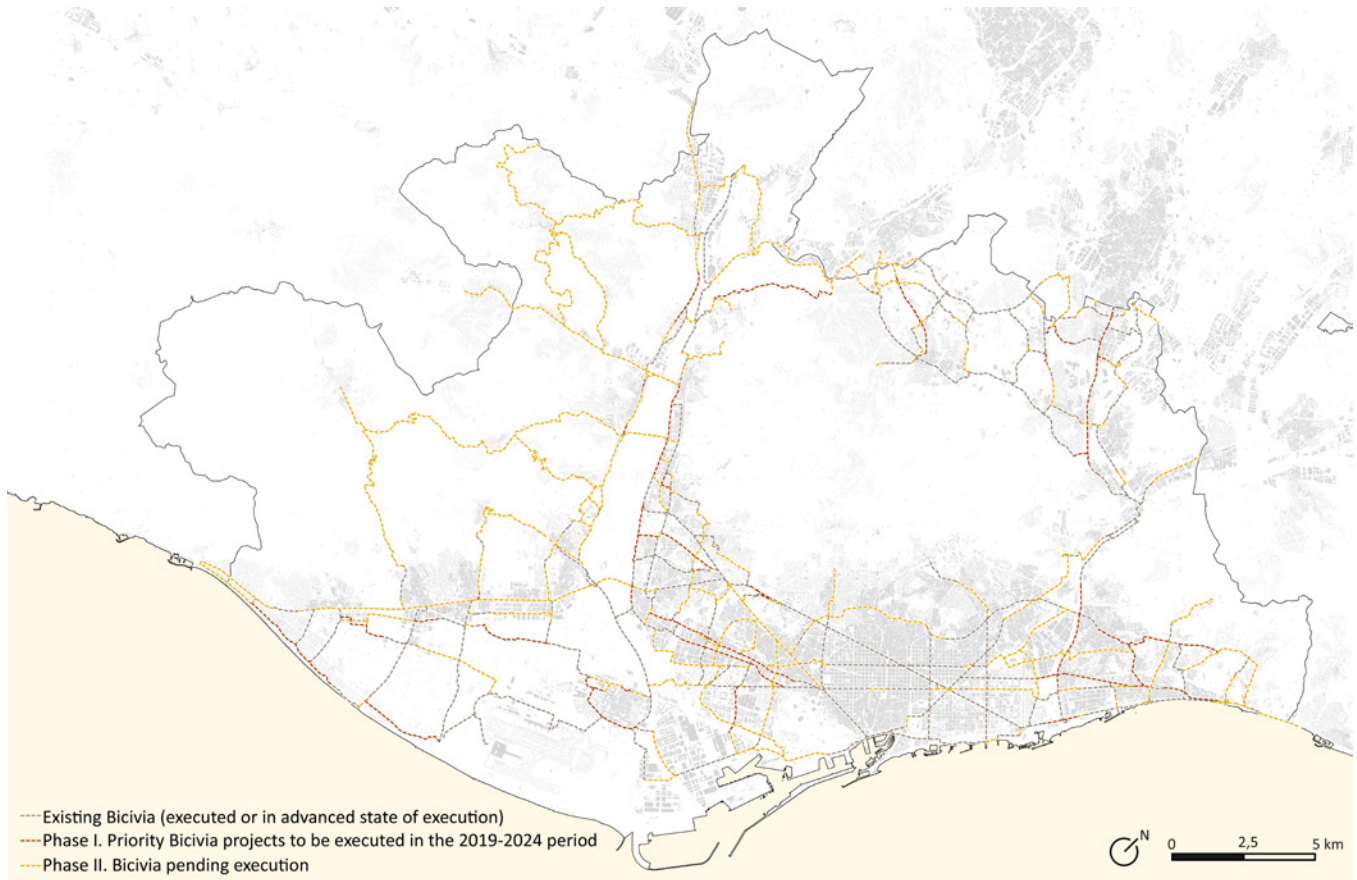
Extend the Bicibox bike parking network

This strategic line presents the measures that will improve active mobility in terms of safety, speed or accessibility, through a metropolitan cycling network, and associated services and measures that will help ensure the permeability of journeys on foot.

It is important to consider the impetus for the permeability of the metropolitan area in active modes within the framework of a broader context, that is, beyond the mere concept of mobility. On the one hand, the development of leisure activities or outdoor exercise in these connections will promote health among the population, while, on the other hand, actions such as the conditioning of the road network and tracks, the naturalisation of the city and the removal of barriers generated by infrastructure must be linked to the promotion of green infrastructure and the promotion of biodiversity.

Within the framework of the PMMU, the AMB will continue to promote the metropolitan cycling network (Bicivia), offering not only a quality urban network, but also several metropolitan routes that form the backbone of the region and connect the different urban centres, industrial and commercial estates. By 2024, 55 km of new network are expected to be built. In the meantime, and pending the completion of the Bicivia, the AMB will identify and sign, as a matter of priority, practicable and direct cycle routes in those environments with the greatest potential demand for cyclists.

Map 5 Status of the Bicivia network



At the same time, the Bicibox metropolitan bike parking network will continue to be expanded in those municipalities where it is not yet present, and its capacity will also be increased in those stations with the highest demand and new locations will be sought in future urban centres. In the long term, it will be necessary to have a strategic vision and convert the Bicibox modules of the busiest railway stations into safe large-capacity parking facilities (measure 17).

Image 3
At the Renfe station in Viladecans there are 42 secure parking spaces for bicycles as part of the Bicibox system



Source: IERMB.

MEASURE 10

Extend the metropolitan public bicycle (e-Bicibox)

MEASURE 11

Implement urban integration, permeability and pedestrian connectivity projects

MEASURE 12

Dignify urban edge areas as a central point of leisure mobility

In addition to the planned infrastructure and facilities, the AMB has begun to implement the e-Bicibox, the new publicly-owned metropolitan electric bike-sharing service. Once the results and new needs are known, the benefits of the system will be introduced throughout the metropolitan area.

With regard to mobility on foot, the Plan envisages promoting projects that will improve the permeability and continuity of pedestrian mobility. The actions focus on environments where the morphology is highly conditioned by the presence of large road and rail infrastructures that break up the urban fabric and landscape, which make it difficult or prevent a large number of journeys on foot. The aim is to provide safe, continuous, convenient, direct and accessible itineraries between the different urban settlements and other concentration points or areas of attraction for trips.

The PMMU also plans to provide green public spaces and improve public space and support facilities for pedestrians and for the development of outdoor leisure and recreation activities, through design and promotion of actions that enhance and improve the existing green heritage and the development of new actions that seek to better include nature within the city. Increasing green areas and increasing interconnections between municipalities through green rings, green corridors or old disused routes are some of the measures to be considered.

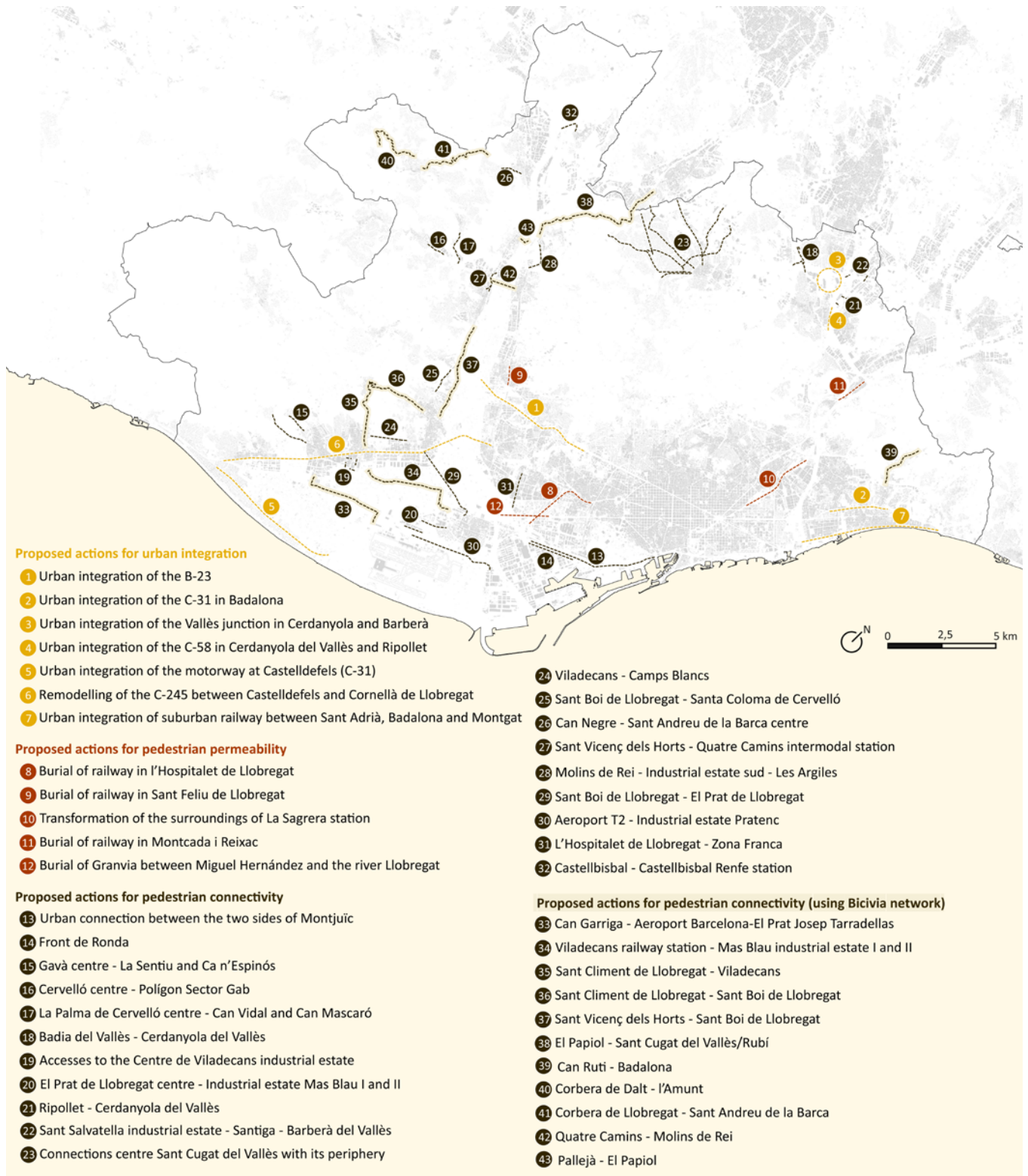
In the longer term, this metropolitan dimension of pedestrian and bicycle permeability must be accompanied by studies that specify the definition of uses and functions of the XVBM and the determinations of the future PDU. That is to say, the establishment of priority means of transport, their compatibility with each other or the basic criteria of design and urban quality on the different categories of the XVBM, will allow to better integrate active mobility into the metropolitan territory as a whole.

Image 4
The river Sec, in Cerdanyola del Vallès, is a green space that invites to go for a stroll



Source: IERMB.

Map 6 Proposals for urban integration, permeability and pedestrian continuity



A.4 Infrastructures to consolidate metropolitan public transport

MEASURE 13

Expand and improve rail infrastructure for passenger transport

The PMMU's commitment in terms of transport infrastructures is the inclusion of investments that improve the railway network and shorten travel time, which can lead to a gain of new users and an increase in the travel quality and comfort of the citizens who already use it.

The railway infrastructure in the metropolitan area of Barcelona is key to channelling the large volumes of journeys that take place daily. Therefore, it is essential that all the administrations involved work together to prioritise its implementation.

In particular, one of the major challenges in the metropolitan area is the improvement of the commuter network (Rodalies) operated by Renfe (national rail operator), which requires the immediate execution of several actions included in the Commuter Rail Plan 2008-2015. In this sense, there are high expectations placed on the proposals of the new Commuter Rail Plan (Plan de Cercanías), which is being drafted, and which foresees giving priority to investments and improving the quality and integration of the service.

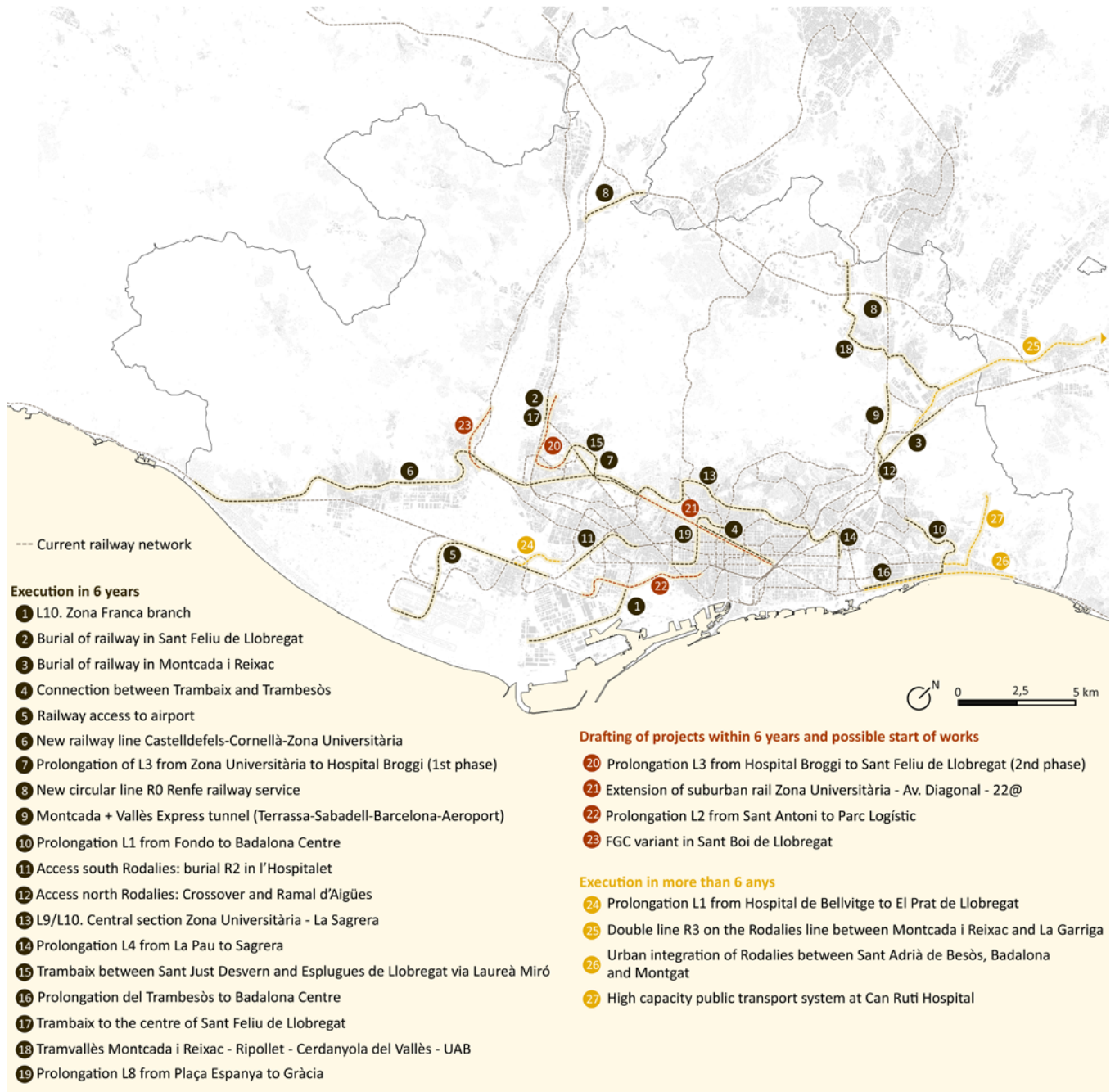
The reinforcement of this network also involves improving interchanges, carrying out maintenance work to increase its capacity and expanding coverage with the extension of some lines. These investments will improve travel times, reliability and comfort for the user and make the train become more competitive with respect to private vehicles.

Image 5 The metropolitan tram has great growth potential



Source: IERMB.

Map 7 Expansion and improvement of railway infrastructure for passenger transport.



A.5 Metropolitan system of multimodal exchange nodes

MEASURE 14

Complete and improve the network of public transport interchanges

MEASURE 15

Bus interchange plan

In the metropolitan area, multimodality is very modest and has remained fairly constant in recent years, highlighting the need to improve connections between different means of public transport and public transport connections with active mobility and private transportation. In this sense, one of the main factors that penalises the public transport user is the waiting time and the convenience of the interchange. The AMB wants to promote a metropolitan system of modal interchange nodes that enhances the network effect between public transport services and also between different modes of transport and that contributes, in the end, to making transport systems more efficient.

In this respect, it is key to define a long-term vision to establish the structuring nodes of the metropolitan mobility system, which should consider the major public transport interchanges, the main railway and bus stations, the large interchange or hub parking provision or large capacity bicycle parking at train stations. This strategic vision must be accompanied by the forecasts of urban transformations and the definition of the new centralities in the framework of the PDU's work, which may condition the location or prioritisation of the multimodal interchange nodes and interchange car parks.

In addition, it will be necessary to establish a permanent dialogue with the rest of the territory in the metropolitan region of Barcelona, given that the functional limit of metropolitan mobility exceeds the dynamics that occur within the municipalities belonging to the AMB.

Bearing in mind that the rhythms of urban planning and regional infrastructure planning go beyond the temporary scenario of the Plan, several priority actions are proposed for execution in this temporary scenario, without forgetting about a medium and long-term vision.

With regard to public transport interchanges, improvements are included in those nodes where more than one railway network or more than one line from the same Renfe or FGC suburban network arrives. At the same time, measures are being established to encourage multimodal transfer on the surface between rail modes, the Exprés.cat network, the new Barcelona bus network and the high-performance metropolitan bus network and the most in-demand bus stops, as users are often unaware that there exists an accessible possibility to combine bus and rail trips.

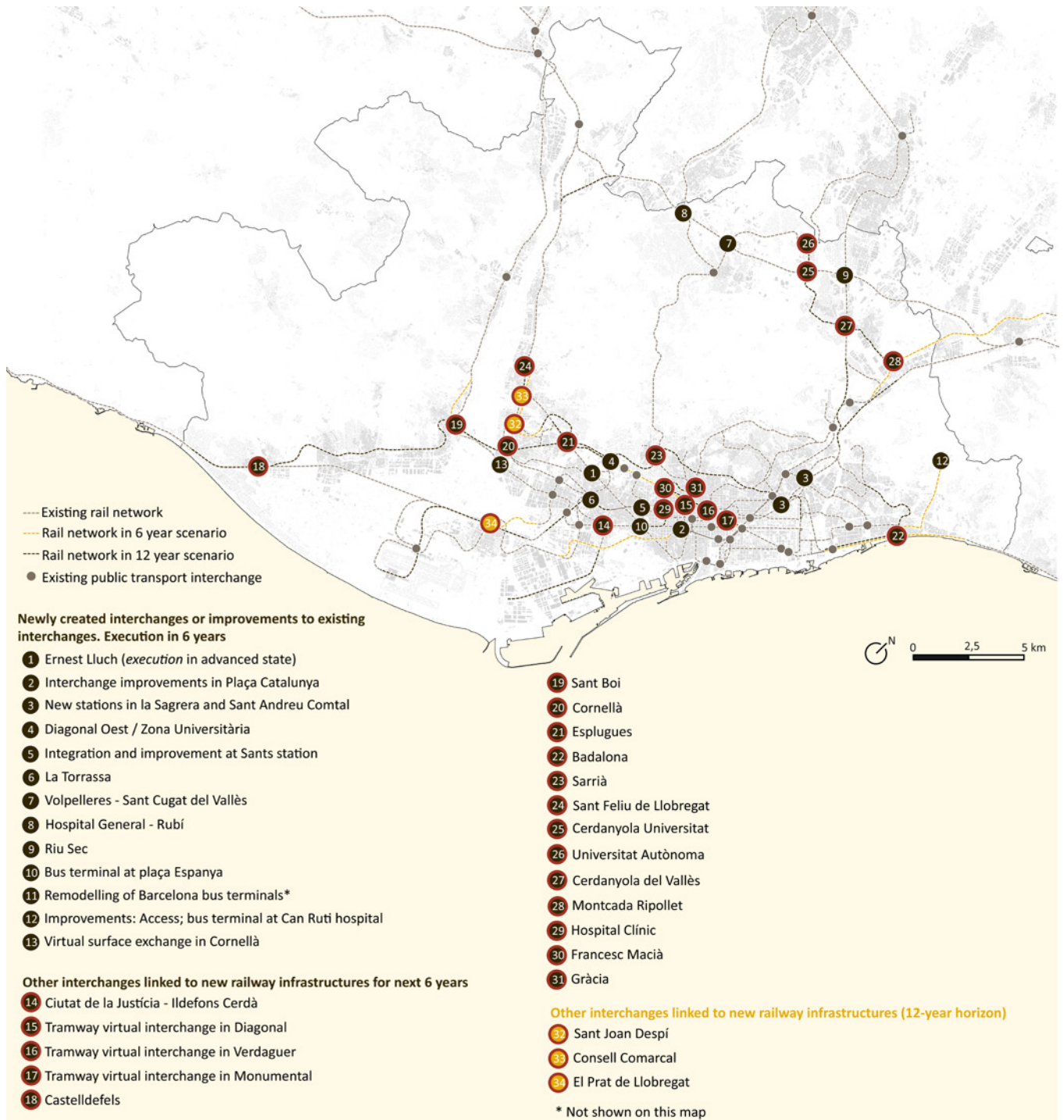
Image 6

At the Barberà del Vallès Renfe station there is a car park with 175 spaces, which does not prioritise the parking of users of the Rodalies commuter service and is also used by local residents



Source: IERMB.

Map 8 Completion and improvement of public transport interchanges



MEASURE 16

Metropolitan interchange car park system (P+R)

MEASURE 17

High-capacity bicycle parking plan at railway stations

The AMB will promote park-and-ride (P+R) car parks at railway stations, which will make public transport outside the urban core or the urban area closest to the station more accessible. This measure will favour a modal shift, particularly on interurban travel, and will relieve the most congested sections of the metropolitan road network. Likewise, the management model of the metropolitan interchange car parks (P+R) recently implemented in Castelldefels, Sant Joan Despí and the County Council (Consell Comarcal) in Sant Just Desvern will be extended to the other stations of the Rodalies and FGC network in the metropolitan area, and at some Trambaix stops. In this system promoted by the AMB, parking spaces near the station are only free for public transport users.

The commitment to inter-modality between public transport and cycling is reflected in the future plan for large-capacity bicycle parking at the busiest railway stations. Some stations currently already have up to three Bicibox modules, which will be replaced by large-capacity secure parking.

A.6 Infrastructures for organising the transport of goods

MEASURE 18

New road and rail infrastructures for the transport of freight

MEASURE 19

Identify and regulate itineraries for goods vehicles

MEASURE 20

Regulate parking spaces for heavy vehicles

The rapid growth and momentum of the logistics sector and freight in recent years have highlighted some shortcomings in the infrastructure of the metropolitan logistics system. Infrastructure planning and execution has not kept pace with the growth of the movement of goods and has led to congestion and negative environmental effects in much of the territory. Consequently, there are significant accessibility problems in important metropolitan logistics nodes and in the main industrial centres, particularly in the area of the Llobregat delta. Accesses to the port are not adequate for its growth, and the current railway terminals do not have enough capacity. At the same time, the space and conditions of truck parking are clearly insufficient for current needs, which cases interference with other activities and uses. As a result, the PMMU prioritises infrastructures that can address some of these issues.

Specifically, priority is given to railway and road infrastructures linked to improving connections with the port of Barcelona, the main pole that generates freight. With the consolidation of dry ports located beyond Catalonia and which are linked to the port of Barcelona or the recently opened Miranda container terminal, it is essential that railway infrastructures facilitate the flow of freight trains from the port of Barcelona.

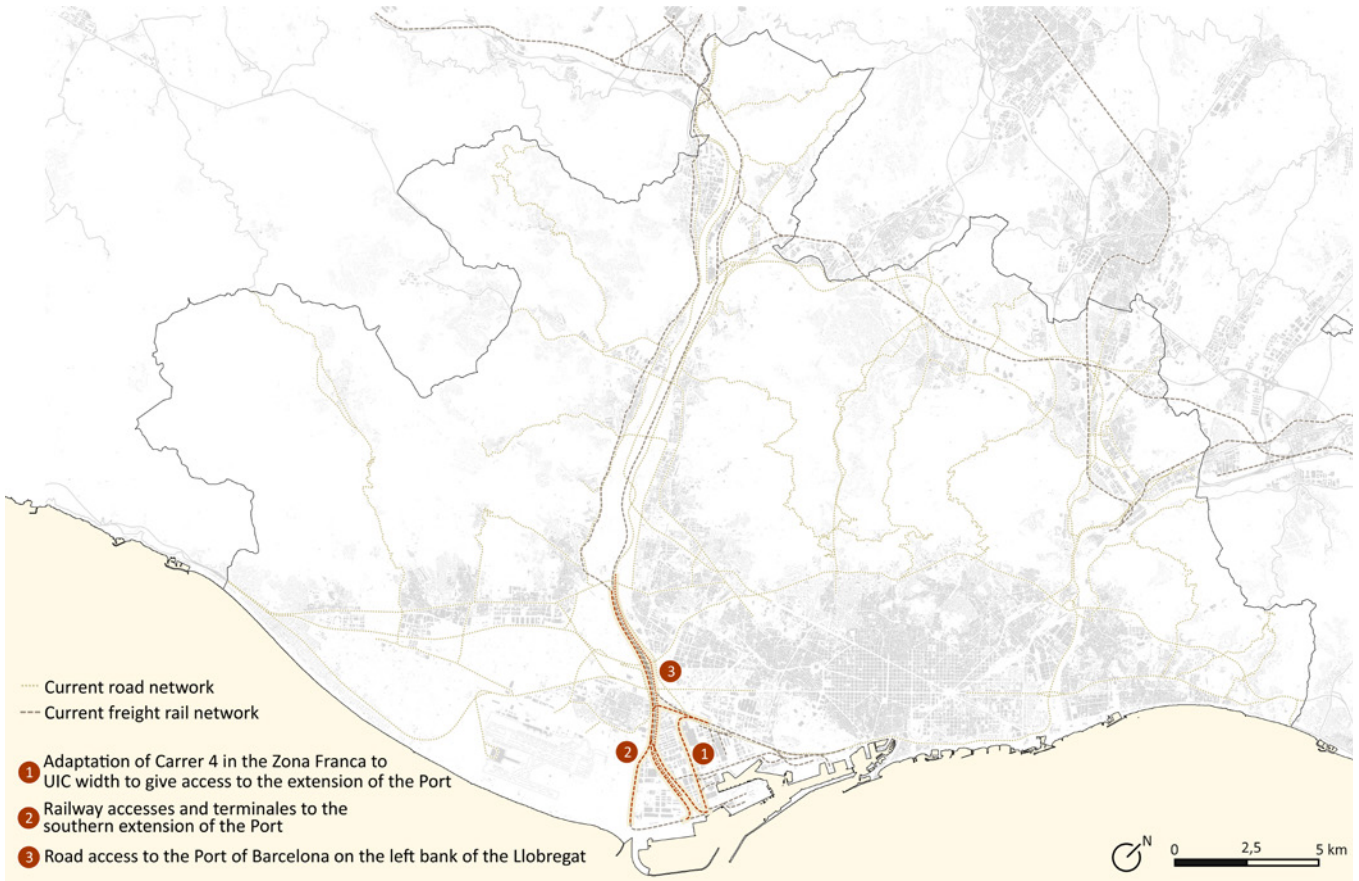
In addition, itineraries for goods vehicles between the basic road network and industrial estates, warehouses, shops, parking or other destination points of these vehicles will be identified and regulated. At the same time, we want to respond to one of the needs most requested by the transport sector, which is the creation of new parking areas for heavy goods vehicles with minimum standards of attendance and security.

Image 7
In the city of Barcelona, the movement of goods vehicles is restricted depending on the MAM and the length of the vehicles



Source: IERMB.

Map 9 New road and rail infrastructures for freight transport





AXIS B. Safe, healthy and equitable streets

The recovery of public space is a key axis in achieving the main objectives related to healthy mobility contained in the PMMU. Reducing accidents, improving air quality and the acoustic comfort of cities and reducing the sedentary population are some of the direct benefits of recovering the space that in recent decades has been given to private vehicles and generate a space where people can fully exercise their rights as citizens. Rights such as culture, participation, exchange and leisure must be compatible with mobility, and streets must be created in which uses multiply and new local activities emerge. The streets of the metropolitan area of Barcelona must be adapted to the most vulnerable groups – pedestrians and cyclists – who guarantee active mobility and a democratic use of public space.

This second strategic axis of the PMMU is oriented towards this way of understanding public space, within which the city councils have already promoted many actions of transformation in recent years. These improvements, however, have become more evident in urban or historic centres, and a more transversal transformation is needed in the metropolitan urban fabric. In addition, this axis incorporates policies on the aspects of accessibility, comfort and road safety on the streets from the point of view of pedestrians and cyclists. Parking, reducing congestion on major metropolitan areas and introducing low-emission vehicles will be other areas of action needed to restore air quality and acoustic comfort.

Image 8

On the left, the return of urban space to pedestrians and coexistence with other active modes (bicycle or VMP) in Provença street in Barcelona, in front of the Sagrada Família church. On the right, some girls playing in a public park in La Palma de Cervelló

Source: IERMB.

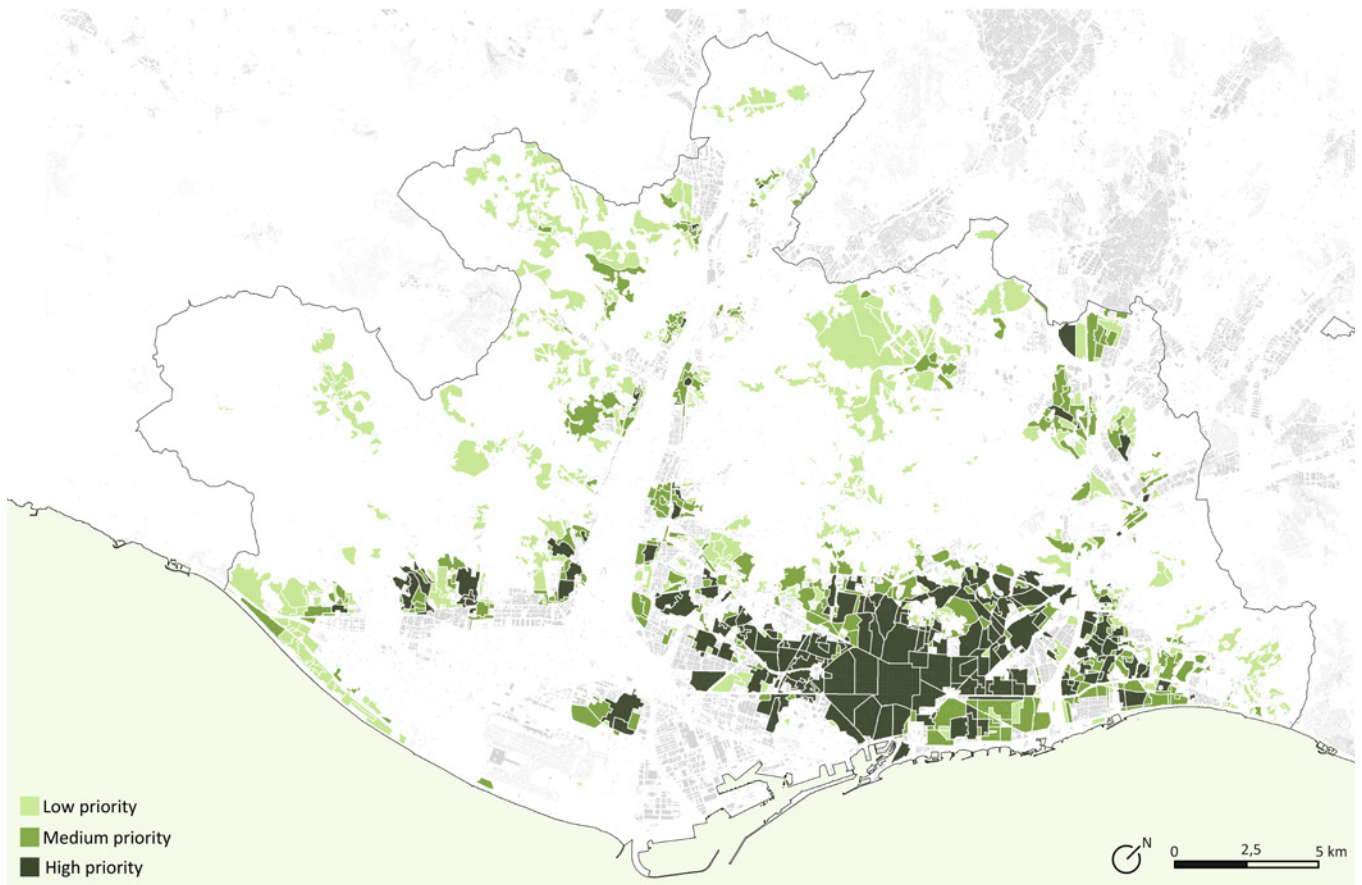


B.7 . Urban habitability and low emission zones (LEZs)

Sensitive urban residential fabrics have been identified, where poor habitability is detected and where measures are needed to restore it. This identification has been made taking into account urban characteristics, health, urban pressure and urban vulnerability. In addition, the location of the most vulnerable facilities (educational and health) exposed to heavy traffic, where vulnerable groups – such as children and people with health conditions – are concentrated for long periods of time, has been considered; therefore, the air they breathe must be of the best possible quality.

The identification and monitoring of these areas will allow municipalities, in collaboration with the AMB, to deploy improvement actions that will respond to a metropolitan-wide strategy.

Map 10 Priority areas for action to improve urban liveability



MEASURE 21

Priority areas for action to improve urban liveability

MEASURE 22

Deploy low-emission zones in metropolitan municipalities

The AMB wants these measures, although adapted and modulated according to the urban context, to be accommodated under the generic concept of low emission zones (LEZs) of a local scope. These areas will have a threefold goal: to reduce the use of private vehicles, to reform public space, and to improve air quality.

Broadly speaking, measures will be deployed that will respond to two management models, which may be compatible with each other: on the one hand, the limitation of access of the most polluting vehicles to a specific area, and on the other, the deployment of environmental islands or pacified areas (which will often require improvement and urban reform interventions), which will favour the reduction of the circulation of motor vehicles within the area of action. In addition to supporting municipalities in the deployment of these actions, the AMB will ensure that debate and citizen participation are guaranteed in order to understand the needs of citizens from all perspectives, as well as to ensure that the different municipal initiatives do not become incompatible schemes within the metropolis.

Image 9
 Superblock in the Sant Antoni district of Barcelona



Source: IERMB.

MEASURE 23

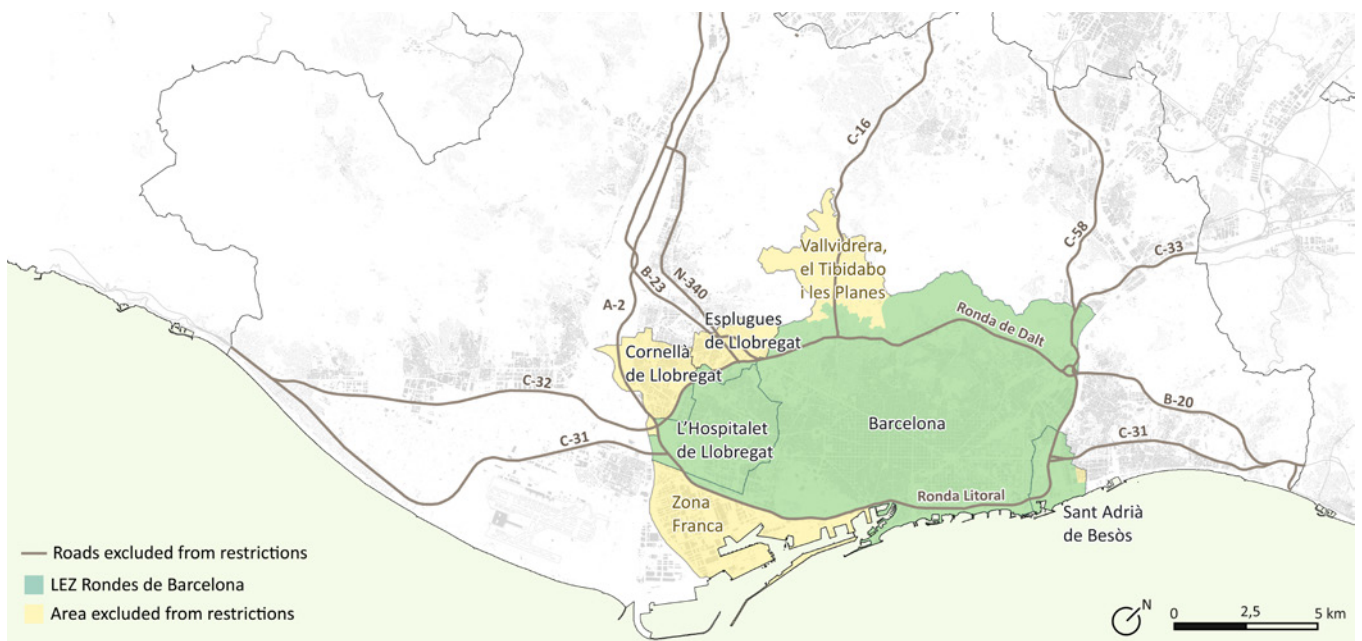
Deploy and monitor the low emission zone (ZBE Rondes de Barcelona)

On a larger scale, in the central conurbation the deployment of a low emission zone (ZBE Rondes de Barcelona) is planned, which corresponds to the spatial limits established within the Barcelona ring roads and includes the municipalities of Barcelona (with the exception of the Zona Franca industrial estate and the neighbourhoods of Vallvidrera, Tibidabo and Les Planes), L'Hospitalet de Llobregat, and parts of the municipalities bordering the ring-roads: Esplugues de Llobregat, Cornellà de Llobregat and Sant Adrià de Besòs. This measure provides for the restriction of vehicles without the DGT environmental label during environmental episodes of high air pollution with high concentrations of NO₂ gases in the atmosphere, and it will become a structural measure in 2020.

From 2022 onwards, yellow-labelled vehicles of non-residents will be restricted, and from 2024 onwards, traffic restrictions may be extended to all yellow-labelled vehicles.

As of January 1, 2025, a new restriction is proposed to the entire metropolitan area, with the prohibition to travel for all vehicles without an environmental label. An initial scenario for the year 2030 is included. These last two measures, however, may vary depending on the results and the evolution of air quality levels, as well as the agreements reached with the other competent administrations.

Map 11 Limits of the LEZ Rondes de Barcelona



Scenario	December 2018	January 2020	January 2022	January 2024	January 2030
Period	In case of pollution episode M - F 7:00 h - 20:00 h	Permanent M - F 7:00 h - 20:00 h	Permanent M - F 7:00 h - 20:00 h	Permanent M - F 7:00 h - 20:00 h	Permanent M - F 7:00 h - 20:00 h
Vehicles permitted			 Residents		 Residents

Note: Vehicles for people with reduced mobility, emergency services (police, fire, ambulances) and essential services (medical, funeral) are permanently exempt.

B.8 Accessible and inclusive high-quality public space

MEASURE 24

Metropolitan coordination strategy for universal accessibility

MEASURE 25

Improve the design of existing bike lanes

MEASURE 26

Define and implement an urban signalling code for bicycle traffic

MEASURE 27

Improving the conditions of bicycle parking in buildings

MEASURE 28

Implement complementary facilities for spaces for the use of bicycles

As mentioned, the democratisation of public space is the key concept for restoring habitability in cities, which can be quantified in terms of air quality, noise, accessibility, or equity. To help improve accessibility and equity, it is necessary to establish a degree of priority in public space directly proportional to the vulnerability of the user: pedestrians and cyclists become, in that order, the priority agents of the public space model. Consequently, public space must be reconsidered, through interventions that improve the experience and quality of pedestrian and cyclist travel and their coexistence.

The quality of trips, however, cannot be guaranteed unless there is first a commitment to improve accessibility on itineraries pedestrian itineraries and environments. Therefore, a metropolitan coordination strategy for universal accessibility will be drafted, which should serve as a starting point for the constitution of the Agreement for the accessibility of metropolitan municipalities. This strategy will ensure that the pavements are widened to allow comfortable journeys that are ideal for walking, adapting accesses and crossroads for people with reduced mobility, equipping the streets with street furniture and elements that guarantee socialisation and autonomy of movement and implement green areas, among others.

For its part, the quality of mobility on foot also requires a good coexistence with other active modes and, particularly, with bicycles. The increase in bicycle use, which is more than considerable in some municipalities, has been so rapid that some conflicts have arisen between the two modes. In this sense, mobility in this environment will be encouraged to take place in an orderly, safe and homogeneous way by proposing improvements in the design of existing bike lanes. In addition, a guide of recommendations for bicycle signage in urban areas will be elaborated and special attention will be paid to the signalling of spaces of circulation shared with other vehicles or users.

Finally, the Plan provides for the improvement of the services associated with the bicycle: parking and complementary facilities, elements that are key to promoting the implementation of the bicycle in everyday mobility. The improvement of parking conditions on public roads will be promoted and adaptation of buildings will be facilitated, especially in central points of activity, facilities, leisure spaces and modal interchanges. In addition, self-repair and bicycle tyre pumping points will be expanded, and bicycle guidance systems will be promoted on stairs and accesses.

Image 10
Pedestrian crossings of the BV-2002 through road in Sant Vicenç dels Horts have been adapted



Source: IERMB.

B.9 Road safety: vision zero

MEASURE 29

Ensure the safety of walking

MEASURE 30

Reinforce road signs to improve the safety of bicycles on the road

MEASURE 31

Collaborate in the design and implementation of metropolitan road safety policies

Currently, there is a clear will on the part of all administrations to reduce the number of traffic accidents. However, it is still a pending issue, especially where most traffic accidents with victims occur in the metropolitan area. Although this axis presents transversal measures in accordance with the mobility model of the Plan to be promoted, the measures pay special attention to the most vulnerable users: that is, pedestrians and cyclists.

Firstly, a complementary measure is incorporated into the metropolitan coordination Strategy for universal accessibility (measure 24), which aims to reduce the danger of journeys on foot, improve convenience and combat the feeling of insecurity associated with some of these journeys. With regard to improvements to the safety of cyclists, the Plan reinforces road signs on those sections of road with the greatest presence of cyclists, with reminders of the distances that must be respected when overtaking cyclists and incorporating reinforcement signs.

Finally, as a transversal measure, collaboration with other administrations with competences in road safety will be encouraged and awareness campaigns will be launched to reduce the number of accidents involving motorcycles, mopeds, bicycles and personal mobility vehicles. To improve the integration of local policies with the sustainable mobility strategy, higher correspondence between local road safety plans (PLSV) and sustainable urban mobility plans (PMUS) will be promoted.

Image 11
Through road in Molins de Rei (former N-340), where private vehicles still predominate



Source: IERMB.

B.10 Parking and road pricing model

MEASURE 32

Expand regulated spaces in surface parking

MEASURE 33

Deploy policies for harmonisation and uniform management of regulated parking

MEASURE 34

Homogenise criteria for loading and unloading areas

MEASURE 35

Define a metropolitan road charging policy for use, congestion and pollution

The close relationship between the high availability of parking and the generation of mobility models that encourage the use of private vehicles justifies the need to intervene in the management and containment of public spaces for motor vehicle parking. This need must be evident not only in urban reform or new urban developments (measure 1), but also in consolidated urban areas. Accordingly, the reduction of surface parking spaces for motor vehicles (particularly four-wheelers) will be promoted to reclaim public space for other uses.

On the other hand, since it has been shown that pricing mechanisms that increase the variable costs of driving are more effective than those that raise the fixed costs of owning a car, increases in the regulation and the pricing of parking will be imposed, as well as the articulation of a metropolitan toll strategy that meets mobility and public health criteria.

In particular, priority areas for the containment and regulation of the parking of motor vehicles with more than two wheels are defined. These will be deployed preferentially in Barcelona, in the rest of the ZBE Rondes de Barcelona, in sensitive areas with low urban habitability (measure 21), around vulnerable facilities (educational and health) with heavy traffic, and in large work centres or mobility generators. Action will also be taken in other sectors that have been considered a priority, due to the high volumes of travel by car, the high use of free parking and an acceptable degree of public transport coverage. In addition, the regulation of motorcycle parking on the road at certain points of conflict will begin, as well as actions to ensure the presence of local parking spaces for bicycles in the public space as a whole.

In addition, a common framework will be defined for parking criteria, both for private vehicles and for loading and unloading. This framework, in addition to helping to promote regulated parking to reduce motorised travel, will make it easier for users to use parking on a daily basis, regardless of the municipality in which they are located, and will give more agility and efficiency to the municipal management of parking.

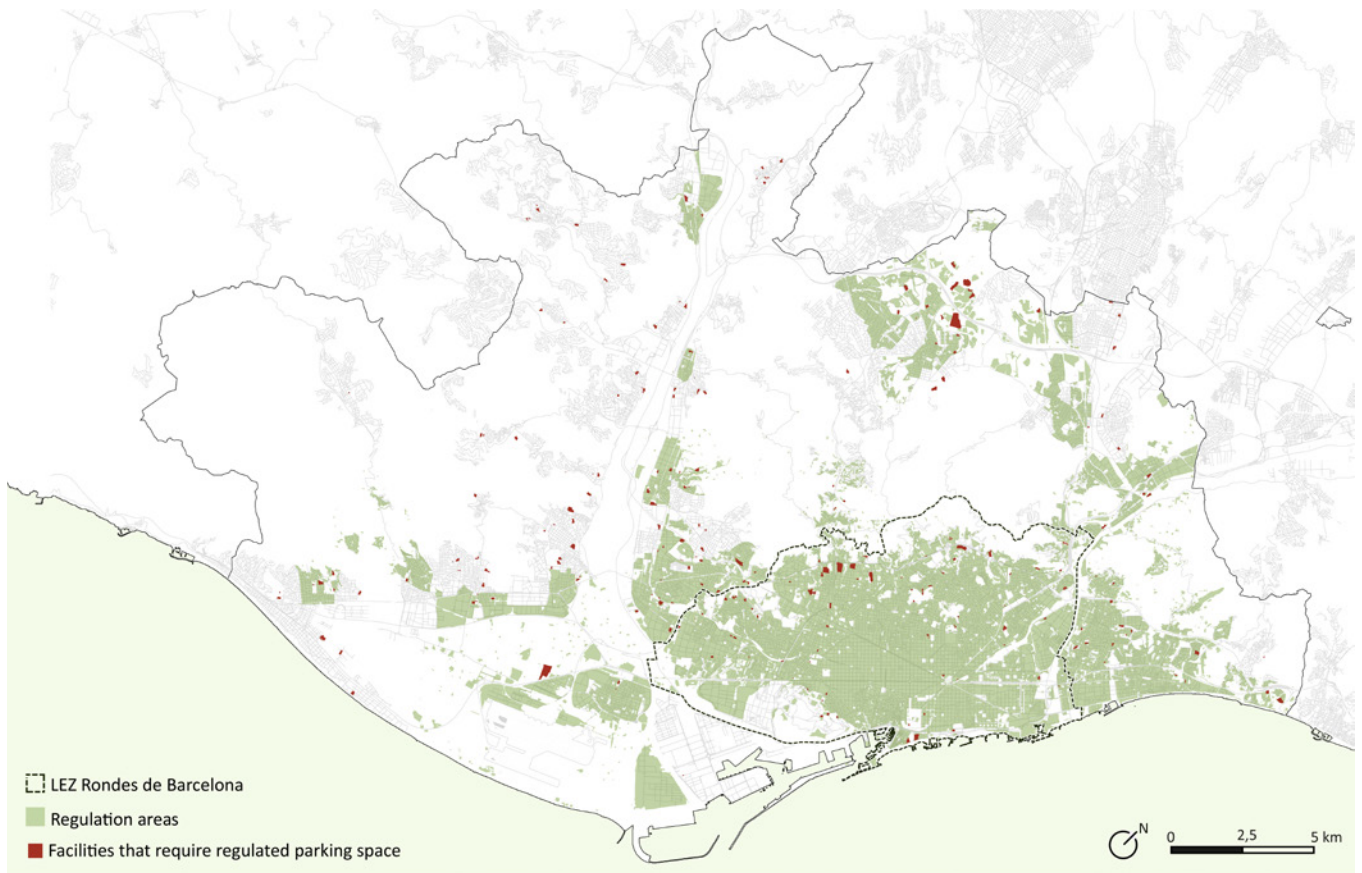
Image 12

The shortage of parking spaces on the road in some neighbourhoods, such as Ciutat Vella in Barcelona, determines the City Council to reserve spaces for the exclusive use of residents



Source: IERMB.

Map 12 Priority areas for containment and regulation of surface parking



The definition of a metropolitan congestion and toxicity toll scheme at the entrances to this territory is a relevant mechanism for moving towards sustainability. In this sense, the AMB is willing to become an agent facilitating this analysis and the consequent debate. Currently, road charging policy exists in the form of tolls on certain high-capacity roads as an instrument for financing infrastructure, so it is necessary to move forward to comply with the provisions of Law 9/2003, on mobility, and Law 21/2015, on financing of the public transport system of Catalonia: that is, a system in which tolls function as instruments for regulating and managing metropolitan mobility and at the same time contributing to the financing of public transport.

B.11 Low emission vehicles (LEV)

MEASURE 36

Expand the metropolitan network of charging points for low emission vehicles

MEASURE 37

Collaborate in the creation of a metropolitan VNG and LPG network

The evolution of the total current number of vehicles is gradually incorporating clean vehicles. However, the expected figures show that this transition will not be imminent, but it is necessary to accelerate the penetration of these vehicles to achieve significant gains in air quality and acoustic comfort. The PMMU therefore promotes measures to encourage a cleaner vehicle stock by improving vehicle recharging options and introducing incentives to encourage the acquisition of such vehicles. The AMB is to be the coordinator of low-emission vehicle (LEV) policies in the metropolis. In fact, in recent years it has already launched several policies in this direction.

One of the objectives of the PMMU is to expand the metropolitan network of charging points for electric vehicles until it reaches the point that every metropolitan municipality

MEASURE 38

Promote the installation of charging points linked to residential buildings

MEASURE 39

Adapt vehicle taxation to the environmental label

MEASURE 40

Establish measures to encourage the use of low-emission vehicles

MEASURE 41

Grant subsidies for new clean vehicles and electric bicycles

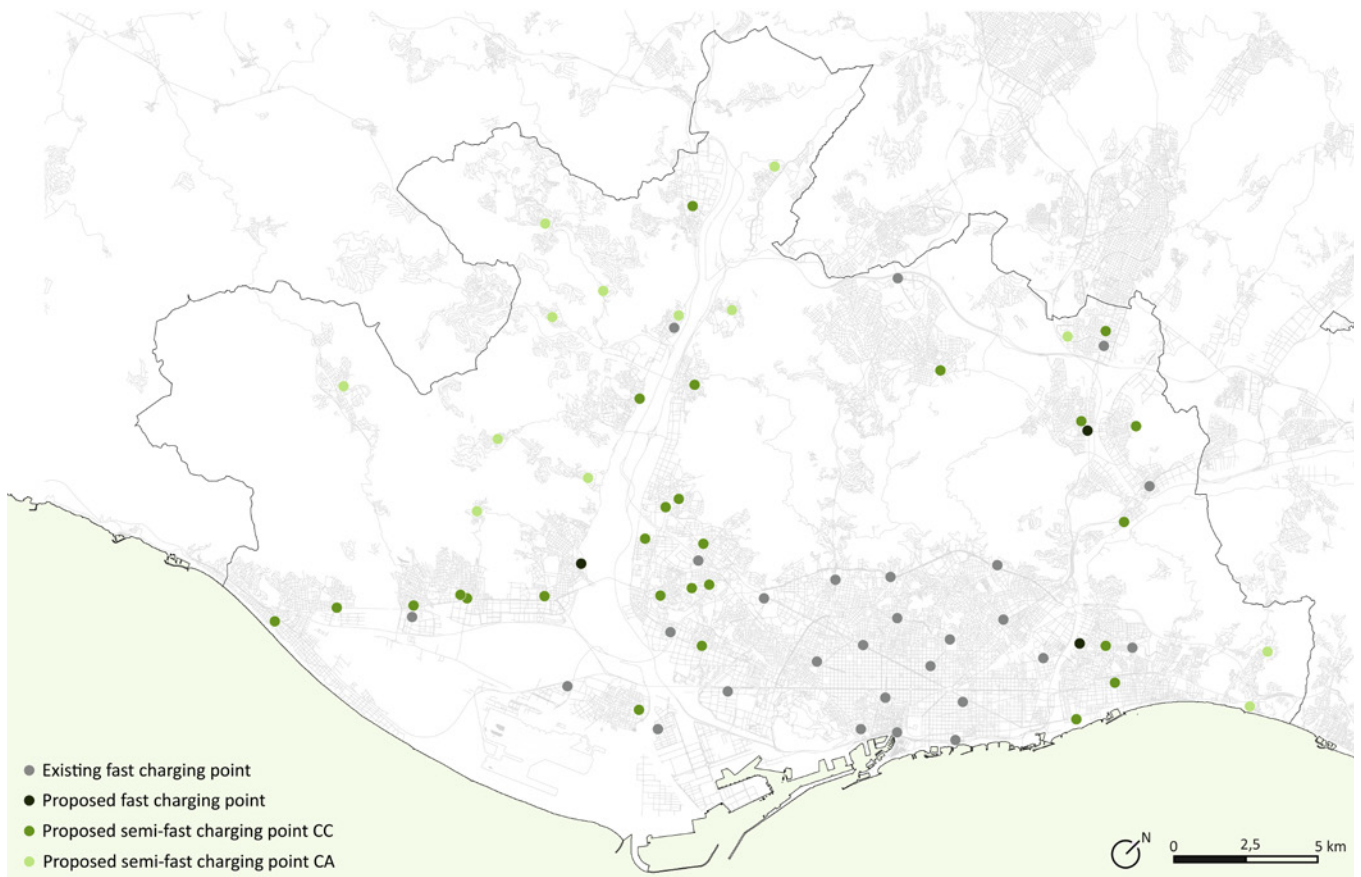
has at least one. Interoperability with the infrastructure will be ensured by ensuring that electricity comes from renewable sources and preferably from local sources. The AMB will also collaborate with energy companies in the sector in the installation of points to supply vehicular natural gas (VNG) or liquefied petroleum gas (LPG) to vehicles powered by this source, with special attention to heavy vehicles, buses and trucks.

With regard to the charging required by electric vehicles, the installation of charging points in existing car parks in housing buildings or in horizontal property regime will be encouraged. A common portal will be presented for all metropolitan municipalities providing support to the installation of charging points, and disseminating the information to the public.

At the same time, measures launched in recent years will continue to be implemented, with the aim of encouraging the harmonisation of taxation on LEVs and gradually increasing it for the most polluting vehicles. In addition, an agreement will be promoted with energy companies to reduce the cost of contracted electric power used to recharge electric vehicles. The promotion of clean vehicles will also be made through positive discrimination, for example, through bonuses or benefits in the car park.

Lastly, financial assistance will be provided for the purchase of clean vehicles, mainly for municipal vehicle fleets, electric bicycles for individuals and companies, low-emission last-mile urban distribution vehicles and shared mobility fleets.

Map 13 Metropolitan network of charging points for electric vehicles





AXIS C. Integrating, efficient and quality public transport

The planned mobility model proposed for the Barcelona metropolis means prioritising public transport, which, in order to be the option chosen by the public, must become as much or more competitive and attractive than the private vehicle. In this sense, the PMMU gives preference to actions aimed at improving public transport, in terms of service, timetable and spatial coverage and inter-modality with other modes of transport. It is therefore committed to surface transport that makes a qualitative leap, generating a hierarchical service scheme and connecting high-capacity bus networks with more widespread services, through a system of connection points between services. These schemes are closely linked to measure 6, which specifies the priority road network for bus traffic, as well as measures 14 and 15, which propose the main interchange points.

The improvements will be accompanied by actions to gain new travellers. Therefore, services will be promoted that are increasingly adapted to the population that has limitations when it comes to accessing public transport. The aim is to improve accessibility at bus stops and train stations, and also to reduce the perception of insecurity that public transport can generate in certain time periods or lines. To improve the experience of travelling by public transport, the information received by the user will be reinforced, with the establishment of new protocols for the collection and processing the service data of the different operators.

The Plan also makes a firm commitment to reducing the consumption and emissions of the public transport service fleet, both in terms of buses and taxis, through a gradual renewal of its fleet.

As for pricing, the aim is to move towards a system of travel cards that can attract new users and retain them all and, at the same time, be sensitive to the situations of vulnerability of the population and levels of air pollution.

Image 13
L5 metro line, with
fairly high usage levels



Source: IERMB.

C.12 Improvement of bus and metro services in the metropolitan area

MEASURE 42

High-performance metropolitan bus network

MEASURE 43

Commercial bus speed improvement plan

MEASURE 44

Plan to improve the bus offer during the summer

MEASURE 45

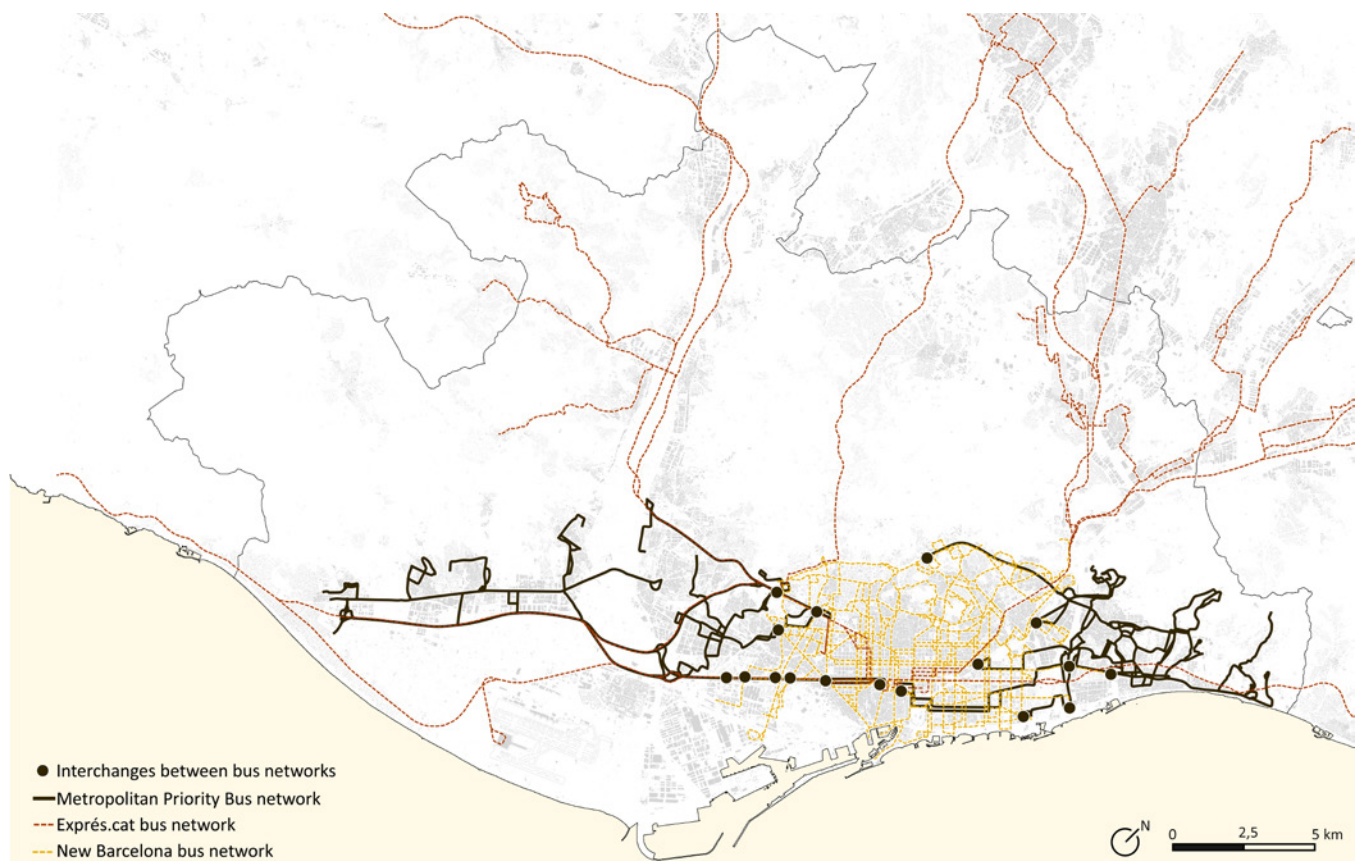
Plan to improve the bus offer on public holidays

To improve the network effect, commercial speed and frequency of the metropolitan bus service, the AMB will continue to deploy the high-performance metropolitan bus network. This network is part of a hierarchical scheme of high-frequency and capacity bus corridors and will be connected to the Exprés.cat service (owned by the Government of Catalonia) and to the new bus network in Barcelona. Interchanges with the railway network and more widespread bus services will also be strengthened.

This network, superimposed on the busiest transport corridors, offers more direct and more frequent expeditions and generates interchange and transfer points with other bus lines. It will be organised into two new services: on the one hand, AMB Express, with more direct services and an improvement in frequency at peak times and a higher commercial speed, and, on the other hand, AMB Metrobus, with an increase in capacity and a prioritisation of inter-modality and frequency of passage.

To increase commercial speed, in addition to the promotion of a road network reserved for bus traffic (measure 6), additional actions will be established, through a comprehensive programme of traffic light prioritisation and the implementation of double bus stops points where many lines and expeditions converge, as well as allowing access to the bus through the doors on both sides.

Map 14 High-performance metropolitan bus interchange network



MEASURE 46

Plan to improve the bus offer at night and weekends

MEASURE 47

Second metropolitan ring bus service improvement programme

MEASURE 48

Programme of improvements in transport services in unique locations

MEASURE 49

On-demand transport network

MEASURE 50

Plan to improve the offer of the metro and bus service under direct management

MEASURE 51

Monitoring of maintenance actions on other railway networks (FGC and Rodalies Renfe)

The PMMU also promotes the strengthening and improvement of the efficiency of the bus service in the summer, at weekends and bank holidays and at night.

In the area of the second metropolitan ring, the AMB will continue the work necessary to take over the management of bus transport services (both urban and interurban services within the AMB), operated in the 18 municipalities of the second metropolitan ring, to make the provisions of Law 31/2010 effective in the metropolitan area of Barcelona. As a first step, however, a programme has been developed to increase the efficiency and reliability of buses in this area, which will be implemented through the establishment of a framework of collaboration between the AMB and the metropolitan municipalities. At the same time, the development of two specific programmes is included, which will particularly affect this area: one for direct services to unique locations and another for introducing on-demand services in low-density residential areas.

The Plan envisages promoting and monitoring the actions of the new bus network that runs through the city of Barcelona, as well as implementing actions to modernise and improve the metro service. This will help maintain the reliability of the system and meet the growth in demand and will allow a frequency of a metro every 2.5 minutes (with a 40 % increase in capacity at peak times on weekdays).

Likewise, in order to consolidate the metropolitan public transport network, it is essential to invest in actions to maintain the commuter railway networks (Rodalies). Of particular relevance are the actions aimed at the network operated by Renfe, which suffer from a very high degree of delay in relation to the planning and inter-administrative political agreements that have been made in recent years. It is hoped that the new commuter railway plan (Plan de Cercanías), currently being drafted, will also prioritise the maintenance and modernisation of these infrastructures.

Image 14
Unit 447 on line R1 as it passes through Montgat



Source: IERMB.

C.13 Public transport fleets and more sustainable and efficient facilities

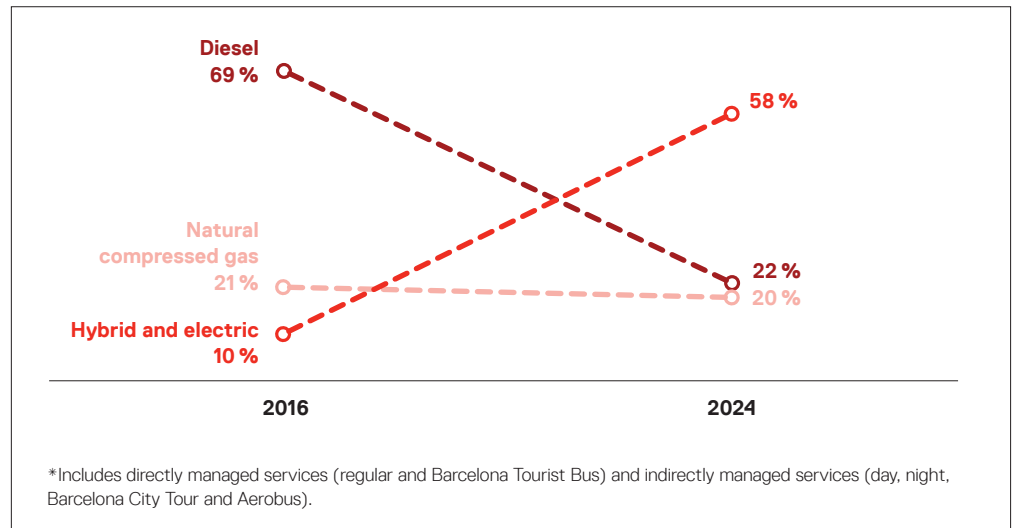
MEASURE 52

Making the metropolitan bus fleet and depots environmentally friendly

The intensive use of vehicles, with routes generally through urban areas and the Administration's role as a public example entail the need to increase the environmental friendliness of metropolitan buses. Consequently, a strategic framework will be defined so that by 2040 100 % of the bus network will use low emissions vehicle.

In the scenario set out in the Plan and without losing sight of the possibilities of hydrogen buses, by 2024 we want to achieve that 58 % of metropolitan buses are hybrid and electric. For this reason, the PMMU plans to gradually replace diesel vehicles, especially older ones, with hybrid or electric vehicles and to ban their circulation in the metropolitan area.

Graph 4
 Evolution of bus fleet sustainability in the Plan scenario*



The renewal of the fleet will be accompanied by other measures, such as the training of drivers, the control of the level of emissions from the bus network and the conversion and adaptation of the depots to the future fleet of buses.

C.14 Public transport for everyone

MEASURE 53

Improving the environment and accessibility to public transport stops and stations

There are currently people with functional diversity who face certain limitations when it comes to accessing public transport, which violates their right to mobility. The aim must be to achieve 100 % accessibility, as this is the most relevant variable when promoting integrative transport systems without perpetuating or increasing the risk of social exclusion of certain groups.

A plan will be developed to improve metropolitan public transport stops in the area of the first metropolitan ring, with the aim of achieving that 60 % of the stops are adapted in 2024. For the area of the second metropolitan ring, to the extent that the AMB effectively assumes jurisdiction over bus services, the progressive improvement of stops will be promoted. In the meantime, however, in collaboration with the city councils and the Government of Catalonia, the AMB will take part in the work to diagnose the needs and propose the improvements that have to be carried out.

MEASURE 54

Improving transport services adapted to functional diversity

MEASURE 55

Support programme for potential users of public transport

MEASURE 56

Encourage on-demand stops for women or other vulnerable groups

With regard to accessibility to railway stations, the aim of the Plan is that 98% of stations are accessible by 2024. For this reason, the AMB will promote the planned improvements and ask the administrations or competent bodies to implement them, particularly in the Adif network, which has clearly lower levels of adaptation than other rail services.

With regard to adapted transport services, the AMB will promote the improvement of the conditions and management of existing services, promote the extension of coverage to the metropolitan area and define a harmonisation protocol that avoids as much as possible the divergences in the types of services offered. In parallel and to promote the autonomy of some of these groups and others who are not familiar with public transport (such as the elderly, children and newcomers), we will work on a personalised route planner and a familiarisation programme for non-regular users through a pilot scheme.

The perception of insecurity in public transport services in certain time slots or on certain lines in particular is one of the barriers to using public transport. As a result, the AMB has launched a pilot service that allows any citizen, but in particular women, minors, the elderly and people with reduced mobility to get off close to their destination. This service will continue to be developed and special attention will be paid to non-residential areas, low-density areas, industrial estates and lines with significant distances between stops.

Map 15 General plan to improve accessibility to railway stations

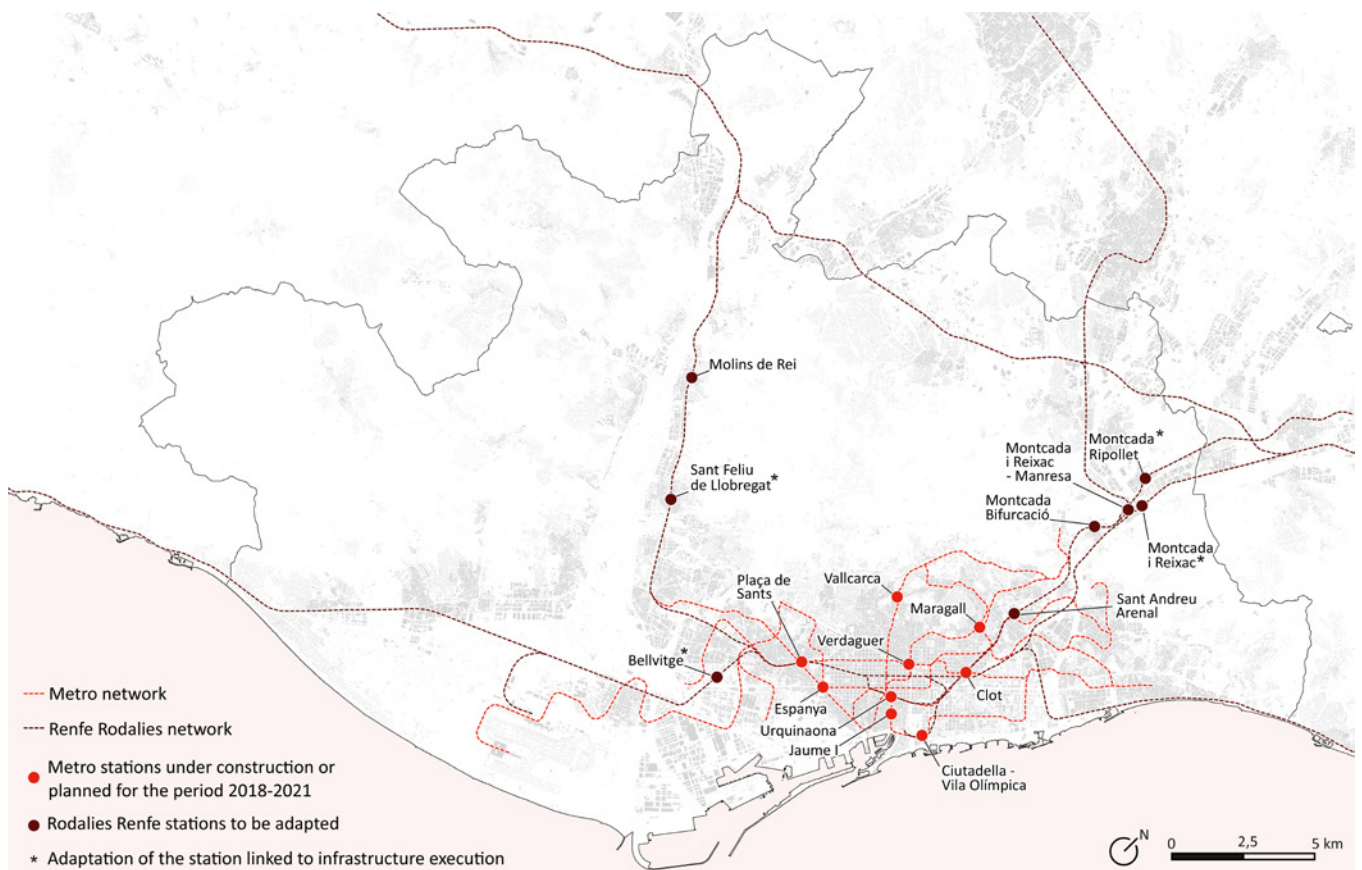


Image 15
Difficulties in accessing the northern platforms of the Montcada i Reixac - Manresa station: the stairs condition the access of people with reduced mobility



Source: IERMB.

C.15 Homogenisation of the image and information of mobility services

MEASURE 57

Standardise the brand image of the AMB's indirectly managed services

MEASURE 58

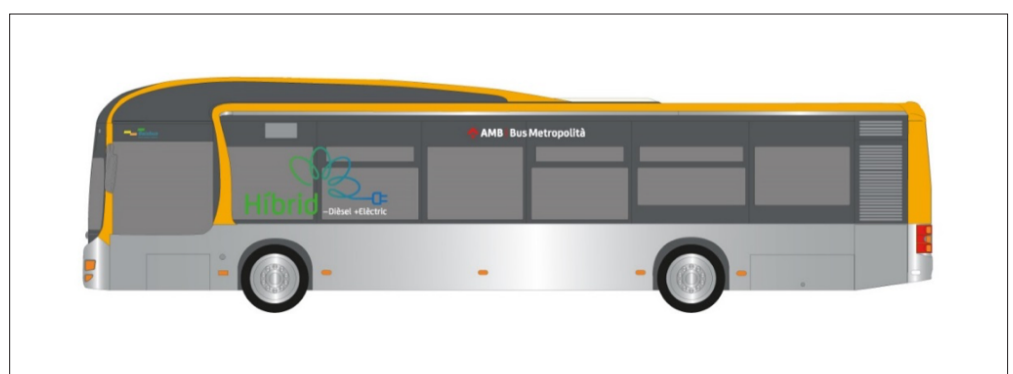
Plan for centralisation and homogenisation of information relating to the service

The diversity of public transport operators present in the metropolitan area entails diversified information management. On the one hand, users receive different information depending on the operator or the competent administration and the source they consult. On the other hand, the brand image is also diverse, both between means of transport and between the different mobility services of the same administration. The establishment of a clear brand can serve to improve the recognition of the service and its management in the eyes of new users and those who already use public transport. Different studies find that consolidating a simple and attractive image can attract new users and retain current users.

Therefore, the PMMU plans to establish rules to standardise the image of the services managed by the AMB. Specifically, the standardisation is aimed at the rolling stock of all indirectly managed bus lines, the stops and the information published on the different communication channels

In addition, new protocols will be established with the aim of standardising the collection and processing of information on the service of the different operators, both at the time the AMB receives the data and at the time of disseminating the information. Thus, a Homogenisation Plan is proposed that allows the centralisation of the information received by AMB Information and defines the protocol of actions for each incident related to the alterations to the metropolitan area transport.

Image 16
New brand image of AMB indirectly managed buses



Source: AMB.

C.16 Tariff system sensitive to the socio-environmental context

MEASURE 59

Improve the fare structure and simplify the travel card system

MEASURE 60

Improvement and restructuring of metropolitan social pricing

MEASURE 61

New proposals for environmental charging for public transport

MEASURE 62

New types of transport travel cards for visitors

The Plan anticipates the need to define a fair fare system that is sensitive to the socio-environmental context, in accordance with the principles established in Law 9/2003, on mobility, the National Mobility Guidelines of Catalonia and Law 21/2015, on financing the public transport system of Catalonia.

During the setting of the Plan, in collaboration with the administrations involved, the AMB wants to participate in the work to reformulate the structure and the integrated tariff system of the Barcelona area. Until the transformation linked to the T-mobilitat project takes place, the PMMU wants to promote the reorganisation of transport tickets to encourage recurrence and user loyalty.

With regard to tariffs and discounts for vulnerable groups, the PMMU plans to improve and harmonise the system of discounts throughout the metropolis, with the inclusion of income criteria as a key element in granting social travel cards. To provide public transport as an alternative to restrictive measures for the circulation of private vehicles, in addition to maintaining the T-aire and the T-verda cards, actions will be proposed to promote the use of public transport among workers. In order to promote a sustainable way of visiting the metropolis for tourism which is compatible with the dynamics of the residents and which guarantees the rational and consistent use of transport systems and tickets, the use of integrated tickets will be discouraged.

Achieving these challenges must be consistent with continued improvement in management efficiency and cost containment efforts, while maintaining quality and customer satisfaction rates. However, this does not preclude having to agree on a more stable public transport financing system and expanding the sources to finance it (measure 76, "Agreeing on public transport financing sources").

C.17 Attractive and competitive metropolitan taxi

MEASURE 63

Taxi rank plan

MEASURE 64

Digitise the fleet and create a hub in which the taxi service apps participate

The AMB, through the Metropolitan Taxi Institute (IMET), wants to optimise the taxi service to adapt it to the new times and make it more attractive and competitive.

With the aim of reducing empty kilometers, a plan for taxi ranks will be drawn up in collaboration with municipal councils, promoting the extension of taxi ranks, particularly within the ZBE Rondes Barcelona. The increase in territorial coverage will provide a waiting space until a user requests the service electronically or similar. At the same time, the digitalisation of the fleet will be promoted, in order to ensure that in 2024 100 % of the licences will have a request agreement service via telematics or app. To facilitate access to these services, a public management application for mobile phones will be implemented, which will integrate, on an informative scale, all the private platforms that provide taxi services. In the longer term, and outside the framework of the PMMU, we want to move towards a system that links the application with the taximeter and allows the publication on the different platforms the real offer of available taxis in the area.

MEASURE 65

Environmental renovation and adaptation of the metropolitan taxi fleet to people with reduced mobility

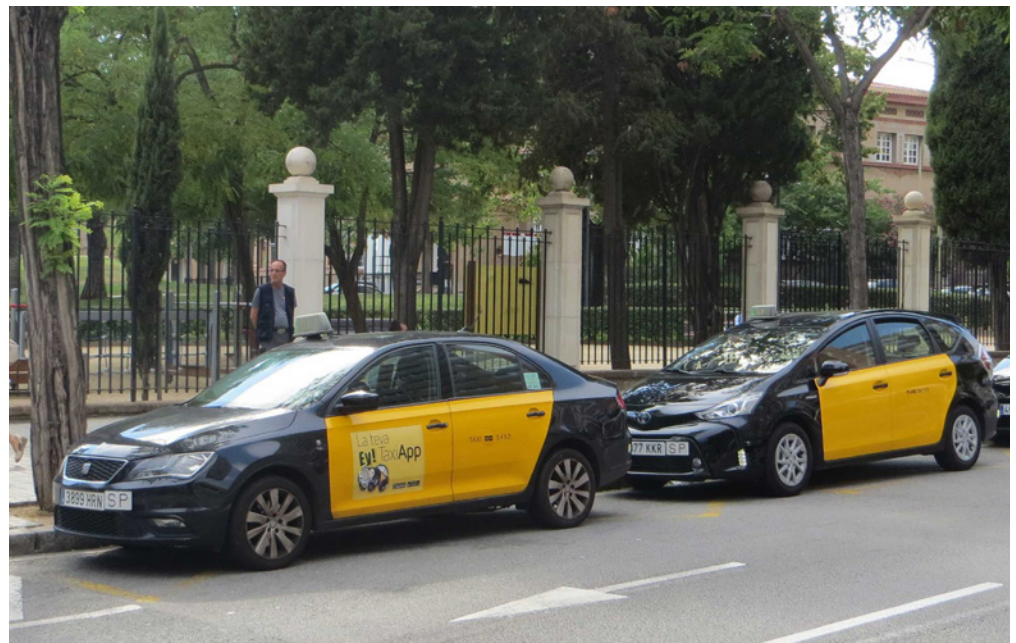
MEASURE 66

Control of emissions in the taxi sector

The AMB will accelerate the renovation of the fleet into environmentally efficient vehicles to eliminate virtually all diesel vehicles in the next six years. To achieve this, aid will be granted for the purchase of clean taxis, the circulation of taxis older than 10 years (except electric and adapted vehicles) will be prohibited and the use of diesel fuel vehicles will no longer be authorised as taxis. In order to ensure that 5 % of the taxi fleet is adapted for people with reduced mobility (PRM), financial aid is foreseen.

Finally, and to improve knowledge about pollutant emissions from taxis and monitor previous measures, annual emissions will be monitored (segmenting passenger and empty journeys). Likewise, the sample of taxis which participate in the IMET follow-up study will be increased and sustainable mobility courses will become mandatory for new taxi licence holders.

Image 16
Taxi rank in Barcelona



Source: IERMB.

C.18 Bicycles on public transport

MEASURE 67

Establish common criteria for bicycle access to metropolitan public transport

The aim of this strategic line is to promote multimodal travel by public transport and bicycle, facilitating access to or the complementary use of bicycles and public transport. Therefore, the PMMU envisages different measures to facilitate coordination, accessibility and inter-modality between the two modes of transport.

The Plan incorporates a measure that seeks to simplify, standardise and disseminate information on regulations on the conditions for bicycle access to metropolitan public transport. This is a complementary measure to those included in Axis A, such as the measures to increase the spatial coverage of the Bicibox parking network and the high-capacity bicycle parking plan, which will make it possible to favour the inter-modality between cycling and public transport.



AXIS D. Efficient and flexible governance of metropolitan mobility

Law 31/2010, of 3 August, on the Barcelona Metropolitan Area, considers the AMB an indirectly elected local administration with powers over the planning and management of metro and urban and intercity bus networks which run there in its entirety, as well as in the arrangement and administrative intervention of the urban transport services of passengers provided by taxi or through the rental of vehicles with driver. It currently exercises these powers in the first metropolitan ring and is expected to assume them in the rest of the metropolitan area, which will allow the articulation of a metropolitan-sized bus network.

With regard to the metropolitan road network, article 14 of Law 31/2010 states that “the definition of the basic metropolitan road network [...] involves the participation of the AMB in the programming and management of traffic in this network, together with the department of the Government of Catalonia competent in the matter”, and the AMB is granted the competence of “the coordination and the management, by delegation of the city councils, of the complementary services of mobility that involves the special or private use of the public thoroughfare”, respectively. These points must be understood as key elements for the AMB, as the official holder of metropolitan public transport services, to also have the capacity to influence public space, an essential element for improving reliability, commercial speed and capacity of surface public transport, by improving the environment of stops and nodes, the development of reserved lanes, speed regulation or traffic-light prioritisation, among others.

In the matter of infrastructures of metropolitan interest and within the framework of the aforementioned Law, the AMB may “develop actions of territorial structuring necessary for the articulation, connectivity, mobility and functionality of the territory”. In this sense, as we have seen, priority has been given to the current planning framework for various investments in infrastructure in which the AMB will work to execute them in the shortest possible time.

For its part, Law 31/2010 also establishes that this administration “may collaborate in the exercise of activities specific to the Government of Catalonia, other supra-municipal bodies and municipalities, by means of information, agreements, management assignments, delegation of powers and any other instrument that is appropriate”. In this direction, the AMB carries out policy harmonisation strategies that are the responsibility of the city councils, which may be the precedent of the competence to draft new metropolitan ordinances or to achieve the delegation or transfer of some of these competencies. The aim is to improve the effectiveness of metropolitan mobility policies.

The articulation of mobility policies from a metropolitan perspective, in addition to contributing to strengthening relations and institutional collaboration between municipalities within the framework of a shared vision and metropolitan project, should consolidate the idea of a metropolitan city. In addition, decision-making on this scale would make it possible to address the challenges facing the metropolitan area more effectively, including the challenge of addressing the urgency of correcting the current funding system of public transport.

D.19 Governance and inter-administrative agreement

MEASURE 68

Transfer the management of all surface urban transport to the AMB

The AMB will identify the appropriate legal and administrative formulas and will launch the necessary procedures to transfer the management of collective urban public passenger transport services that run within the metropolitan area of Barcelona in a coordinated manner with the administrations who currently manage them. This is a transformation that cannot be immediate, as it will depend on the types of services and the expiration date of contracts or concessions

MEASURE 69

Deploy the regulatory framework for the operating conditions of urban VTC services

The AMB will deploy the Regulation of the conditions of operation of the authorisations of the transport of passengers in vehicles of rented cars with driver of up to nine places (VTC) when they offer the urban services in the scope of the AMB (DOGC 14/06/2019), after Royal Decree-Law 13/2018 has transferred the competence for the regulation of this service to the Autonomous Communities and local bodies.

MEASURE 70

Design new channels of dialogue with the actors involved in the transport of goods

It will actively participate in consultative tables, councils and forums of a national and international nature related to the urban distribution of goods, particularly in those that directly affect the metropolis. At the same time, the AMB will be able to act as an intermediary between local administrations and private agents. The AMB Mobility Council will become an opportunity to start this dialogue.

D.20 Metropolitan integration of municipal policies

MEASURE 71

Coordinate municipal level PMUS with the PMMU

Law 9/2003, on mobility, was an important milestone and was the beginning of a paradigm shift, thanks to which mobility was given a more holistic and transversal dimension. Municipalities drafted the Sustainable Urban Mobility Plans (PMUS) and implemented initiatives derived from these instruments. However, the PMUS as non-binding instruments have been clearly associated with the political and economic cycle, which has led to the pace of elaboration and the degree of execution of the derived measures being excessively slow to reach the deadlines set for socio-environmental objectives. In addition, there has been some difficulty in integrating urban mobility planning and management into a metropolitan-wide strategy. Therefore, understanding the metropolitan area as an integral territory, the PMMU introduces measures for municipal policies to be carried out from a metropolitan perspective, which will help to achieve the objectives more efficiently.

MEASURE 72

Improve the regulatory framework of active mobility and personal mobility vehicles

MEASURE 73

Coordinate policies to promote low-emission vehicles

First, with a view to the forthcoming review of urban mobility plans, a methodological and procedural proposal will be drafted to improve the effectiveness and implementation of the plans. The AMB, in addition to providing technical and financial support for the drafting and implementation of the plans, will monitor them by drafting follow-up reports. Likewise, mechanisms for the evaluation and monitoring of the PMMU will be established in order to periodically inform the Metropolitan Transport Authority (ATM).

Image 18
Rickshaws have ceased to be an exclusive medium of Southeast Asia and are already present in our cities. Their coexistence with pedestrians requires a regulatory framework



Source: IERMB.

In addition, progress will be made towards the harmonisation of municipal ordinances so that citizens can conceive of the territory as a single body. As seen, harmonised policies for regulated parking and loading and unloading are planned (measures 32 and 33). Also, we want to strengthen the regulatory framework to ensure the coexistence and behaviour on public roads of personal mobility vehicles and coordinate policies to promote low-emission vehicles in different metropolitan municipalities.

D.21 Metropolitan strategy for tourist mobility

MEASURE 74

Improve the management of metropolitan tourist mobility

MEASURE 75

Promote itineraries and circuits of tourist, cultural or recreational interest

Barcelona receives more than 23 million tourist visits a year and activity at the airport exceeds 47 million annual trips. This data alone indicates the magnitude of the tourism sector and, therefore, the importance of implementing policies that keep this group in mind and the impact it generates on daily mobility. Although the metropolitan tourist activity is very concentrated in the city of Barcelona, the tourist phenomenon goes beyond the Catalan capital. There are other points or poles of tourist attraction in the rest of the metropolis, which, despite receiving a much smaller volume of tourists, have a certain importance (beaches, natural areas, shopping centres, etc.). This is a phenomenon that may increase in the future, given that the Special Urban Plan for Tourist Accommodation, approved in 2017, is already favouring the development of new establishments outside the city of Barcelona.

In this line, in the first place the AMB will work with the metropolitan city councils to define a metropolitan strategy of tourist mobility, aligned with the principles and objectives that already raised in the Strategy of tourist mobility of Barcelona approved by the City council of Barcelona in 2017. The main objective is to promote responsible tourism, encouraging travel in sustainable ways in the areas with the highest tourist influx and integrating the needs of tourist mobility into mobility planning instruments. We also want to promote bicycle mobility in some of the most important green spaces in the metropolitan area, by fostering itineraries and circuits of tourist, cultural or recreational interest, with the aim of encouraging the recreational aspect of cycling.

These measures are complemented by those explained in Axis C, which proposes changes in public transport fares to ensure a more rational and consistent use of integrated ticketing systems. They are also complemented by measures to introduce new data collection protocols, which can help to better characterise the mobility patterns of the floating population.

Image 19
El Prat de Llobregat beach



Source: IERMB.

D.22 Financing of public transport

MEASURE 76

Agree on the sources of financing for public transport

One of the most noteworthy lines of action regarding the metropolitan governance of mobility is the definition of the criteria and actions necessary to achieve a new model of financing metropolitan public transport, which, in accordance with the principles of Law 21 / 2015 on financing the public transport system of Catalonia, to ensure the service in terms of quantity, quality, efficiency and long-term reliability.

In the framework of the implementation of the aforementioned Law, pending since 2016, the AMB is committed to several measures: (1) standardisation of the calculation of the rate of coverage of services; (2) incorporation of subsidies from the Department of Social Welfare or others to fund social policies in the area of tariffs; (3) transversality in financing, involving all citizens, regardless of whether or not they are users, and looking for alternative or complementary formulas to those that currently exist (public tariffs and subsidies). In this sense, other sources of financing will be explored, such as the income derived from the charging for use and congestion of the road network, the income from the payment of regulated surface parking, the surcharge on other local taxes or the imposition of a levy on major events that have an impact on mobility.



AXIS E. Intelligent mobility management

Information technology is already the main support for the management of any category of production of goods and services in complex environments, and the city is no exception. In the city, as in other areas, ICTs are increasingly being combined with traditional operational technologies to give rise to the so-called IoT (Internet of Things). The pursuit of maximum operational, economic, environmental and social efficiency is what is known as smart city policies.

As one of the essential vectors of the city, mobility management is also decisively incorporating these techniques and procedures. The IoT paradigm involves the availability of a very large number of real-time data sources, which can be treated with other algorithm-based techniques (machine learning, artificial intelligence, mass data, and even block chain) to obtain, ideally, adaptive and safe mobility that can promote social cohesion, better use of space, average travel times or air quality, among others.

This theoretical scenario is rapidly becoming a reality through a set of initiatives from the public and private spheres. In the coming years, information technologies will produce an amplification and acceleration of the phenomena that are already intuited and that will undergo a qualitative change: electric vehicles, autonomous vehicles, shared vehicles, personalised services for the distribution of goods related to e-commerce, adaptive self-regulation of infrastructures and the offer of services, variable pricing, etc.

Increased use of ICTs, especially with regard to private initiatives, can have negative consequences in terms of equity or urban planning. Likewise, the safety of mobility may be compromised by new types of risks. Public action must help prevent possible problems based on a clear model that prioritises collective benefits over individual ones.

The following lines of action lay the groundwork for this model. In any case, given that the implementation of ICT is costly in both economic and organisational terms, it is not possible to determine with certainty the terms of these actions.

E.23 Integrated information and communication systems

MEASURE 77

Guarantee a public advice and information service for active mobility

MEASURE 78

Promote digital sharing travel platforms

MEASURE 79

Develop a metropolitan digital platform for the management of the urban distribution of goods

In recent years, digital platforms related to mobility have positioned themselves as an alternative for citizens to get information and choose between the various possibilities or the best way to get from one place to another. The AMB wants to be at the forefront of these platforms in order to facilitate mobility for citizens in different modes of transport, even for the loading and unloading of goods and surface parking.

The promotion of active travel requires the promotion of appropriate information and citizen care systems. Therefore, actions are planned to publicise active mobility itineraries through web and mobile tools. Mechanisms will also be established to channel opinions and suggestions about the cycling network and public space.

On the other hand, the mobility of the future seems to require an increase in the participation of shared travel among citizens. There are now a multitude of private digital platforms that encourage shared travel and mostly cover long-distance travel. Therefore, the AMB will support shared travel web platforms, with the aim of facilitating access and connection between different platforms and optimising and enhancing these services in the metropolitan environment.

Finally, given the opportunity opened up by new technologies in improving the management of the loading and unloading places for urban distribution of goods (DUM) and surface parking, a metropolitan digital platform will be developed for the management of the DUM, which will take advantage of the system implemented in the city of Barcelona and will allow the monitoring and establish a follow-up to the order.

Image 20 Signage of points of interest and walking routes. On the left, at the exit of the Viladecans suburban train station; on the right, in Barcelona



Source: IERMB.

E.24 New mobility monitoring systems

MEASURE 80

Introduce pedestrian mobility monitoring systems

MEASURE 81

Monitor the demand for bicycles

MEASURE 82

Expand knowledge of the logistics and freight transport sector

MEASURE 83

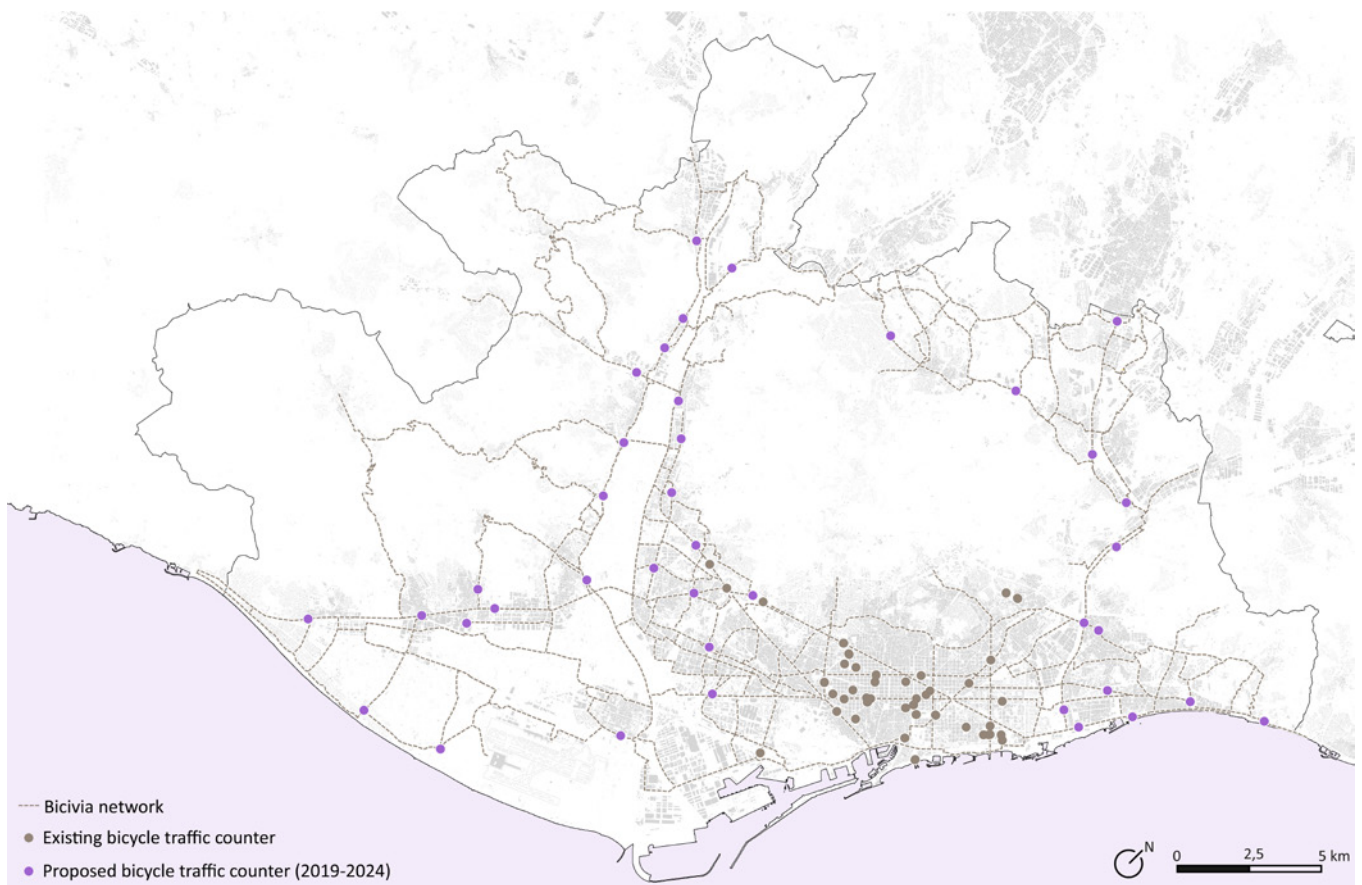
New data collection protocols through new technologies

In order to prioritise active modes, it is absolutely necessary to have information on vectors and variables to monitor their use. Historically, this mobility has suffered from a lack of information or little or no follow-up. Thus, systems for counting pedestrians and bicycles will be progressively introduced, using capacity systems, as a useful tool for the subsequent planning, management and maintenance of public space and cycle paths.

Secondly, despite the importance of the logistics and freight transport sector, there is a widespread deficit of information on their mobility habits and patterns. For this reason, the AMB will promote the drafting of a study on the mobility flows of goods and will work to promote a survey of goods throughout Catalonia.

Finally, the development of ICT and mass databases raises the emergence of new information collection protocols to characterise the mobility and demand of transport networks. The PMMU proposes to obtain an integrated database on which to work and base decision-making. Among others, from the implementation of Wi-Fi / Bluetooth antennas on AMB buses, the development of data exchange protocols between administrations and private entities or from the data generated by the future T-mobilitat.

Map 16 Bicycle demand tracking points



MEASURE 84

Create new collection and return points for goods

MEASURE 85

Encourage and regulate the urban distribution of goods at night and during off-peak hours

MEASURE 86

Promote solutions for reverse logistics

MEASURE 87

Promote new micro-platforms for the urban distribution goods

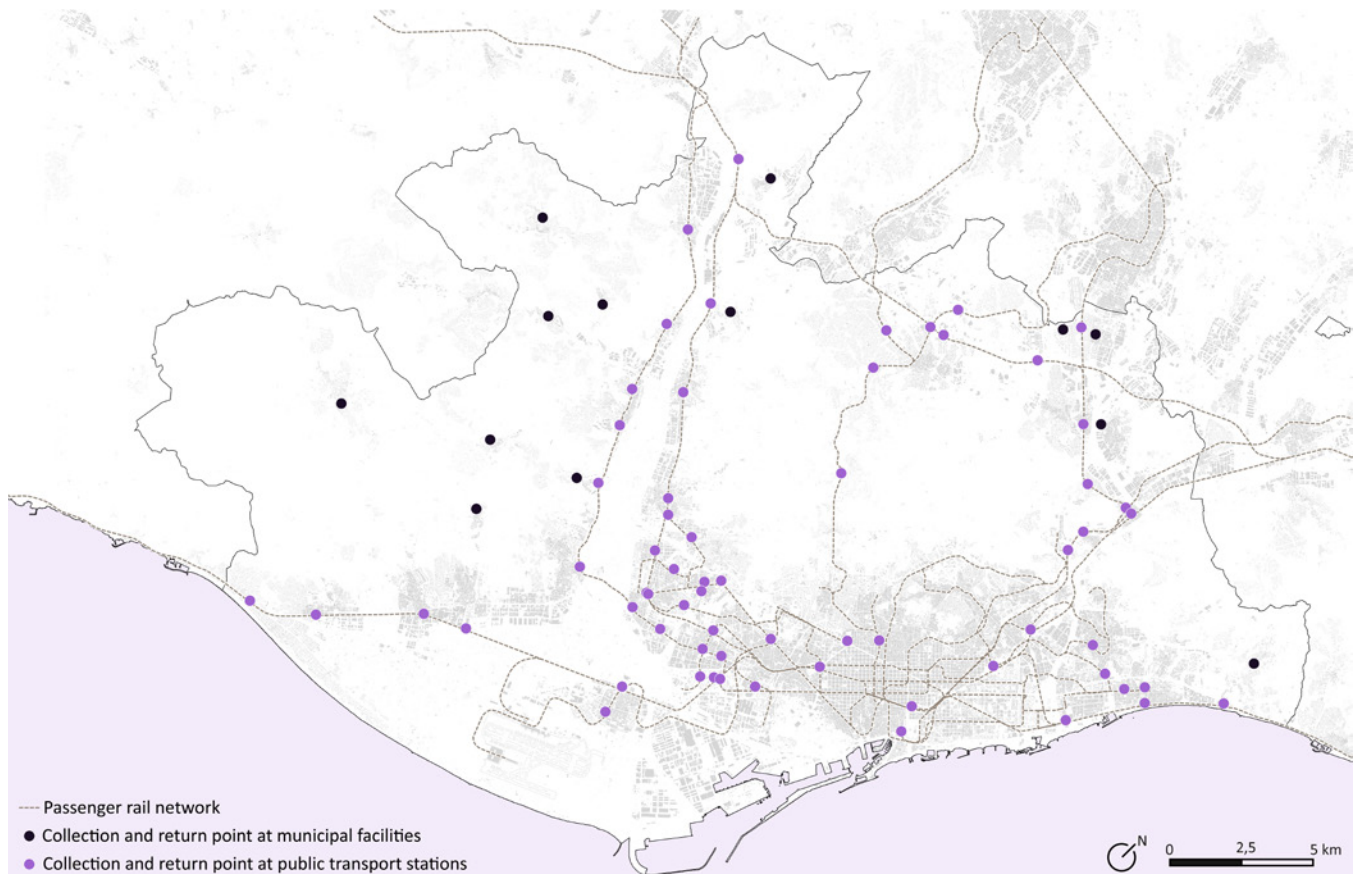
E.25 Optimisation of the management of urban freight transport

Freight transport systems are very flexible and continuously adapt to the expectations of companies and consumers, but this efficiency entails environmental, social and urban externalities. The PMMU works with innovative solutions that should help solve some structural problems of the urban distribution of goods, such as the use of cargo capacity and empty returns or the high concentration of commuting in the morning coinciding with the rush hour flows in cities.

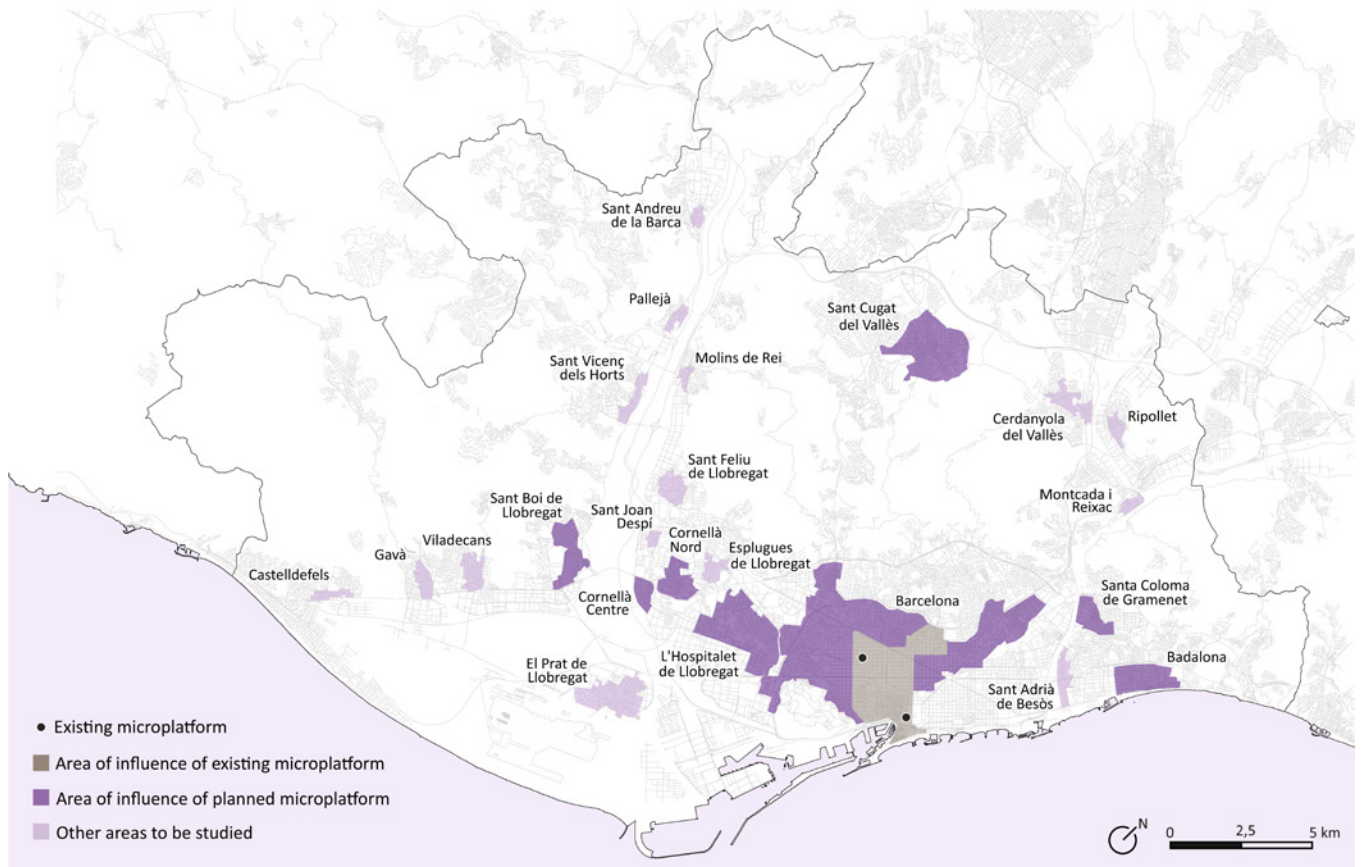
The AMB will promote, in collaboration with the city councils, the creation of new collection and return points for goods to optimise individual deliveries to final consumers, especially those associated with electronic commerce.

In a complementary way and with the aim of reducing daytime congestion, a homogeneous regulation of the urban distribution of goods at night and during off-peak hours in all metropolitan municipalities will be encouraged. At the same time, new solutions are proposed in relation to reverse logistics, to avoid empty transport and promote its importance on both an environmental and operational scale and cost.

Map 17 Proposal for locating collection and return of goods points



Map 18 Micro-platforms for the urban distribution of goods



Finally, the AMB will promote and help implement new micro-platforms for urban distribution of goods, a model that currently already exists in some districts of Barcelona, in which the distribution is done with clean vehicles. Areas have been identified that will focus on finding efficient solutions in terms of good planning of routes, schedules and vehicles and will study the best management model, as well as the number of operators to work with.

E.26 New paradigms of mobility and energy transition

While the emergence of new technologies in mobility can bring benefits to citizens and become an opportunity to improve mobility and even make it more efficient, it could also have negative impacts, particularly due to the lack of an adequate clear regulation (both at regional and central and local level). This is the case for shared mobility and autonomous vehicle.

In recent years, shared mobility integrated into the new paradigm that understands mobility as a service and not as a product, has already become present in the city of Barcelona. In contrast, these systems have been more difficult to implement in the periphery, where demand levels are clearly lower. Anticipating that shared mobility services will be a key element in the mobility model of the metropolises of the future, the AMB will accompany their implementation. On the one hand, it will encourage services to maximise their positive effects and, on the other, it will regulate operations to minimise their possible negative

MEASURE 88

Accompany the implementation of shared mobility services

MEASURE 89

Study the feasibility and potential use of the autonomous and connected vehicle in passenger transport services

MEASURE 90

Promote R&D projects involving low-emission vehicles

effects (excessive or disorderly occupation of public space, excessive competition with public transport or the abandonment of vehicles on the street).

For its part, the gradual introduction of the autonomous vehicle may lead to a new milestone for the development of shared mobility services and increasingly reduce their difference compared to traditional public transport services. Currently, the vehicles on the market already have a certain degree of autonomy and connectivity, but it will be in the coming years when a transformation in this sense could be seen.

As the competent administration in the management and operation of various mobility services, the AMB, in addition to participating in the debates on legislative aspects, wants to study the feasibility of implementing the autonomous vehicle in public transport services and prevent a possible scenario in which the increase in this type of mobility generates more private mobility. In fact, the AMB sees the autonomous vehicle as an opportunity to improve metropolitan public transport. In the scenario of the Plan and in collaboration with other bodies, we want to develop a pilot test of an autonomous bus – with the corresponding sensorisation of the road section – that helps to consider the viability and better define the strategy and decision-making for the coming years.

Finally, in relation to the energy transition and in a complementary way to the measures of Axis B, the AMB will promote or subsidise innovative projects related to low-emission vehicles, or participate financially in them. It will also look for channels and agreements with other administrations and the private sector to promote R&D projects.

Image 21
 Scoot shared electric bike
 in Barcelona



Photo: Mcrit.



AXIS F. Encouraging behavioural change

The PMMU's diagnosis found that public awareness was still weak in relation to the externalities generated by mobility, although it is true that this is beginning to change. It is also known that the change in habits among the population will become more evident as sustainable means can be guaranteed to be competitive in terms of time and demand management measures are introduced in private vehicles. Citizen awareness measures, therefore, must be understood as accompanying measures to the former ones, since they alone cannot guarantee change.

As part of the Plan, the aim is to implement various measures linked to the promotion of sustainable mobility and public awareness, as complementary to those that all administrations will have to promote in order to achieve this change in habits. Among others, the intention is to promote school paths, training the municipal police staff on mobility issues, the promotion of the registration of bicycles or the design of awareness campaigns in relation to active mobility and the logistics sector, goods and e-commerce. In addition, changing habits surrounding travel to the workplace is also considered key. It is a mobility highly dependent on motorised means and, in particular, on the private vehicle (with a car occupancy lower than the average values), with notable socio-environmental impacts.

The measures of this axis will be closely linked to the metropolitan programme of education for sustainability "Compartim un Futur" (We share a future), which aims to raise awareness of the work done by the AMB in terms of sustainability and encourage the participation of citizens in this area. For years, through this programme the AMB has proposed practices that encourage a change in individual consumption decisions, with the aim that they become not only based on economic benefits and in the short term, but also take into account other aspects such as environmental and energy costs and CO₂ emissions.

F.27 Sustainable access to work and mobility generating centres

MEASURE 91

Support for the planning and management of mobility to the workplace and to mobility-generating centres

MEASURE 92

Define new sustainable mobility plans for major events

The problem of travel to the workplace and the mobility of mobility-generating centres has begun to form part of the agendas of various administrations and, in particular, became more evident with the approval of Law 9 / 2003, on mobility. It should be borne in mind that mobility to work, which is 23 % of total metropolitan mobility, represents 48 % of energy consumption and between 48 and 50 % of pollutant gas emissions. Although occasional improvements have been introduced, the reality is that, in general terms, these initiatives have not brought substantial changes.

It should be realised that the fact of moving to work by private vehicle means that all other journeys are also made with this means of transport, as the modal choice of travel is not made separately, but considering all the activities to do throughout the day. Consequently, the Plan includes various actions aimed at implementing mobility management measures in the workplace, as well as in the main centres that generate mobility for shopping, study,

Image 21
Headquarters of the
Barcelona Metropolitan Area



Source: AMB.

MEASURE 93

Encourage incentives to travel to work or school by bicycle

MEASURE 94

Improve the management of discretionary work and school transport

leisure or sports, among others. Grants will be awarded to co-finance projects for the drafting and implementation of projects to improve the mobility generated (work, studies, shopping, sports, leisure, etc.). For its part, the AMB will promote its business travel plan.

In addition, the bases for the drafting of mobility plans for major events will be defined, with the aim of improving both their accessibility and the impact they generate on the overall public transport. Incentives for access to work or school by bicycle, such as the temporary and free transfer of electric bicycles, which are already granted to companies, will also be continued.

We also want to promote a regulatory change that facilitates the shared use of discretionary regular transport between different entities and will work to promote that the time invested in travel for work can be counted within the working day.

F.28 Education for sustainable mobility

MEASURE 95

Define and promote school paths projects

MEASURE 96

Incorporate training in sustainable mobility into the school curriculum

MEASURE 97

Promote the training of Local Police officers in sustainable mobility

The AMB considers it essential to promote education for sustainable mobility among various groups: in children through school paths, in young people by incorporating it into the curriculum or in mobility agents with specific training.

The main focus in the field of education for sustainable mobility will be the promotion of school path projects. It is an initiative that encourages children and young people to make their daily journey from home to school on foot or by bicycle and independently, without having to be accompanied by an adult, and also includes a reflection on the rights of children in the city. The AMB will collaborate with the municipalities in the process of implementing school paths, providing them with a methodology and tools. Preferably, they will be implemented in those centres around which the most serious problems related to accidents or air pollution have been identified.

The incorporation of sustainable mobility training into the school curriculum will be promoted. While there are sustainability issues that are already being addressed in schools, such as recycling, sustainable mobility has not yet achieved the importance it deserves. In the same way, it is necessary to guarantee that Local Police officers –as the first interlocutors

Image 23
Signage of the proximity
of a school in Dr. Moragas
avenue, in Barberà del Vallès



Source: IERMB.

of the citizens on aspects of mobility and road safety– become fundamental actors in the promotion of sustainable modes, such as cycling, and synergies are created between municipal technical departments and other public administrations.

F.29 Awareness and promotion of sustainability in mobility

MEASURE 98

Design and promote awareness and communication campaigns on walking mobility

MEASURE 99

Design and promote campaigns to raise awareness and promote the use of bicycles

MEASURE 100

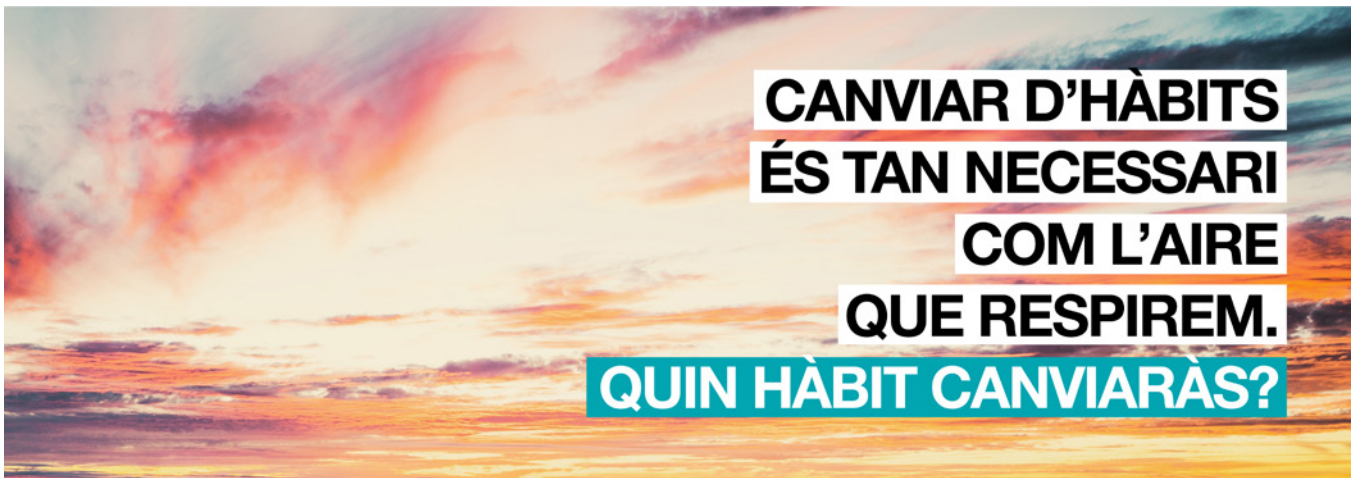
Promote bicycle registration

In order to promote sustainable mobility and lead a culture for change, the measures described so far must be accompanied by other measures to raise awareness and promote sustainability in mobility. It is also necessary to create citizen awareness, since, after all, those who end up deciding how to move are the citizens themselves.

To promote walking, awareness campaigns on its health benefits, promoting the use and dissemination of healthy itineraries, promoting popular walks, among others, will be encouraged. To promote cycling, campaigns will be organised (for example, to prevent theft) and messages will be disseminated that highlight the value of bicycle users.

In addition, the registration of bicycles will be promoted in order to achieve a higher level of registered bicycles than the current one and to guarantee a better management of public car parks and other services related to private bicycles.

Image 24 Image of the AMB's "Changing Habits" campaign



Source: <http://canvidhabits.amb.cat/ca/>.

MEASURE 101

Promote the use of low-emission vehicles (LEV) among citizens, public centres and companies

The AMB will promote the use of LEV among citizens, public centres and companies through awareness and communication campaigns. A space dedicated to LEVs will be created within the AMB website. The AMB will continue to participate closely with public or private platforms and associations, clean vehicles will be temporarily lent to town councils and other resources will be provided to town councils to help them draft specifications for contracting services that use LEV in their fleet.

MEASURE 102

Promote awareness campaigns for the logistics, freight and e-commerce sector

Freight is one of the sectors with the lowest levels of mobility knowledge and in which less pedagogy has been carried out by the administrations, and this is why awareness campaigns will be created aimed at the logistics, goods and e-commerce sector. We want to establish a code of conduct for e-commerce and create awareness that leads to more sustainable consumption and distribution among consumers and businesses.

Table 6 Summary of PMMU strategic axes and action measures

 <p>AXIS A. URBAN MODEL AND METROPOLITAN MOBILITY NETWORKS</p>	A.1 Mobility in urban planning	<ol style="list-style-type: none"> 1. Introduce new criteria for parking in metropolitan urban planning 2. Modify and strengthen regulations for increasing charging facilities 3. Increase the area of land for logistics use and its associated needs 	
	A.2 Basic road network at the service of the metropolitan mobility system	<ol style="list-style-type: none"> 4. Define, prioritise and manage the basic metropolitan road network (XVBM) 5. Improve road network connectivity 6. Road network with bus priority 	
	A.3 Metropolitan connectivity for active mobility	<ol style="list-style-type: none"> 7. Extend the metropolitan network for bicycles (Bicivia) 8. Identify and signal the cycle routes 9. Extend the Bicibox bike parking network 10. Extend the metropolitan public bicycle (e-Bicibox) 11. Implement urban integration, permeability and pedestrian connectivity projects 12. Dignify urban edge areas as a central point of leisure mobility 	
	A.4 Infrastructures to consolidate metropolitan public transport	<ol style="list-style-type: none"> 13. Expand and improve rail infrastructure for passenger transport 	
	A.5 Metropolitan system of multimodal exchange nodes	<ol style="list-style-type: none"> 14. Complete and improve the network of public transport interchanges 15. Bus interchange plan 16. Metropolitan interchange car park system (P+R) 17. High-capacity bicycle parking plan at railway stations 	
	A.6 Infrastructures to organize the transport of goods	<ol style="list-style-type: none"> 18. New road and rail infrastructures for the transport of freight 19. Identify and regulate itineraries for goods vehicles 20. Regulate parking spaces for heavy vehicles 	
 <p>AXIS B. SAFE, HEALTHY AND EQUITABLE SPACES AND STREETS</p>	B.7 Urban habitability and low emission zones (LEZs)	<ol style="list-style-type: none"> 21. Priority areas for action to improve urban liveability 22. Deploy low-emission zones in metropolitan municipalities 23. Deploy and monitor the low emission zone (ZBE Rondes de Barcelona) 	
	B.8 Accessible and inclusive high-quality public space	<ol style="list-style-type: none"> 24. Metropolitan coordination strategy for universal accessibility 25. Improve the design of existing bike lanes 26. Define and implement an urban signalling code for bicycle traffic 27. Improving the conditions of bicycle parking in buildings 28. Implement complementary facilities for spaces for the use of bicycles 	
	B.9 Road safety: vision zero	<ol style="list-style-type: none"> 29. Ensure the safety of walking 30. Reinforce road signs to improve the safety of bicycles on the road 31. Collaborate in the design and implementation of metropolitan road safety policies 	
	B.10 Parking and road pricing model	<ol style="list-style-type: none"> 32. Expand regulated spaces in surface parking 33. Deploy policies for harmonisation and uniform management of regulated parking 34. Homogenise criteria for loading and unloading areas 35. Define a metropolitan road charging policy for use, congestion and pollution 	
	B.11 Low emission vehicles (LEV)	<ol style="list-style-type: none"> 36. Expand the metropolitan network of charging points for low emission vehicles 37. Collaborate in the creation of a metropolitan VNG and LPG network 38. Promote the installation of charging points linked to residential buildings 39. Adapt vehicle taxation to the environmental label 40. Establish measures to encourage the use of low-emission vehicles 41. Grant subsidies for new clean vehicles and electric bicycles 	
	 <p>AXIS C. INTEGRATING, EFFICIENT AND QUALITY PUBLIC TRANSPORT</p>	C.12 Improving bus and rail services in the metropolitan area	<ol style="list-style-type: none"> 42. High-performance metropolitan bus network 43. Commercial bus speed improvement plan 44. Plan to improve the bus offer during the summer 45. Plan to improve the bus offer on public holidays 46. Plan to improve the bus offer at night and weekends 47. Second metropolitan ring bus service improvement programme 48. Programme of improvements in transport services in unique locations 49. On-demand transport network 50. Plan to improve the offer of the metro and bus service under direct management 51. Monitoring of maintenance actions on other railway networks (FGC and Rodalies Renfe)
		C.13 Public transport fleets and more sustainable and efficient facilities	<ol style="list-style-type: none"> 52. Making the metropolitan bus fleet and depots environmentally friendly

C.14 Public transport for everyone

- 53. Improving the environment and accessibility to public transport stops and stations
- 54. Improving transport services adapted to functional diversity
- 55. Support programme for potential users of public transport
- 56. Encourage on-demand stops for women or other vulnerable groups

C.15 Homogenisation of the image and information of mobility services

- 57. Standardise the brand image of the AMB's indirectly managed services
- 58. Plan for centralisation and homogenisation of information relating to the service

C.16 Pricing system sensitive to the socio-environmental context

- 59. Improve the fare structure and simplify the travel card system
- 60. Improvement and restructuring of metropolitan social pricing
- 61. New proposals for environmental charging for public transport
- 62. New types of transport travel cards for visitors

C.17 Attractive and competitive metropolitan taxi

- 63. Taxi rank plan
- 64. Digitise the fleet and create a hub in which the taxi service apps participate
- 65. Environmental renovation and adaptation of the metropolitan taxi fleet to people with reduced mobility
- 66. Control of emissions in the taxi sector

C.18 Bicycles on public transport

- 67. Establish common criteria for bicycle access to metropolitan public transport



AXIS D. EFFICIENT AND FLEXIBLE GOVERNANCE OF METROPOLITAN MOBILITY

D.19 Governance and inter-administrative agreement

- 68. Transfer the management of all surface urban transport to the AMB
- 69. Deploy the regulatory framework for the operating conditions of urban VTC services
- 70. Design new channels of dialogue with the actors involved in the transport of goods

D.20 Metropolitan integration of municipal policies

- 71. Coordinate municipal level PMUS with the PMMU
- 72. Improve the regulatory framework of active mobility and personal mobility vehicles
- 73. Coordinate policies to promote low-emission vehicles

D.21 Metropolitan strategy for tourist mobility

- 74. Improve the management of metropolitan tourist mobility
- 75. Promote itineraries and circuits of tourist, cultural or recreational interest

D.22 Financing of public transport

- 76. Agree on the sources of financing for public transport



AXIS E. INTELLIGENT MOBILITY MANAGEMENT

E.23 Integrated information and communication systems

- 77. Guarantee a public advice and information service for active mobility
- 78. Promote digital sharing travel platforms
- 79. Develop a metropolitan digital platform for the management of the urban distribution of goods

E.24 New mobility monitoring systems

- 80. Introduce pedestrian mobility monitoring systems
- 81. Monitor the demand for bicycles
- 82. Expand knowledge of the logistics and freight transport sector
- 83. New data collection protocols through new technologies

E.25 Optimization of the management of urban freight transport

- 84. Create new collection and return points for goods
- 85. Encourage and regulate the urban distribution of goods at night and during off-peak hours
- 86. Promote solutions for reverse logistics
- 87. Promote new micro-platforms for the urban distribution goods

E.26 New paradigms of mobility and energy transition

- 88. Accompany the implementation of shared mobility services
- 89. Study the feasibility and potential use of the autonomous and connected vehicle in passenger transport services
- 90. Promote R&D projects involving low-emission vehicles



AXIS F. ENCOURAGING BEHAVIOURAL CHANGE

F.27 Sustainable access to work and mobility generating centres

- 91. Support for the planning and management of mobility to the workplace and to mobility-generating centres
- 92. Define new sustainable mobility plans for major events
- 93. Encourage incentives to travel to work or school by bicycle
- 94. Improve the management of discretionary work and school transport

F.28 Education for sustainable mobility

- 95. Define and promote school paths projects
- 96. Incorporate training in sustainable mobility into the school curriculum
- 97. Promote the training of Local Police officers in sustainable mobility

F.29 Awareness and promotion of sustainability in mobility

- 98. Design and promote awareness and communication campaigns on walking mobility
- 99. Design and promote campaigns to raise awareness and promote the use of bicycles
- 100. Promote bicycle registration
- 101. Promote the use of low-emission vehicles (LEV) among citizens, public centres and companies
- 102. Promote awareness campaigns for the logistics, freight and e-commerce sector

6. THE CONTRIBUTION TO THE ACHIEVEMENT OF THE MOBILITY MODEL

In order to carry out the strategic assessment process to which mobility planning instruments must be submitted, in compliance with the provisions of Law 21/2013, of 9 December, on environmental assessment, the PMMU has included the elaboration of several documents that accompany the Plan in its different phases. Specifically, the Strategic Environmental Study (EAE) provides information on the measures that contribute most to the achievement of the Plan's strategic objectives. Broadly speaking, two evaluation methodologies have been followed:

- Quantitative evaluation: comparison of indicators between the 2016 baseline scenario (0), the 2024 trend scenario (1), the prospective scenarios and the 2024 proposal scenario (5).
- Qualitative assessment: calculation of the environmental impact index for each of the lines of action of the Plan.

For the quantitative evaluation, a comparison of indicators between different scenarios has been made. On the one hand, the trend scenario (1) has been defined, which is the future scenario in which no significant intervention is planned by any administration with respect to the reference scenario, in 2016. To calculate it, the predictable evolution of the following variables has been considered:

- Social and macroeconomic variables: aging of the metropolitan population due to the prolongation of life expectancy and the decrease in the birth rate, and the growing pace of the economy.
- Mobility variables: mobility growth of 7.2 % (4.9 % walking, 27.2 % cycling, 8.7 % public transport and 8.1 % private vehicle), similar to periods of economic growth, and growth in freight mobility by 4.6 % per year, following the trend in the evolution of heavy vehicle traffic in recent years.
- Vehicle fleet: growth of petrol and clean fuel vehicles and decrease in diesel vehicles.
- Environmental variables: increase in the number of vehicles per kilometre travelled, energy consumption and road CO₂ emissions, but decrease in NO_x, NO₂, PM₁₀ and PM_{2.5} emissions.

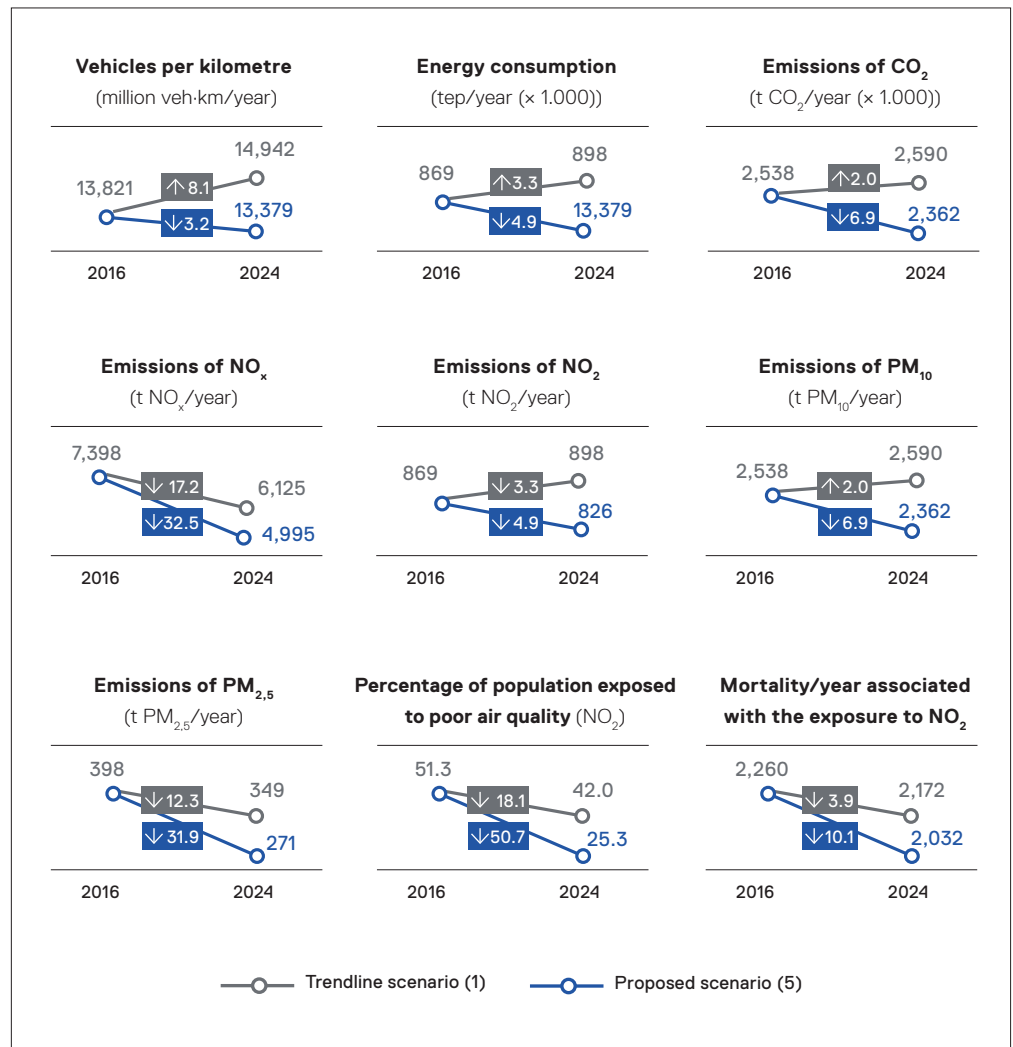
On the other hand, three prospective scenarios (2), (3) and (4) alternatives to the trend have been developed, which serve to better guide the final proposal of the Plan. These alternative scenarios provide, on the one hand, for “substantive measures”; common to all scenarios, i.e. measures that already exist or are being implemented in the metropolitan area, and on the other hand, for “complementary measures”; which will be the ones that mark the differences between the future scenarios.

- Energy efficiency scenario (2)
- Modal shift scenario (3)
- Energy efficiency and modal shift scenario (4)

The results of the environmental assessment for each scenario show the greatest approximation to the objectives of the mobility model of the joint scenario of energy efficiency and modal change. Consequently, the described, and most relevant, measures of the Plan are oriented along the line of this scenario, but with more intensity in the introduction of some complementary measures, such as the pricing of private vehicle usage, the restrictions to the most polluting vehicles and road pacification. This new scenario is that of the Plan and is called the proposed scenario (5).

The values of the main indicators of sustainable mobility and healthy mobility in the 2016 baseline scenario (0), the trend scenario (1) and the proposed scenario (5) are compared below. The results show that a reduction of 3.2 % in the number of vehicles per kilometre in private vehicles will be achieved in 2024. This reduction is the result, among others, of a modal shift of travel by private vehicle to public transport, cycling or walking, and an increase in the number of occupants in private vehicles. Regarding the indicators related to the sustainability of the mobility model, energy consumption and CO₂ emissions, they also show a reduction of 5 % and 7 %, respectively, from the base scenario. In addition, an overall reduction in NO₂ and PM emissions of approximately 30 % is achieved. Reducing emissions of principal local pollutants improves the air quality of the territory and reduces the population exposed to poor air quality by 50 %. In terms of mortality associated with exposure to NO₂ emission levels, the proposed scenario of the Plan reduces annual mortality by 10 %.

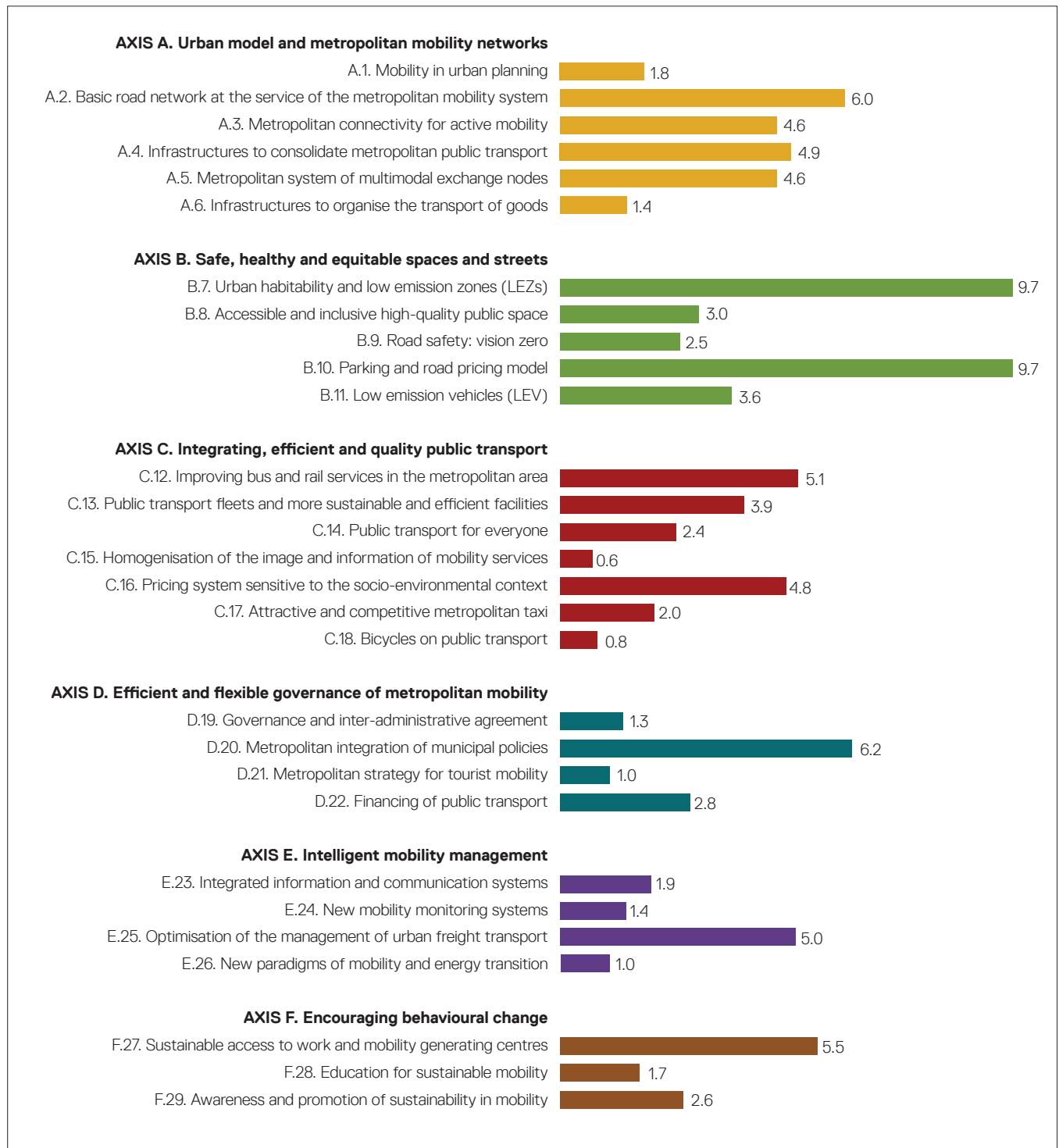
Graph 5
Variation of the established quantitative evaluation indicators of the PMMU



Source: MCRIT, ISGLOBAL and IERMB.

Secondly, the calculation of the socio-environmental impact index for each of the strategic lines is carried out in order to identify those that contribute most to achieving the objectives of the Plan. To calculate it, the potential influence of the measures included in each line of action on the indicators of the socio-environmental sub-objectives of the Plan is evaluated following the qualitative methodology described in the EAE.

Graph 6 Socio-environmental impact index of the PMMU's lines of action



Source: IERMB.

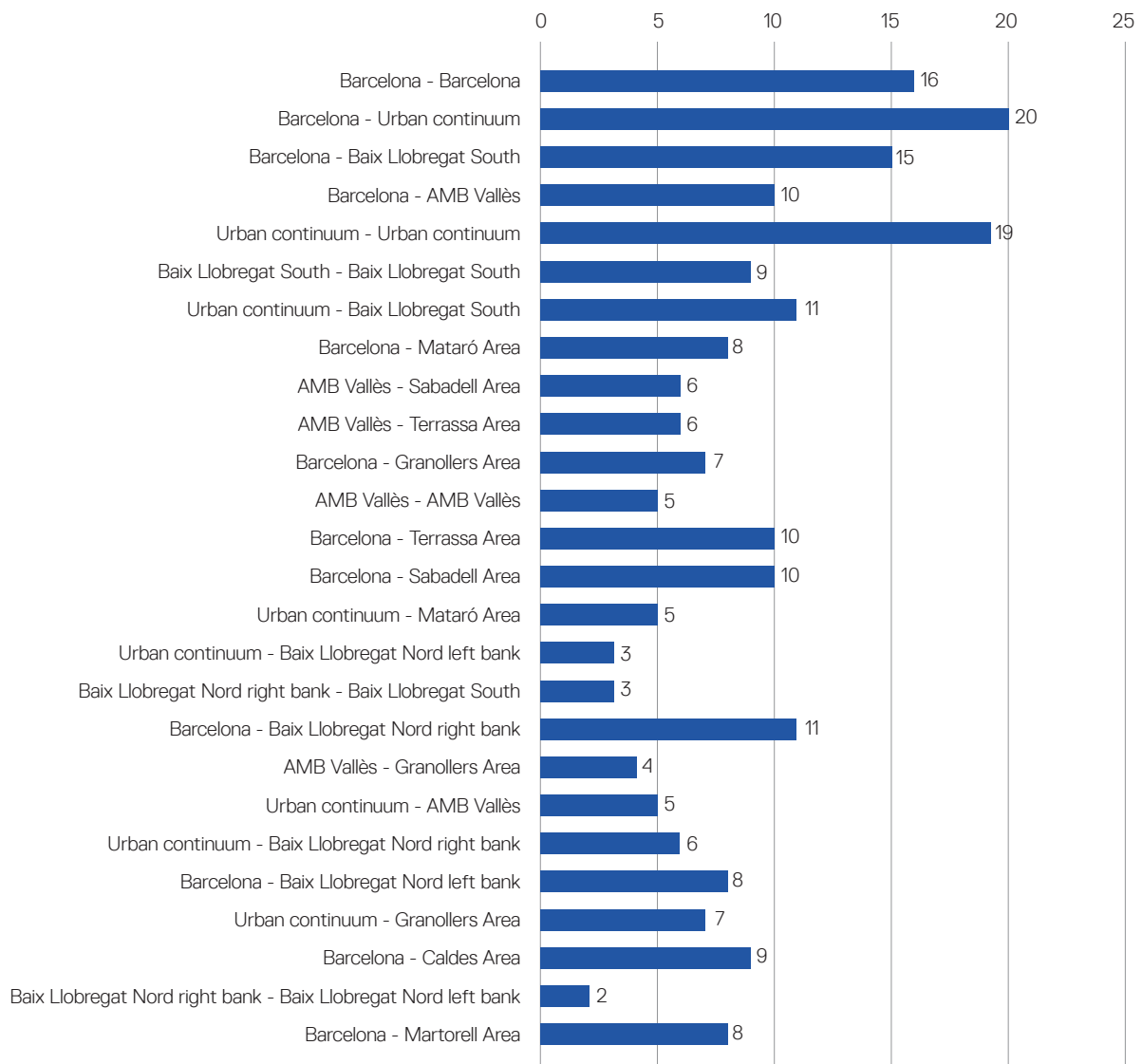
The results argue that the measures of Axis B “Safe, healthy and equitable spaces and streets” are those that show the most significant positive impact on the assessed socio-environmental objectives. Of particular relevance are lines of action B.7 “Urban habitability and low-emission zones” and B.10 “Parking and toll model in the service of healthy mobility”. In addition, the positive impact that the application of the actions proposed on axis A “Urban model and metropolitan mobility networks” would have is relevant, especially with regard to line A.2 “Basic road network at the service of the metropolitan mobility system”.

We can also highlight the role played by the actions planned in Axis C “Basic road network at the service of the metropolitan mobility system”, the line of action C.12 particularly “Improvement of bus and rail services in the metropolitan area”. With regard to the three remaining axes (D, E and F), although they have a comparatively lower relevance than the axes mentioned above, they include star lines that could have a very significant impact on the fulfilment of socio-environmental objectives. We refer specifically to line D.20 “Metropolitan integration of municipal policies”, line E.25 “Optimising the management of urban freight transport” and line F.27 “Sustainable access to employment and mobility generating centres”.

Finally, in the socio-environmental diagnosis of mobility (base scenario 2016) the main inter-municipal flows of private vehicles are identified, between municipalities of the AMB and their connections with the rest of the metropolitan region of Barcelona (164 municipalities in total). In addition, the internal flows of Barcelona are incorporated, given the volume that these daily trips represent. These mobility flows support a volume of daily journeys by private vehicle equal to or greater than 20,000.

For these mobility flows, an exercise is carried out to assess the environmental impact of the PMMU’s measures and lines of action, in particular, with the aim of reducing the volume of private vehicles circulating there. It is a necessarily qualitative exercise and, due to its nature, it is limited only to the measures and lines of action that have a greater impact in achieving the socio-environmental objectives and sub-objectives of the Plan, i.e. those with a socio-environmental impact index equal to or greater than four (moderate-high environmental impact). The evaluation is based on the criteria of the members of the drafting team of the EAE.

Graph 7 Spatialised evaluation of the measures and lines of action of the PMMU



Notes:

The graph displays the impacts of the main measures of the PMMU (only measures with a medium-high (≥ 4) socio-environmental impact) on major motorised private traffic flows within the metropolitan area. The scores reflect a qualitative evaluation that indicates the potential reduction in vehicles-km which is anticipated as a result of applying the PMMU measures (higher score = greater reduction in vehicles-km).

The municipalities of the AMB are grouped in the following areas:

Baix Llobregat Nord left bank: Castellbisbal, Molins de Rei, El Papiol and Sant Feliu de Llobregat.

Baix Llobregat Nord right bank: Cervelló, Corbera de Llobregat, Pallejà, La Palma de Cervelló, Sant Andreu de la Barca, Sant Climent de Llobregat, Sant Vicenç dels Horts, Santa Coloma de Cervelló and Torrelles de Llobregat.

Baix Llobregat South: Begues, Castelldefels, Gavà, El Prat de Llobregat, Sant Boi de Llobregat and Viladecans.

Urban continuum: Badalona, Cornellà de Llobregat, Esplugues de Llobregat, L'Hospitalet de Llobregat, Sant Adrià de Besòs, Sant Joan Despi, Sant Just Desvern and Santa Coloma de Gramenet.

AMB Maresme: Montgat and Tiana.

AMB Vallès: Badia del Vallès, Barberà del Vallès, Cerdanyola del Vallès, Montcada i Reixac, Ripollet and Sant Cugat del Vallès.

The areas of Granollers, Martorell, Mataró, Terrassa and Caldes include groups of municipalities from the rest of the metropolitan region of Barcelona. The areas of Vilafranca del Penedès and Vilanova i la Geltrú have also been considered, although they have less than 20,000 daily trips by private vehicle in the corridors with the AMB.

Source: IERMB.

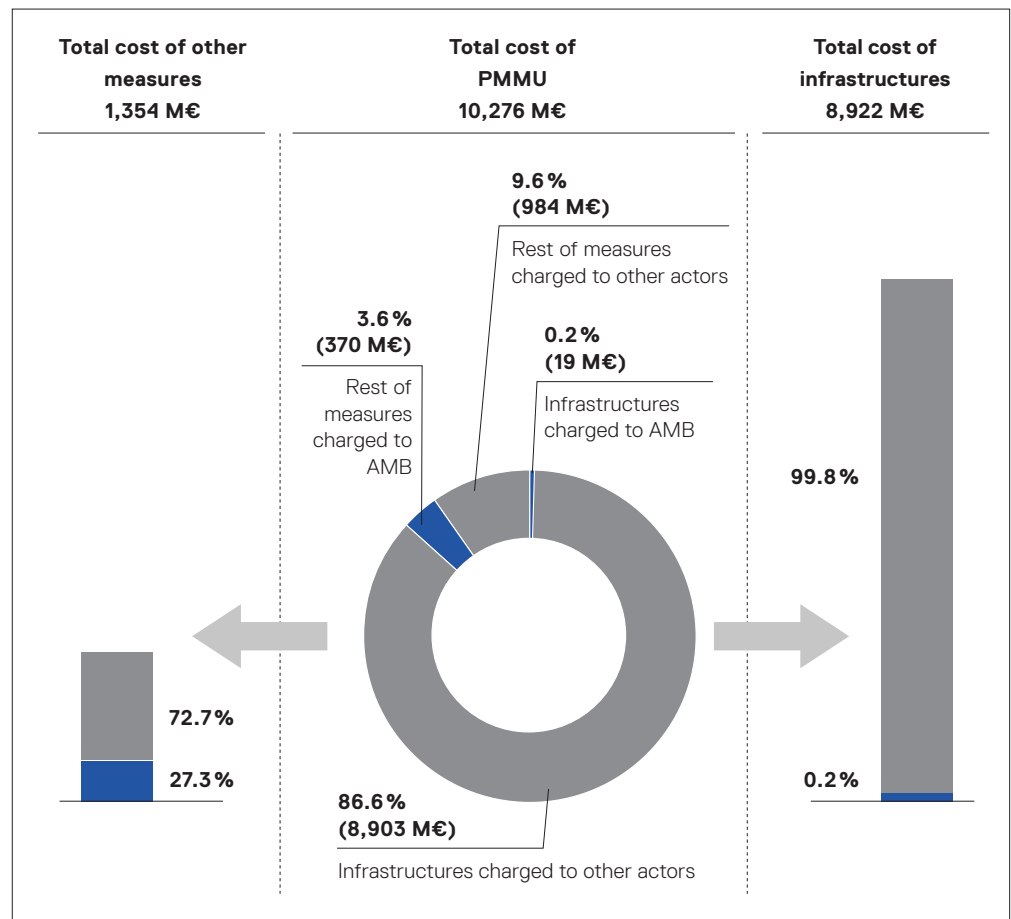
7. MANAGEMENT OF THE PLAN

In order to guarantee the execution and fulfilment of the objectives of the Plan, various management mechanisms are established. This management is structured in three major blocks: economic valuation and time scheduling; monitoring and evaluation, and institutional coordination and collaboration with metropolitan municipalities.

Economic valuation and temporal schedule

The approximate cost of the actions planned in the PMMU 2019-2024 – regardless of the actor who assumes the cost – is estimated at 10,276 million euros. Infrastructure spending is the highest (8,922 million euros) and accounts for 86.8 % of the total. The remaining measures (1,354 million euros), of management, maintenance and operation, represent 13.2 % of the cost of the Plan.

Graph 8
 Distribution of the cost of the PMMU 2019-2024, according to the responsible actor



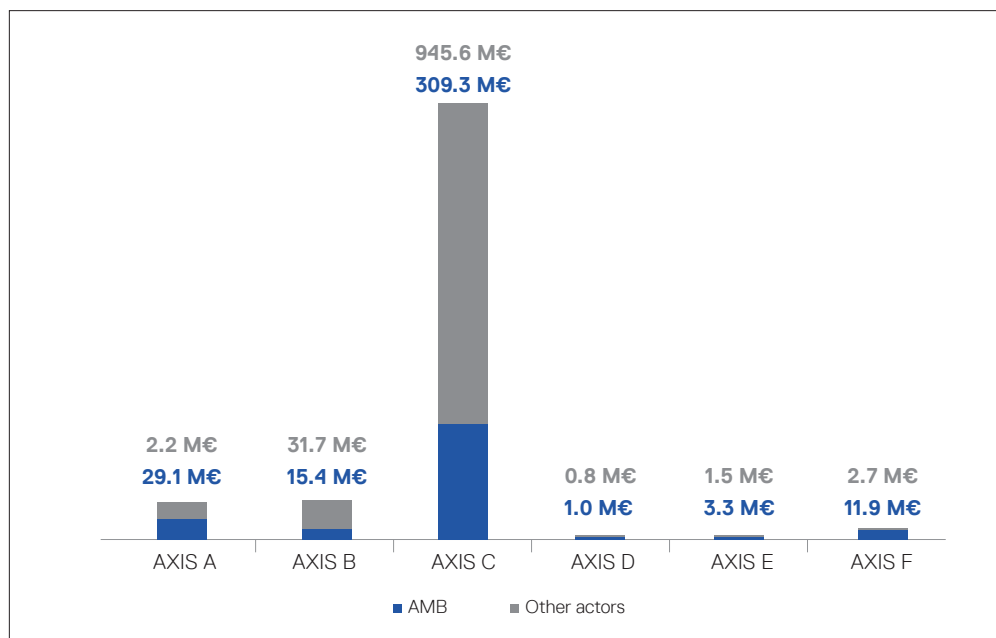
Of the 10,276 million euros that the implementation of the PMMU measures would entail in six years, 3.8 % (389.19 million euros) would have to be assumed by the AMB. The rest of the expenditure must be borne mainly by the metropolitan councils, the Government of Catalonia and the General State Administration. The contribution of the AMB is more noteworthy in all other measures (370 million euros) than in infrastructure (19 million euros). These figures, therefore, highlight the need for the different administrations with competences to work together to ensure that mobility in the metropolitan area is in line with the objectives of the PMMU. This is a reality that should not be underestimated, but

which is mainly the result of the powers that each administration has over its territory, infrastructure or services and, in any case, should not be a barrier to the implementation of the measures of the Plan.

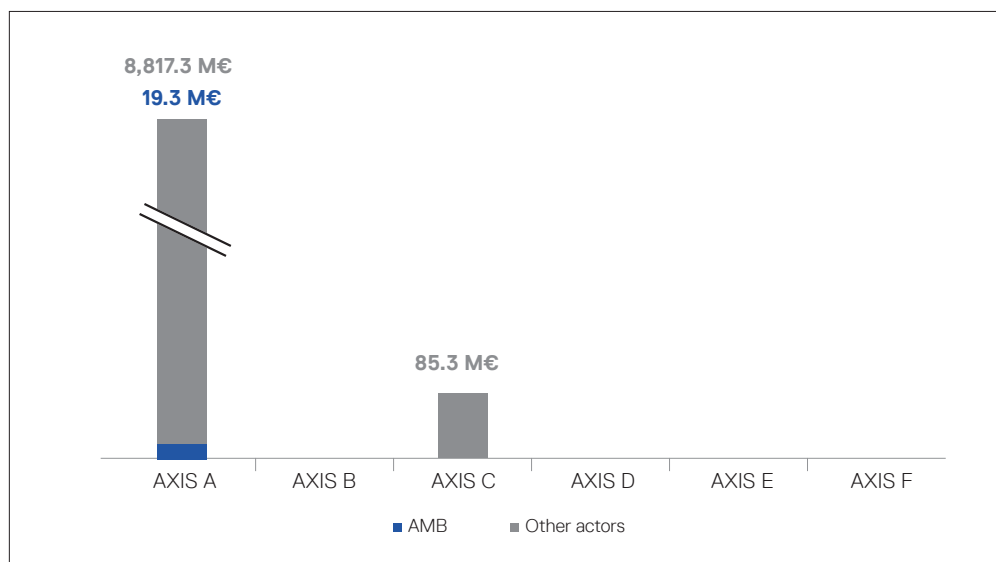
The contribution to the cost of the plan is not homogeneous for each axis of the PMMU. The cost of infrastructure, which is the major part, has more than 99 % concentrated in axis A, and of which more than 99.7 % should be borne by an actor other than the AMB. In terms of the cost of other measures (non-infrastructure), the C axis represents the largest contribution from the AMB (309.3 million euros). However, in this axis, 75.4 % of the cost should be borne by an actor other than the AMB.

Finally, the cost associated with axes B, D, E and F does not reach 1% of the total estimated by the PMMU in these six years, and none of these actions will be infrastructures. In these axes, however, the contribution of the AMB will be significantly higher than the other actors (93.0 % on axis B, 55.6 % on axis D, 68.4 % on axis E and 81.7 % on axis F).

Graph 9
 Estimated cost of the PMMU 2019-2024 by axes (other measures)



Graph 10
 Estimated cost of the PMMU 2019-2024 by axes (infrastructures)



For each of the measures, an estimate has been made of the time schedule in which they are expected to be implemented. The PMMU’s calendar has a six-year horizon, and therefore measures and actions have been sought to be limited to this period. However, some contain actions that are expected to last beyond 2024, mainly through negotiations and agreements with other agents and administrations, for the study and construction of large infrastructures already scheduled or for the maintenance and continuation of services, transport and mobility.

Below is a summary of the time schedule based on the strategic lines, in which the colour intensity varies depending on the year, and is more intense where there are more measures scheduled for that year.

Table 7 Temporary programming of the PMMU

Lines of action		2019	2020	2021	2022	2023	2024	+2024
AXIS A	A.1. Mobility in urban planning							
	A.2. Basic road network at the service of the metropolitan mobility system							
	A.3. Metropolitan connectivity for active mobility							
	A.4. Infrastructures to consolidate metropolitan public transport							
	A.5. Metropolitan system of multimodal exchange nodes							
	A.6. Infrastructures to organise the transport of goods							
AXIS B	B.7. Urban habitability and low emission zones (LEZs)							
	B.8. Accessible and inclusive high-quality public space							
	B.9. Road safety: vision zero							
	B.10. Parking and road pricing model							
	B.11. Low emission vehicles (LEV)							
AXIS C	C.12. Improving bus and rail services in the metropolitan area							
	C.13. Public transport fleets and more sustainable and efficient facilities							
	C.14. Public transport for everyone							
	C.15. Homogenisation of the image and information of mobility services							
	C.16. Pricing system sensitive to the socio-environmental context							
	C.17. Attractive and competitive metropolitan taxi							
	C.18. Bicycles on public transport							
	AXIS D	D.19. Governance and inter-administrative agreement						
D.20. Metropolitan integration of municipal policies								
D.21. Metropolitan strategy for tourist mobility								
D.22. Financing of public transport								
AXIS E	E.23. Integrated information and communication systems							
	E.24. New mobility monitoring systems							
	E.25. Optimisation of the management of urban freight transport							
	E.26. New paradigms of mobility and energy transition							
AXIS F	F.27. Sustainable access to work and mobility generating centres							
	F.28. Education for sustainable mobility							
	F.29. Awareness and promotion of sustainability in mobility							

Monitoring and evaluation of the Plan

The main instrument for monitoring and evaluating the Plan will be the annual monitoring report of the Plan, which will have a dual purpose:

- Monitor the completion of the objectives of the Plan, anticipate possible deviations and establish corrective mechanisms, if necessary.
- Analyse the progress in the implementation of the measures to know the degree of execution and the completion of the planned calendar.

With regard to the first point, as we have seen, the mobility model is based on four strategic pillars: health, sustainability, efficiency and equity, which will be assessed using 22 evaluation indicators. However, 30 follow-up indicators are foreseen in a complementary way. This is because the main evaluation indicators cannot be calculated annually, but they are expected to be updated approximately every three years (to obtain them, the mobility impact assessment model will need to be updated along with consumption and emissions to the atmosphere). For this reason, the annual monitoring indicators of the Plan will make it possible to know the progress of the Plan and the effectiveness of the proposed measures (these indicators are included in the section “Future mobility model for the metropolitan area: strategic view”).

The second purpose of the annual monitoring report of the Plan is to analyse the degree of execution of the measures. The work and actions that have been carried out will be explained and, as far as possible, a qualitative and quantitative assessment will be made of each one. In fact, virtually all PMMU measures include one or more monitoring indicators that will allow them to observe the degree of completion. These indicators may be reformulated as they are monitored and the available sources of information improve.

In order to draft monitoring reports and have an efficient exchange of information, the active participation of agents and administrations (particularly metropolitan councils) who have any responsibility or involvement in the Plan will be requested. Therefore, it will be necessary to systemise the channels of communication with the administrations and to elaborate some templates with the values that want to collect that are homogeneous for all the metropolitan city councils and constant over time.

Recommendations for modal split in metropolitan municipalities

In addition to the monitoring that can be carried out based on the strategic indicators and monitoring of the Plan, guidelines are proposed for the modal split in metropolitan municipalities to be achieved by 2024. To do this, the municipalities have been grouped according to the territorial corridor to which they belong, the public transport offer and the starting values of the modal distribution of their residents. The recommended value is established based on the modal share of active modes and public transport. Two categories of municipalities have been defined:

- Municipalities where the current value is lower than the average value of the grouping of municipalities to which they belong. For these municipalities, it is recommended that they reach the average value of the grouping of municipalities by 2024 (indicated in dark shaded).

- Municipalities where the current value exceeds the average value of the grouping of municipalities to which they belong. For these municipalities, it is recommended that they reach the maximum value of the grouping of municipalities by 2024 or to maintain or improve the current value (indicated in light shaded).

Table 8 Modal distribution recommended in metropolitan municipalities

Corridor	Municipalities	Active modes (% residents) 2011/2013	Public transport (% residents) 2011/2013	Private transport (%) 2011/2013	Modal share recommendation for active modes + public transport
Barcelona (urban continuum)	Barcelona	53.0	28.0	19.0	
Urban continuum	Badalona	56.0	21.0	23.0	
Urban continuum	Cornellà Llobregat	57.0	22.0	21.0	≥ 80 %
Urban continuum	Esplugues de Llobregat	52.0	23.0	26.0	≥ 83 %
Urban continuum	L'Hospitalet de Llobregat	57.0	25.0	17.0	
Urban continuum	Sant Adrià del Besòs	54.0	26.0	20.0	
Urban continuum	Santa Coloma de Gramanet	65.0	19.0	17.0	
Baix Llobregat Nord right bank	Sant Andreu de la Barca	50.9	8.7	40.4	
Baix Llobregat Nord right bank	Sant Vicenç dels Horts	47.1	10.1	42.8	≥ 51 %
Baix Llobregat Nord right bank	Pallejà	37.7	8.5	53.9	≥ 60 %
Baix Llobregat Nord right bank	Santa Coloma de Cervelló	27.5	15.0	57.5	
Baix Llobregat Nord right bank	Cervelló	21.6	7.7	70.7	
Baix Llobregat Nord right bank	Corbera de Llobregat	20.0	9.3	70.7	
Baix Llobregat Nord right bank	Sant Climent de Llobregat	24.5	9.6	66.0	
Baix Llobregat Nord right bank	Torrelles de Llobregat	19.6	10.1	70.3	≥ 35 % ≥ 47 %
Baix Llobregat Nord right bank	La Palma de Cervelló	35.1	12.2	52.7	
Baix Llobregat South	Begues	29.0	9.6	61.4	
AMB Maresme	Tiana	22.7	14.2	63.1	
Baix Llobregat Nord left bank	Sant Feliu de Llobregat	53.6	13.3	13.3	
Urban continuum	Sant Joan Despí	42.9	19.5	19.5	≥ 59 % ≥ 67 %
Urban continuum	Sant Just Desvern	32.8	16.3	16.3	
Baix Llobregat Nord left bank	Molins de Rei	49.9	12.9	37.2	
Baix Llobregat Nord left bank	El Papiol	36.7	13.4	50.0	≥ 53 % ≥ 63 %
Baix Llobregat Nord left bank	Castellbisbal	36.7	8.0	55.3	
Baix Llobregat South	Sant Boi de Llobregat	60.4	11.6	28.0	
Baix Llobregat South	Viladecans	57.1	10.7	32.2	
Baix Llobregat South	El Prat de Llobregat	62.2	14.0	23.7	≥ 65 % ≥ 76 %
Baix Llobregat South	Castelldefels	39.7	15.8	44.5	
Baix Llobregat South	Gavà	50.7	11.2	38.1	
AMB Maresme	Montgat	30.9	24.1	45.0	
AMB Vallès	Montcada i RAXISac	47.3	15.4	15.4	
AMB Vallès	Sant Cugat del Vallès	35.6	18.9	18.9	≥ 60 % ≥ 63 %
AMB Vallès	Cerdanyola del Vallès	54.0	8.3	8.3	
AMB Vallès	Barberà del Vallès	60.8	7.8	31.4	
AMB Vallès	Badia del Vallès	61.3	9.0	29.7	≥ 69 % ≥ 70 %
AMB Vallès	Ripollet	62.4	6.9	30.7	

Source: Metropolitan Mobility Database 2011/2013 (AMB) and Mobility Survey on weekdays 2011 and 2013 (ATM, Barcelona City Council and AMB).

Institutional coordination and collaboration with metropolitan municipalities

Mobility is one of the strategic vectors for building a sustainable, equitable and healthy metropolis, and involves a wide range of actors. In order to obtain effective policies, achieve the objectives of the PMMU and develop all the measures of the Plan, a continuous cooperation between all these actors is necessary either through a good inter-administrative coordination or with a correct participation with the other social agents involved. Due to this, the AMB proposes three levels of governance, which involve private actors and administrations: internal governance in the AMB, institutional governance and social governance through the AMB Mobility Council.

Internal governance in the AMB

Within the metropolitan administration there will be various channels of coordination and participation to seek support in decision-making, both in the technical and political field, as well as for coordinating the deployment of measures, where other areas of the AMB are involved. Coordination with metropolitan policies on urban planning, public space, climate change, social and economic development and taxi will be especially necessary.

Institutional governance

Many of the measures in the Plan require, in order to be developed, a shared responsibility between the AMB and other agents (mainly the metropolitan councils, the Government of Catalonia, the Barcelona Provincial Council, the Ministry of Public Works, and the Metropolitan Transport Authority). Good multilevel cooperation will be crucial to ensure success and a high degree of implementation during the Plan period. Consequently, continuous monitoring commissions will be established (both political and technical), as well as non-permanent ones created for the development of more specific projects.

In particular, good coordination with metropolitan municipalities will also be key, so that municipal mobility policies can be developed within the framework of a metropolitan vision or dimension. In other words, collaboration will be very necessary to develop shared projects and to ensure that the different municipal initiatives do not become incompatible schemes within the metropolitan area. This necessary coordination, in fact, has been made more explicit in measure 71 of this Plan: "Coordinate municipal level PMUS with the PMMU".

Social governance through the AMB Mobility Council

The AMB Mobility Council, in operation since 2016, is an advisory body that brings together the metropolitan social agents involved in mobility. It aims to establish a solid and consensual basis for drawing up and making a much cleaner, sustainable and equitable mobility a reality. In this space, the AMB will provide information on the work related to the PMMU, whether it is studies, new projects to be implemented, achievement of the objectives of the Plan or agreements reached with other institutions, among others. For its part, the AMB will be nourished by the experiences, assessments and reflections of the members of the Board.

In accordance with the operating regulations, permanent or one-off commissions may be established to deal with sectorial issues of metropolitan mobility. In particular, the creation of a specific workspace on mobility and accessibility with the federations representing all disabilities is proposed



PUBLICACIONS
PMMU 06