Sustainable Urban Mobility Plan (SUMP) of Terrassa 2016-2021

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Àrea de Territori i Sostenibilitat
Gerència de Serveis d'Infraestructures Viàries i Mobilitat
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1. FROM THE BACKGROUND TO THE NEW SUSTAINABLE URBAN MOBILITY PLAN (2016-2021)

Object and background

The Catalan Law 9/2003, of 13 of Jun, of Mobility indicates that the Urban Mobility Plan is the tool that defines the updates for guarantee the accessibility and the mobility of the people in the city every 6 years (because the plan has to be revised minimum every 6 years).

Terrassa has previous experience dealing with mobility planning. The **Urban Mobility Plan of 2003** (previous to the Mobility Law 9/2003) was the first change towards a more sustainable mobility scheme, that tried to strengthen the centrality of the city and the micro-centralities of the neighborhoods, all of them connected through a road and street network that fosters the non mechanized means of mobility.

The PMUS 2003 had a series of references that guides the criteria and measures to apply.

There are four city Plans developed altogether (The Action Plan for the Sustainable Energy, The Urban Mobility Plan, The Air Quality Improvement Plan and Noise Strategic Plan). The four have a common mobility strategy in order to achieve the objectives against climate change and the improvement of the environment quality of the city.

The new SUMP: Basic characteristics

Taking into account the previous explained background, the new sustainable urban mobility plan established the action plan for 2016-21, incorporate a group of measures in order to reduce the accident rate, the noise and the energy consumption, an improvement in environmental quality and the habitability of the streets. Also wants to increase the autonomy of the children, the elders and the disabled people. For getting these objectives the plan considers:

1. To implement an **Urban protected atmosphere zone (ZUAP)** in the city center and turns the neighborhood streets in walkable streets in favor of people and social relations as leisure, games, stay, etc.

2. Suggest to rebalance the **Public space** allocating more space to pedestrians, bicycles and public transport, because nowadays, the 66% of the street space is used for vehicles circulation and parking and only 34% for the pedestrians when the 60% of the internal mobility is caused by them.

3. Promote the feeling of **proximity**, making the perceived distances shorter thanks to improvements in comfort and accessibility of the streets as bigger sidewalks, putting more benches and trees, or only giving more space to the pedestrian through low cost transformations as the ones that are being made in New York and other cities of the world that only requires creativity and innovation.

4. Other actions pursue to **make the public transport more competitive** than the private ways of transport through a better adapted network to the necessities of the citizens as improving the frequencies of trains, faster trains and better accessibility to the stations.

5. All these measures have to be implemented at the same time with other actions oriented to **educate, inform and raise awareness** over people in order to create a sustainable, healthy and secure society.

This Plan has been written following an open participative process that allowed the gathering of opinion and perceptions of the technical staff and the citizens of different neighborhoods (in different participative days and with the participation of 250 people), about the proposed measures, as well as the new suggested ones.

2. TERRITORIAL CONTEXT

Terrassa is part of the central agglomeration and in the second metropolitan ring of Barcelona. Is situated on the slope of the Sant Llorenç de Munt I l'Obac Natural park, at 30 Km of Barcelona by road and at 45 minutes by tren from the center. Terrassa and Sabadell are the shared capitals of the Vallès Occidental. The municipality has an extension of 70,2 km^2 and a population of 215.517 inhabitants in 2014. (Source. Idescat)

The dissemination process that has gone along these last decades has affected most part of the metropolitan municipalities including Terrassa. It is mostly on the south were the low density urban sprawl is more implemented (Cal Parellada, Les Fonts, Les Martines, etc.), nevertheless the dispersion phenomena it is not really high in these places. Still Terrassa continue to be an attraction pole of other residential places of the surrounding municipalities: Matadepera, les Pesdritxes, Castellnou (Rubí), Ca n'Avellaneda (Castellar del Vallès).

The industrial economy traditionally has been part of the city but these last decades has been expelled to more surrounding areas being concentrated mostly in the south of the city and, to a lesser extent, in the north.

3. DIAGNOSIS. RELEVANT CONCLUSIONS

Below are presented the relevant conclusions about the different aspects that affect the mobility of the users.

- Terrassa since the PDM 2003 has done a considerable effort towards an improvement of the urban life quality trough the progressive transformation of the public space. Also tried to modify the life habits of the inhabitants or the users towards a more sustainable mobility.
- This situation of positive change can be confirmed because the main indicator: which was the modal distribution, shows a sustained trend of transformation towards more suitable means for short-distances trips (less than 3 km), which are performed by a large part of the population.
- Terrassa has an optimal conditions for developing even more these potentialities thanks to the topography, climatology and urban density, which give an optimal population for making more economically sustainable the investments and social costs required.
- However it is important to maintain the efforts towards the transformation of the road network in favor the more sustainable schemes of mobility as walking, bicycles or public transport, without forgetting the fact that is needed a more optimized and efficient road network for vehicles.
- In order to get a distribution of the public space more adjusted to the modal quota objective, is needed a bigger effort to get better pedestrian and bicycles networks making them more easy to understand, safer, comfortable and spacious.
- Regarding public transport it is needed a better network for being able to compete with private transport and attract the non convinced people about the advantages of public transport for long trips inside Terrassa or between the surrounding municipalities.
- Is needed a more integrated municipal law, educational or promotional campaigns, or the implementation of integrated systems of management for all the city that really gives information and service immediately to the users or inhabitants.
- Are needed the achievement of robust and faster information systems for giving useful information to the user and provide a good way to measure the progress of the city, and also to allow the faster detection of the dysfunctions and achievements.

4. PRINCIPLES AND OBJECTIVES

The **Principles** that are aimed to guide the actions, are being formulated based on the ones that were part of the *Mobility Agreement* signed by various representatives of the city in 2000:

- Life quality improvement.
- Reduction of the contamination, noise, green house gases emissions and energy consumption.
- Health improvement by changing the mobility habits towards more active ways.
- Improvement of the accessibility and autonomy of the more vulnerable groups of population.
- Increase of the road safety.
- Improvement of the economic competitiveness in order to attract new economical activities to the city.

As a consequence of the already made Diagnosis and the conclusions obtained, is considered the necessity to put more efforts over the actions to improve the **local trips** and help to achieve a **modal change of the population.**

The **Objectives** to be achieved through the development of the PMU are:

- Create proximity and a lively public space.
- Promote the integration, interoperability and interconnection of the different networks of transport.
- Make the public transport more competitive than private transport.
- Improvement of the urban distribution of goods efficiency.
- Educate, inform and raise awareness over a more sustainable, healthy and safer mobility culture.
- Promote the less contaminating fuels and technologies.
- Avoid the overprotection of the automobile.

5. ACTION PROPOSALS

Is required a strategy that helps to understand the new concepts and accelerate the change of the habits. For this reason are being proposed the following criteria:

General proposal of strategic criteria and their implementation

a) *Gradual implementation of the actions:* establish some actions for a period of time being aware of the available resources but also with the capacity of transformation of the individual habits or assimilation of the changes that are needed to be done.
b) *Establish few but clear rules:* define a model of mobility easy to understand for most part of the society and simplify the group of norms that regulate it, in order to facilitate the implementation and acceptance of citizenship.
c) *Consistency between the applied rules and their implementation (few exceptions):* establish simple and clear rules respected by the user, but also facilitate the management by the competent institutions.
d) *Every restriction has to be followed by a clear explanation of the benefits and propose real alternatives (Push&Pull strategy):* those actions that will imply modifications over the traditional behavior habits of everyday mobility have to be clearly explained and, if is necessary to implement restrictions, have available alternatives.
e) *Management over the objectives and users:* the technical or administrative management done by the implicated services: mobility, urbanism, local police, etc., have to pursue the voluntary transformation of the mobility habits of Terrassa.
f) *Permanent monitoring and communication mechanisms:* make a prediction of the resources and gathering information mechanisms, if it is possible self-winding, for the essential indicators, that allows to make a continuous monitoring of the Plan evolution.

Road prioritization

The conclusions of the Mobility Diagnosis of Terrassa shows that is necessary to develop a model of functional prioritization of the road network, as a general methodology to achieve the modification of mobility habits and gain effectiveness of the trips made in the city.

Is necessary to insist in the functional transformation initiated in the previous Plan for breaking the overprotection aver the motorized vehicles in the public street space, and gain public space for the no motorized means of mobility or public transport.

In this way, the functional prioritization consists in a model of mobility able to transmit to the citizenship this general objective of transformation, in two basic categories with clear functions. This categorization implies, at posteriori, an urban adaptation that makes it understandable, even without knowing the mobility network.

Criteria

Is proposed to continue the transformation of the road prioritization in order to clearly differentiate the *functional nature* of two basic roads (and at the same time networks):

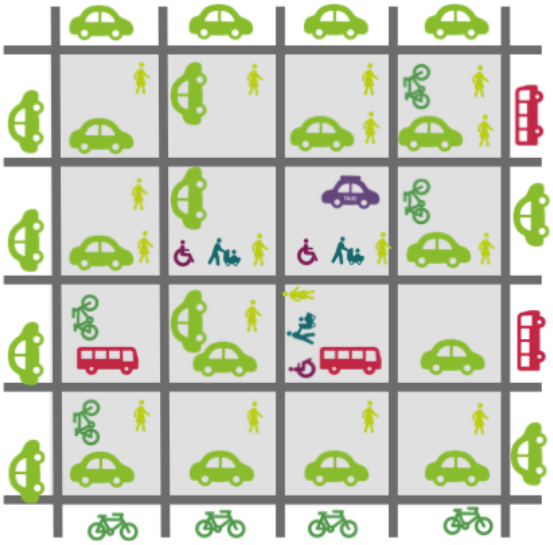
1*) Long urban trip roads* ***(primary network):*** those roads are aimed to canalize the entrance and exit trips of Terrassa or the long trips in the city. These axes allow to go to the destination faster, freeing the neighborhood circulation.

2) Short urban trip roads ***(secondary network):*** aimed to prioritize the needs of the no motorized means of mobility as walk or light vehicles (bicycles), that make trips shorter

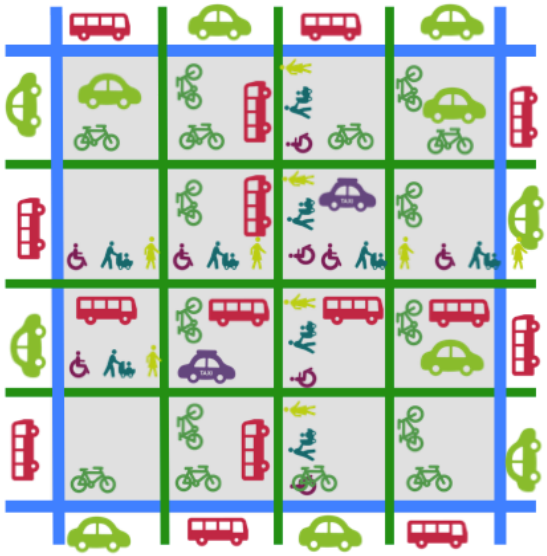
than 6 km[1]. These axes allows to go to the primary network from the origin of the trip or go to the destination once abandoned the primary network.

Picture 5.1 Transformation process of the mobility habits using the road prioritization and the uses of the public space.

Current road prioritization



Future proposal of road prioritization



Current mobility and public space distribution

	Espai públic per modes %	Desplaçaments diaris %
	33,8%	50,2 %
	0,4 %	11,2 %
	65,8%	38,6 %

Future proposal of mobility and public space distribution

	Espai públic per modes %
	33,8%
	0,4 %
	65,8%

[1] 6 km is the distance make by bicycle in 30 minutes at 12 km/h. Is a distance normalized in other European cities as a everyday trip.

Areas of action and Methodological elements

The deployment of the PMU is structured through the Areas of action, that match with the different ways of mobility, or with the organization, management and promotion elements that enable to make an integrated and coherent implementation over the years. Every action area has a list of specific actions (consult the Document II-Actions Program)

There are the 8 following action areas:

Action areas

1. Mobilitat a peu
2. Mobilitat en bicicleta
3. Mobilitat en transport públic
4. Mobilitat en vehicle motoritzat privat
5. Aparcament
6. Gestió de la Mobilitat
7. Disseny i paisatge urbà, pacificació del trànsit i zones ambientals
8. Distribució urbana de mercaderies

Every *Action area* is organized from the *strategic guidelines* that implies an specific operative objective and gather the *concrete actions.*

Action areas → strategic guidelines → action

Those action areas directly related with a mean of mobility shows, as well as, a geographic map where is identified the proposed network.

Methodological elements

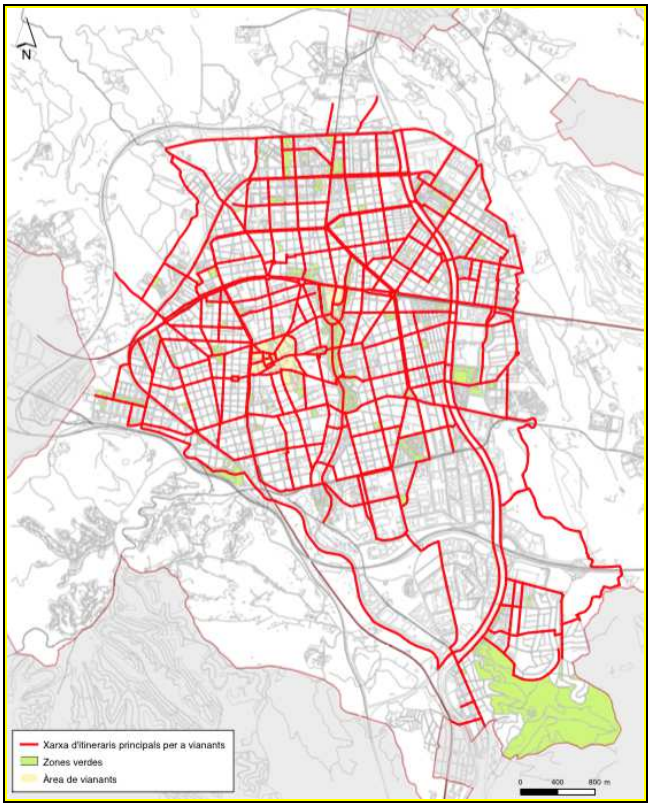
The methological elements are those items related with the implementation process of an Urban Mobility Plan. They are needed and sometimes essential tools for guarantee the correct preparation, development and monitoring of the concrete actions of the Plan.

1. Organització
2. Implementació
3. Seguiment i avaluació

5.1. Pedestrian mobility

In order continue increasing the number of pedestrian trips in the following years is strategical the implementation of a **main network of pedestrian itineraries** that scope all the city of Terrassa. This network has to meet good conditions of global accessibility, continuity, connectivity and security.

Picture 5.3 Proposal of the main network of pedestrian itineraries



All the streets of Terrassa will have to fulfill a set of minimum requirements of accessibility (required by the current law), that will be gradually achieved through a permanent process of transformation, programmed in the projects of urban adaptation of the whole road network, towards the established model of road prioritization.

Table 1: Strategic guidelines and actions associated to pedestrian mobility

Strategic guideline	Action	
General extent of the pedestrian network	V.1	Plan and implementation of main network of pedestrian itineraries.
	V.2	Implementation Plan of general improvements on pedestrian accessibility and security.
	V.3	Enlargement of the space for pedestrians.
	V.4	Creation of itineraries in the Avinguda del Vallès.
	V.5	Pedestrian traffic light prioritization Plan.

Information, promotion, education and sensitization	V.6	Design and implementation of guiding signage for pedestrians.
	V.7	Campaigns in order to promote the pedestrian mobility.

5.2. Bicycle mobility

In order to continue increasing the number of trips in the following years, is strategical the implementation of a **main network of bicycle itineraries** (and light vehicles[2]) that scope the whole municipality. This network would fulfill a group of conditions of continuity, connectivity and security.

Picture 5.4. Proposal of the main network of bicycle itineraries

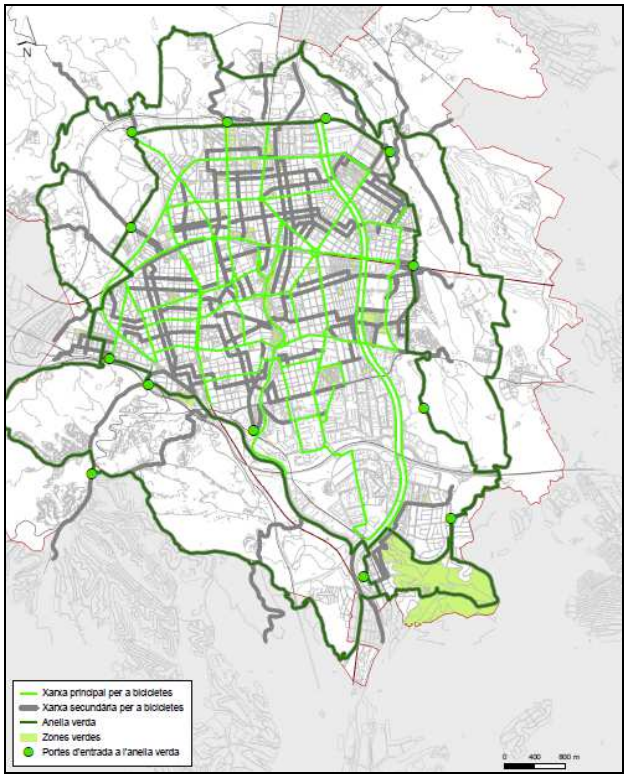


Table 2: Strategic guidelines and actions associated to the bicycle mobility

Strategic guideline	Action	
General extent of the bicycle mobility network	B1	Implementation of the main itinerary network.
	B2	Condition the rest of the network to bicycle.
	B3	Network of supramunicipal bicycle paths.
Parking areas	B4	Safe bicycle parking areas in the main mobility spots.

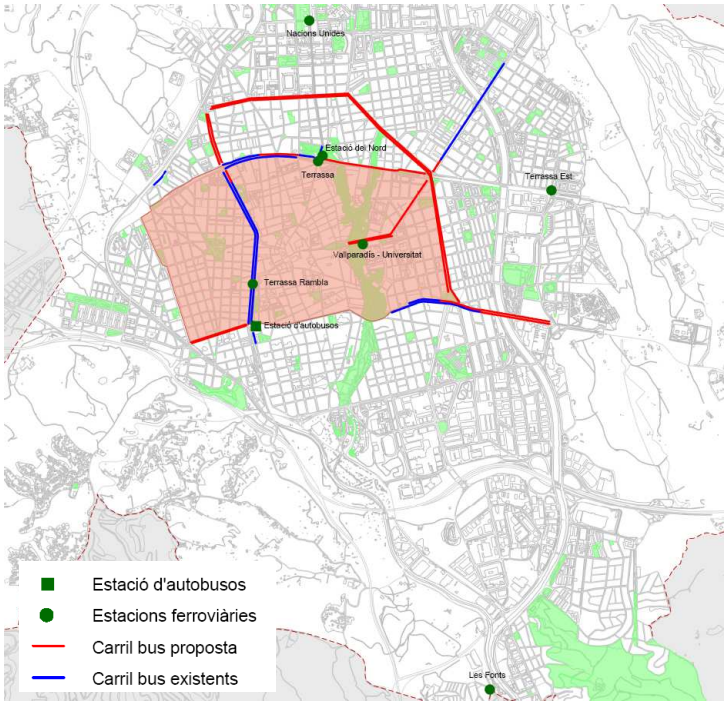
[2] *Light vehicles:* vehicles that for their shape, weight and speed could use the lain or roads in the same conditions as if they were bicycles. Their incorporation on the Municipal mobility law would be planned.

Strategic guideline	Action	
	B5	High capacity bicycle parking areas in the public transport stations (train and bus)
	B6	Increase the parking areas in the public areas.
	B7	Implementation of the Bike-register.
Intermodality improvement actions	B8	The bike on the bus.
Information, promotion, education and sensitization	B9	Study the implementation of a public bicycle service.
	B10	Promotion of electric bicycle.
	B11	Permanent Plan of driving courses of bicycle in the education centers (Ambicia't a l'Institut).
	B12	Updating of the bicycle use promotion Plan.
	B13	Edition of the bicycle guide.
	B14	Design and implementation of guiding signage for bicycles.
Road safety actions	B15	Bicycle road safety plan.

5.3. Public transport mobility

Regarding urban public transport, are of special interest those actions that allow to achieve a more competitive public transport in comparison with private vehicles, that shorten the trip time for the user. For example increasing the speed of the bus trip or the improvement of the user information in order to optimize their trip time to the stations.

Picture 5.5 Proposal of the bus lane length and localization of transshipment spots



The design basic parameters are:

- The trip time as an efficiency and competitive factor with the private motorized mobility.

- The interrelation between ways of mobility as a way to maximize the accessibility over the territory including the time factor, but in good conditions of comfort.

- Adaptation of this way of transport to the surrounding geographic conditions, proposing those more effective actions in order to fulfill the necessities of the inhabitants, but also efficient in economical social spending.

- The progressive technological transformation of the public transportation vehicles in order to reduce the externalities with a broad social impact at short and long term: contamination, noise, fuel spending.

Table 3: Strategic guidelines and actions associated to public transport mobility

Strategic guideline	Code	Action
Increasing of service efficiency	TP.1	Promote a citizenship participation process about the public transport network
Increasing of commercial speed	TP.2	Increase of bus lane network
	TP.3	Improvement of commercial speed
Improvement of service delivery	TP.4	Improvement of service management
Improvement of service accessibility	TP.5	Improvement of stations accessibility
	TP.6	Specific improvements for the social groups with disabilities
Improvement of comfort and information of the user	TP.7	Improvement of the user information
	TP.8	Improvement of the communication with the user
Improvement of interurban transport	TP.9	Urge the Generalitat to improve de interurban service
	TP.10	Urge the Generalitat to change the fare zone of Terrassa

Strategic guideline	Code	Action
	TP.11	Reduction of the discretional transport impact
Reduction of environmental impact	TP.12	Improvement of the vehicle fleet
Intermodality promotion	TP.13	Promotion of the intermodality
Promote the use of public transport	TP.14	Promotion of the public transport use

5.4. Private motorized vehicle mobility

The road network, from the point of view of the motorized vehicle, established two categories previously mentioned in the functional road prioritization:

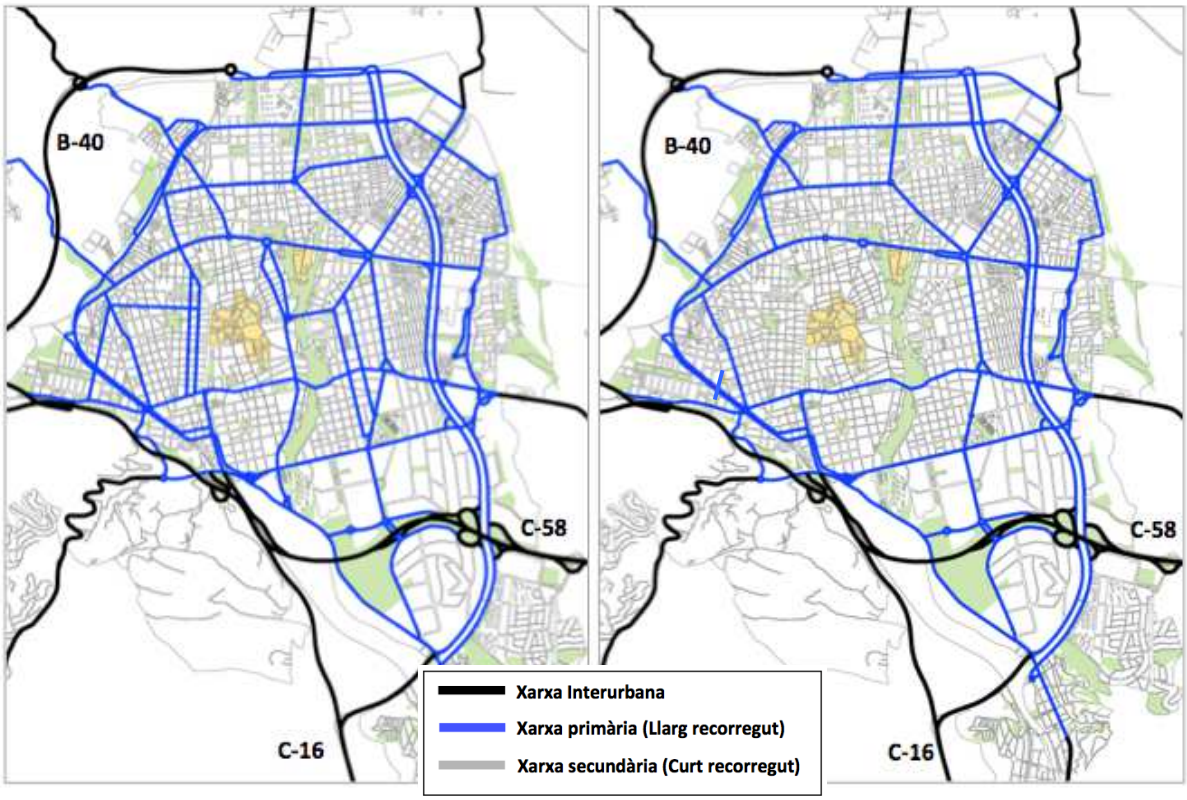
1) *Primary network:,* for the long trips and for the trips through Terrassa.
2) *Secondary network:* to access to the last part of the trip to the destination, or to access to the primary network from the origin.

The configuration of the Primary network requires two main action guidelines:

1) *Improvement of the connectivity from the interurban network to the primary network and the continuity of the whole group of roads:* it is necessary to improve the connectivity between interurban outdoor network and the long way network in order to go from the principal access of the south (C58-C16) to the north of the city or the reverse way. The idea is that getting through the center of the city turns to be unattractive.
2) *Improvement of the continuity of the internal bypass ring of the central zone:* made up by the Montcada road, Barcelona avenue, Vint-i-dos de Juliol street, Santa Maria Mazzarel·lo street and Ángel Sallent avenue. The bypass ring of the central zone of Terrassa also has problems of continuity and connectivity for differences of capacity and heterogeneity in some sections and difficulties of connectivity in the corners of these roads.

Picture 5.2 Proposal of transformation of the road prioritization

Current situation *Objective -2021 (Map 8.1.1)*



The Secondary Network basically dedicated to, in the last meters, access to parking areas and households, could be turned in Zone 30, pedestrian priority Zones (20 Zone) or pedestrian Zone.

Figure 4: Strategic guidelines and actions of motorized mobility

Strategic guideline	Code	Action
Road network improvement	VM.1	Road Network Functional Transformation Plan
	VM.2	Improvement of the connectivity between the accesses and the primary network
	VM.3	Revision of the Primary network orientation signage Plan
Information, promotion, education and sensitization	VM.4	Increase the continuous traffic map
	VM.5	Increase the trip time information
	VM.6	Car-sharing implantation study
	VM.7	Promote vehicle sharing (car-pooling)
	VM.8	Electricity charging point network for the cleaner vehicles
	VM.9	Electric vehicle promoting Plan
	VM.10	Promote the efficient driving techniques
Road safety actions	VM.11	Implementation of the Local Plan for motorized road safety
Urban security	VM.12	Write an evacuation plan for natural or human contingencies
	VM.13	Define routes for dangerous substances transportation
Urban Planning	VM.14	Vial de Llevant suppression

Strategic guideline	Code	Action
Environmental impact reduction	VM.15	Reduction of the speed limit for the interurban roads
	VM.16	Reduction of the noise level for those roads that exceed the noise limit

5.5. Parking

It is made an integral proposal taking into account the city Zoning, the different types of parking schemes and the types of users or the wanted impact with mobility habits transformation.

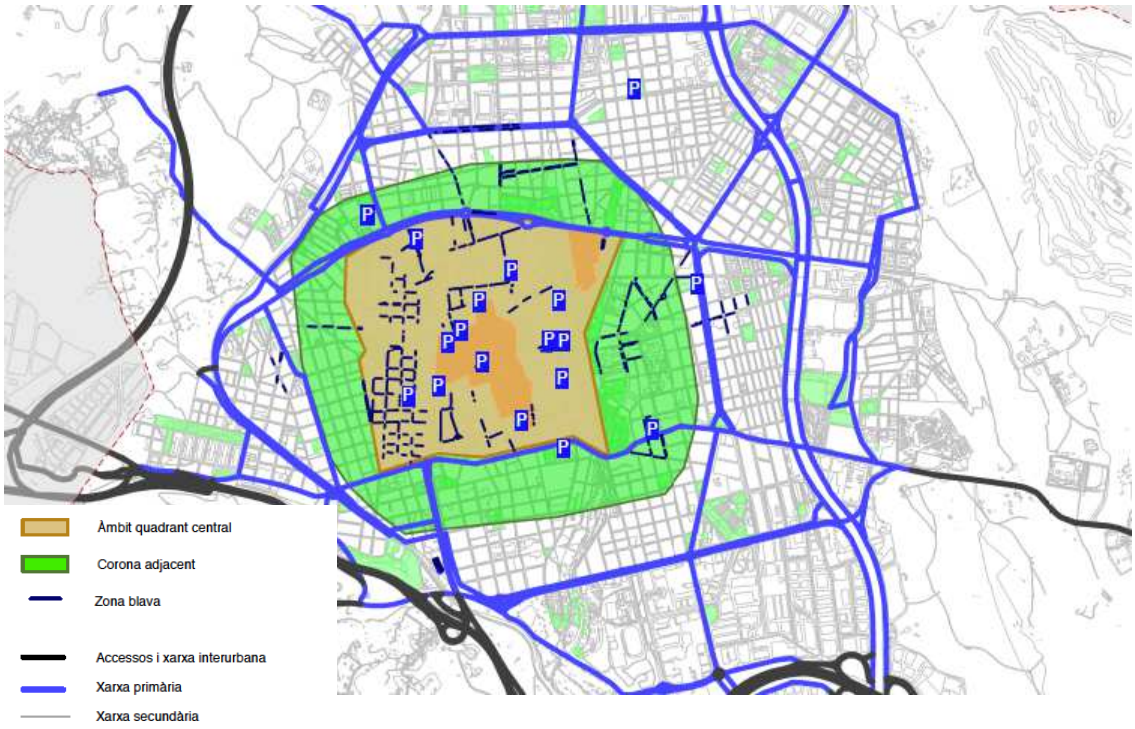
Is taken into consideration the whole parking areas, including the private and public ones, and is proposed a management model towards the implementation of the specific objectives of improving the usage efficiency at the same time that the public parking supply is reduced, but only if the inhabitants demands allows it.

Specific objectives for the parking supply management

- Fulfill the inhabitants parking necessities.
- Maximize the efficiency of the regulated surface area.
- Reduce the use of private vehicle for the trips to the center of the city, but offering alternatives to the inhabitants and the visitors.
- Promote the use of non polluting vehicles.
- Promote the long stays parking lots in underground car parks, in order to reduce the negative effects that cause the vehicles looking for free parking places.
- Offer automatic information about the operation of the city's regulated parking lot.

Zoning: *Central square,* adjacent area, other streets

Picture. 5.7 Zoning proposal for regulated parking places



Types of users: Inhabitants, visitors, professionals C/D, Users that own low polluting vehicles.

Types of parking places: Blue Zone, Mixed Zone, Inhabitants Special Zone, Charge/discharge of goods Zone, Express Area, Park&Ride, lots for people with limited mobility.

Management model: Is proposed a model of management based on the previous concepts as Pricing, Parking time allowed and control system.

Picture 5.8 Proposal of ORGANIZATION for regulated parking areas

Type of user	CENTRAL SQUARE	ADJACENT RING	Other roads
Inhabitant	Mixed Zone (unlimited)	Mixed Zone / exclusive inhabitants zone (unlimited)	Free (unlimited)
Short time visitors (less than 2 hours)	Blue Zone / Mixed Zone (time limit 2h)	Blue Zone / Mixed Zone (time limit 2h)	Blue Zone (Time limit 2h) Espress Area (time limit 30 minutes)
Long time visitors (more than 2 hours)	Underground parking areas: (unlimited)	Underground parking areas: (unlimited) Mixed (to be established)	Free (unlimited)
Professionals of charge and discharge of goods	Controlled rotation by mobile phone App or sms (30 min)	Controlled rotation by mobile phone App or sms (30 min)	Controlled rotation by mobile phone or sms (30 min)

Picture 5.9 MANAGEMENT proposal for regulated parking areas

Type of user	Parking time	CENTRAL SQUARE	ADJACENT RING	Other roads
Inhabitant	Unlimited (0 a 24 h)	Temporal payment Tariff T1	Temporal payment Tariff T1	Free
		Eco Tariff for low emissions vehicles.	Eco Tariff for low emissions vehicles.	
Visitors (Short time)	2 h hours limit	Blue Zone: payment of parking meter ticket or payment by App ZB Tariff	Blue Zone: payment of parking meter ticket or payment by App ZB Tariff	free
		Mixed: Payment by APP ZB Tariff	Mixed: Payment by APP ZB Tariff	

		Eco tariff for low emissions vehicles.	Eco tariff for low emissions vehicles.	
Visitors (Short time)	Daytime Time limit: to be established	Underground parking: parking tariff	Mixed: Temporal payment for identified users Tariff T2 Underground parking: parking tariff	free
		Eco tariff for low emission vehicles	Eco tariff for low emission vehicles	
Professionals of charge and discharge of goods	30 minutes	free	free	free
P&R	(0-24h)	-	-	Linked to TP

Table 5: Parking strategic guidelines and actions

Strategic guideline	Code	Action
Integral regulation of the public road space	**AP.1**	Integral implementation and regulation of the parking areas of the central square
	AP.2	Integral implementation and regulation of the parking areas of the adjacent ring
	AP.3	Integral implementation and regulation of the parking areas of the other roads
	AP.4	Municipal pricing of the road parking slots depending on the polluting capacity of the vehicles.
Improvement of the integrated parking model	**AP.5**	Efficient use of the city's park&ride
	AP.6	Promote the use of parking areas out of the roads
	AP.7	Implementation of parking areas for motorbikes on the roads
	AP.8	Payment of the surface parking areas
	AP.9	Heavy vehicles parking Plan
Planning	**AP.10**	Revise and implementation of the urban planning about the parking reservoirs

5.6 Mobility management

The mobility management is a good method for promoting the sustainable mobility and cheaper than other measures like the ones that imply urban transformation. The actions associated with the management of the mobility are:

- Provide open information to the users.
- Participation of users and other mobility stakeholders of the city, on the change of habits in order to achieve the modal transformation.
- Involve the mobility generating centers.

Table 6: Strategic guidelines and management actions

Strategic guideline	Code	Action
Regulation	**GM.1**	Writing and endorsement of the Local Integral Mobility law
Access to the mobility poles	**GM.2**	Promote the Scholar Path project
	GM.3	Promotion of the car sharing in industrial areas
	GM.4	Promotion of the collaborative mobility initiative
	GM.5	Promotion of the Enterprise Mobility Plans (PDE) and the mobility generating centers.
Information, promotion, education and sensitization	**GM.6**	Creation of the Mobility Observatory
	GM.7	Personalized marketing for determined social groups
	GM.8	Dissemination of initiatives linked to low emissions mobility
	GM.9	Incorporation of public mobility data to the Open Data Terrassa website
	GM.10	Participation to the sustainable mobility week
	GM.11	Spreading of good practices on sustainable mobility
	GM.12	Study of technical and economical viability and social interest on "Via d'Egara" project.
	GM.13	Urge the Terrassa Hospital to take measures to improve the mobility generated by the activity.

5.7. Design and urban landscape, traffic calming and environmental zones

The reduction of the accident rate and the atmospheric and noise pollution are some of the main objectives for improving de city's live quality. In order to achieve it, the PMU tries to get a significant reduction of the speed limits and motorized traffic circulation on those roads were the priority is the non motorized ways of mobility and the stay, named *Secondary road network*.

A. The implementation of a Protected Urban Atmosphere Zone (ZUAP).

B. Progressive implementation of the 30 km/h Zones to the other neighborhoods.

Picture 5.10. Areas of Protected Zone Atmosphere Zone (ZUAP) and 30 km/h Zone

A) Protected Urban Atmosphere Zone (ZUAP)

The Protected Urban Atmosphere Zones are tools used by many European cities as a temporally system of control of the access to the city center by the motorized vehicles as a consequence of dangerous pollution episodes for the health of the citizenship, or as a permanent way to reduce the motorized vehicles in favor of other more sustainable mobility ways. This permanent regulation tries to obtain an improvement of air quality and a reduction on noise and also to improve the circulation circumstances and the accident rate.

In this zones the non motorized vehicles have priority to the motorized ways of mobility, but in a determined cases assuring a good access by them: public transport, distribution of goods, etc.

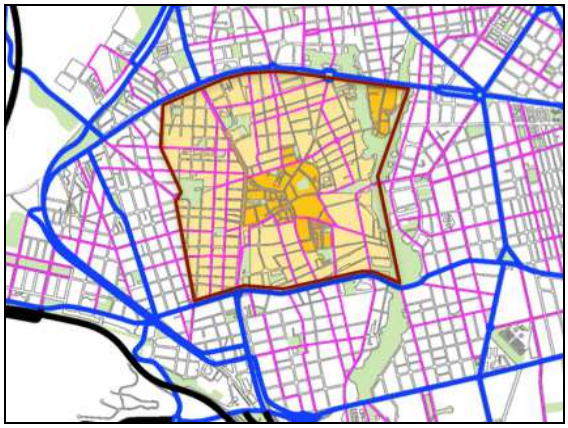
Are predicted a set of actions that will be implemented in two phases that could go further than what is forecasted by the plan and would affect two area:

1) First proposed phase: the center of the city actually defined as a neighborhood and the nearing streets at the neighborhood of Ca n'Aurell at the street of Faraday.

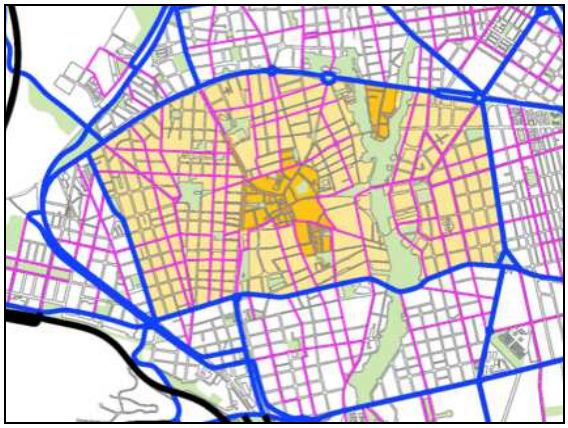
2) Second proposed phase: the rest of the neighborhoods that would complete the surrounding circumvallation ring (the rest of Ca n'Aurell, Antic Poble de Sant Pere, Plaça Catalunya-Escola Industriial and Cementiri Vell).

Picture 5.11 Proposal of ZUAP implementation

Tranformation area PHASE 1



Final area (PHASE 2)



B) Progressive implementation of the 30 km/h Zones to the rest of Terrassa neighborhoods.

Both inside the ZUAP zone and in other city areas, will be a progressive transformation towards 30 km/h streets, except for the primary road network. Therefore is defined a first transformation of these streets for short trips that allows to implement, with better security, other ways of mobility.

These are ambitious actions that will require a process of implementation that could overcome the 2021 horizon.

Tables 7 and 8: Strategic guidelines and management actions

Actions toward the readjustment of the traffic capacity of the ZUAP perimeter.
Study the traffic capacity of the circumvallation perimeter of the ZUAP in order to adjust the traffic light interval times, traffic lanes adjustment, new turns and elimination of others, in the new scenario of mobility with the ZUAP.
Extension and connectivity of the pedestrian and light vehicles prioritized network.
Inside the general proposal of increase and improvement of the urban conditions for pedestrians and connectivity for the light vehicles network, is necessary to firstly develop both networks connected with the central zone.
Entry and circumvallation of the public transport and intermodality improvement.
Public transport must have good accessibility in the central zone and also inside, as an alternative to the possible restrictions of the motorized private vehicle. For this reason a competitive bus network is a main objective before the restriction implementation in the central protected urban atmosphere zone (ZUAP). The reinforcement of all the means of public transport and the interrelation capacity with other transports must be a principal objective, that has to be improved and make known before the introduction of restrictions.
Management of the regulated parking zones and DUM.
The integrated regulation of the parking surface for all Terrassa will be initiated in this zone. The integration consists on define the different types of users and necessities for a same parking area: inhabitants, rotation, parking, and maybe professionals. This regulation will spread, if it is considered necessary, form de center towards the rest of neighborhoods of the first center ring. Using new technologies, must be implemented mechanisms that decrease or prevent the indiscipline towards the usage of regulated parking for charge and discharge of goods and give solutions that improve the goods distributions and make it compatible with urban life.
Legislatives actions, information to the user, promotion and education.

It will be needed an integrated local law (Ordenança) that regulates clearly the main aspects that guide the pursued objectives. Also, the initial implementation of new technologies of management and driving, require that the local laws forecast its implementation at medium and long term.

The education, formation and dissemination have to be a main aspect of all this process in order to create awareness to the inhabitants of the progressive implementation of the central zone of emission control and the objective to achieve.

Strategic guideline	Code	Action
ZUAP. Regulation and traffic calming	**ZA.1**	Identify and develop the ZUAP
	ZA.2	Study ZUAP's surrounding ring
	ZA.3	Study the reduction of the no staying traffic in the ZUAP area
	ZA.4	Implementation of an observation system for the no staying traffic
ZUAP. Increase the implementation of non motorized modes of transport	**ZA.5**	Implementation of main itineraries for pedestrians in the ZUAP zone
	ZA.6	Extension of pedestrian area.
	ZA.7	Implementation of main itineraries for bicycles in the ZUAP
ZUAP. Increase the implementation of public transport	**ZA.8**	Public transport adaptation to the ZUAP area
	ZA.9	Prioritization of traffic lights for buses in the ZUAP area
Design, urban landscape and traffic calming	**ZA.10**	30 km/h Zone extension
	ZA.11	Promote the micro-projects of habitability in the neighborhoods
	ZA.12	Implementation of improvement actions towards the streets with commercial concentration
	ZA.13	Traffic reduction Plan arround the education centers

5.8. Urban distribution of goods

The *urban distribution of goods* require to be treated as a strategic tool because has an important role over the economical development of the city. The proposal has to provide an efficient commercial service: adequate distribution conditions in consonance to the users necessities, efficient with the costumers and with a reasonable cost for the distributors. However, it has to be compatible and respectful with the life quality of citizenship, in terms generated pollution, traffic congestion, accident rate and noise impact.

Table 9: Strategic guidelines and actions associated to Urban distribution of goods

Strategic guideline	Code	Action
Distribution operations diversification	**DUM.1**	Regulate the noiseless nocturnal distribution of goods
	DUM.2	Creation of lanes with multiple uses

	DUM.3	Promote the development of urban distribution of goods micro-platforms
	DUM.4	Creation of proximity delivery points or systems of auto-collection of waste.
Monitoring and control	**DUM.5**	Introduction of technological systems for the charge and discharge zones improvement
	DUM.6	Individuals reserves of temporal DUMs
Information	**DUM.7**	Elaboration of a regulation map of goods transport
Planning	**DUM.8**	DUM with low impact media

5.9. Methodological elements

The methodological elements are related areas with the elaboration and implantation of a Urban Mobility Plan. These are necessary or essential tools in order to guarantee the correct preparation, development and monitoring of the Plan actions.

- **Methodological elements of ORGANIZATION,** aimed to coordinate the plan actions, evaluate the viability and correct equilibrium between the action implementation process and the necessary economical and human resources in order to implement it.

- **Methodological elements of IMPLEMENTATION AND COMUNICATION,** aimed to achieve a good implementation of the actions, also coordinated with other departments, and generate mechanisms of effective communication in order to inform the citizenship and the users in general.

- **Methodological elements with GENDER PERSPECTIVE**, in order that is taken into account the gender perspective in the plan implementation, especially regarding the design and security of public space.

- **Methodological elements of MONITORIBG AND EVAUATION,** aimed to establish the elements and mechanisms in order to monitor the implementation process, and detect the rate of mobility habits variation of users and inhabitants, thankfully the performed actions.

Table 10: Strategic guidelines and actions associated to methodological elements

Strategic guideline	Code	Methodological element
Organization	EM.1	Annual Plan of humans resources and internal training.
	EM.2	Annual Plan of PMU actions funding
	EM.3	Collaboration and synergies between corporation services
	EM.4	Institutional and citizen participation
Implementation and comunication	EM.5	Evaluation and monitoring of the actions
	EM.6	Creation of Terrassa Mobility Observatory
	EM.7	Measure gathering (*Push&Pull strategy*)
	EM.8	PMU communication campaign
Gender perspective	EM.9	Implementation of the actions with a gender perspective security
Monitoring and evaluation	EM.10	PMU execution progress report

6. INDICATORS

This section includes a group of PMU basic mobility indicators, with the results of the analysis made between 2009 and 2010, the 2014 results obtained through the PMU Diagnosis and the mobility survey, and the expected qualitative results column for the plan horizon.

Regarding the PMU monitoring, is proposed the implementation of a group of indicators that can be obtained every year or every two years, that have to be used for the elaboration of PMU monitoring report. This report will be established once the PMU monitoring protocol is written.

These are some of them:

Indicators	Source (2009/2010)	Value (2009/2010)	Source (2014)	Value 2014	PROPOSAL 2021
G1. Modal quota for sustainable means of transport (internal)	EMQ 06	62,60%	EMQ 14	68,4%	↗
G1a. Quota of intramunicipal trips by bicycle or walking	EMQ 06	56,2%	EMQ 14	59,7%	↗
G2a. Quota of intramunicipal trips by public transport	EMQ 06	6,40%	EMQ 14	8,7%	↗
G2. Modal quota for sustainable means of transport (connection)	EMQ 06	20,30%	EMQ 14	24,3%	↗
G2a. Quota of intermunicipal trips by public transport	EMQ 06	19,60%	EMQ 14	23,5%	↗
G2b. Quota of trips by bicycle	EMQ 06	0,70%	EMQ 14	0,8%	↗
G3. Number of trips by private car per inhabitant	EMQ 06	1,57	EMQ 14	1,28%	↘
G3a. Number of trips by private car in relation of the PIB	EMQ 06	64,48	EMQ 14		↘ →
V1a. Calmed road network	SIG	6,80%	SIG	20,80%	↗
B1. Bicycle adapted itineraries	SIG	NA	SIG	151	↗
TC1a. Average frequency of passage (bus)	TMESA	NA	TMESA	18,9	↗
TC1b. Commercial speed of urban transport (bus)	TMESA	12,3	TMESA	13	↗
VP1. Motorization index-cars	Annual directory	434,98	Annual directory	423,03	↘
VP3. IMD of the basic road network – veh-km	Gauges	NA	Gauges	10.732	→↗
VP4. Average car occupation	EMQ 06	1,24	EMQ 06	1,35 (car. motorbikes no)	↗

Indicators	Source (2009/2010)	Value (2009/2010)	Source (2014)	Value 2014	PROPOSAL 2021
A1a. Surface parking lots	SIG	NA	SIG	43,55% (39748p /91249 cars)	↘
A2. Regulate parking	SIG	1.800	SIG	2.306 lots or 10,69 %(per thousand)	↗
M1. Heavy vehicles percentage	Gauges	NA	Gauges	NA	↘
M2. Charge and discharge area	SIG	480	SIG	1.284	→ ↘
AM1. Green house gas emissions	Environment Council	342.540	Environment Council	NA	↘
AM2. Overcoming of the quality air levels caused by traffic (PM10)	Environment Council	5	Environment Council	5	↘
AM2. PM10 Emissions / inhabitant	Environment Council	0,0008	Environment Council	0,124340	↘
AM2a. NOx Emissions / inhabitant	Environment Council	0,011	Environment Council	3,540908	↘
AM3. Acoustic intensity levels	Environment Council	18,3	Environment Council	18,3	↘
AM4. Energy consumption of road transport	Environment Council	111.686	Environment Council	NA	↘
AM4a. Energy consumption of road transport/ inhabitant	Environment Council	0,5479	Environment Council	NA	↘

(*) *NA: not available*

7. PARTICIPATIVE PROCESS

The Plan has been written following an open participative process, in every phase of the writing process, with the determination of obtaining a Mobility Plan that counts with broad citizen support in order to deal with the problems related with sustainability, social equality and environmental quality of mobility and transport. Therefore this process helps to perceive the opinion and thoughts of council departments technical staff and of the neighborhoods inhabitants about the suggested measures and also about the new proposed measures. The participation model had two ways to allow citizenship participation: a survey for knowing the citizen perception about mobility, answered by more than 1.000 people, and informative sessions with participative workshops where were collected the opinion of 250 people, most of them on behalf of entities and associations. In parallel, have been received 43 individual contributions through the mobility plan revision web: www.terrassa.cat/plamobilitat.

Image of the proposal participation process of the PMU 2016-2021, corresponding to the council technical staff.

The 18 of November of 2015 were done the last participative session with 75 people.

Image of the proposal participative process of the PMU 2016-2021, corresponding to the mobility commission, district and environment commissions, and the whole citizenship.