

The Sustainable Urban Mobility Plan for Torroella de Montgrí, Girona, Spain

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Abstract

The Sustainable Urban Mobility Plan (SUMP) for Torroella de Montgrí – Pla Estratègic Municipal de Mobilitat Sostenible – is a strategic planning document that proposes a territorial and urban project for the municipality. Its goal is to guide the transition process of a car-oriented territory towards an inclusive model based on the improvement of accessibility, the respect for the environment and collective well-being.

The shape of the territory is at the centre of the proposed projects, which support the idea of a polycentric and open territory where the empty space becomes a fundamental feature of the project, acquiring a primary role in relation to the constructed space. The hypothesis supported by the SUMP is that it is possible to reduce the external costs of the current territorial model based on private car use with a collective project on mobility spaces.

Keywords

Sustainable mobility, landscape, urban planning, accessibility.

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In Catalonia, the mobility policies and projects of the last decades have been committed to favouring the use of private car and have contributed to place it as the mean of transport par excellence. The private car, however, is a selective and excluding mean of transport that increases social inequalities and, in the motorized version, intensifies the air pollution. Far from the idea of sustainable development defined in the Brundtland Report (1987), which points it as a development capable to meet the needs of the present without compromising the ability of future generations to meet their own needs, the construction of new and large infrastructures for private cars contributes to the generation of irreversible physical and social fractures.

To deal with it, a reflection on mobility spaces is needed and we took it as the starting point to rethink the contemporary territory. As Pilar Vega points in her article about the evolution of the Sustainable Urban Mobility Plans in Spain during the 2004-2014 period, the mobility plans have been conceived by the European institutions as the instrument that allows to improve not only global environmental conditions (reduction of greenhouse gas emissions, reduced consumption of fossil fuels, etc.), but also the environmental quality of urban environments and the living conditions of residents in them. In this context, we wrote the Sustainable

Urban Mobility Plan (SUMP) for Torroella de Montgrí here presented, which main goal is to guide the process towards the transition of Torroella de Montgrí into a more liveable and clean municipality.

Torroella de Montgrí is a coastal municipality with a total area of 65,91km² in the north east of the Baix Empordà region, in Catalunya. With a resident population of 11.388 inhabitants, the municipality is towered by the Montgrí Massif on its northern side. The rest of the municipal area is mostly horizontal, where cropland predominates. The land between the plain and the mountains shapes a wavy agroforestry patchwork, a transitional area called *terraprim*. Despite the urban dynamics in the last decades, the municipality still preserves a very high percentage of natural areas: approximately a 57% of the municipal land is forest and a 30%, agricultural.

The Ter River, which flows through the municipality from west to east, is the backbone of the plain and makes its agricultural use possible. On the coastal range of the alluvial plain, wetlands and marshlands resulting from the changes in course of the Ter and Daró rivers complete the triangle of protected natural spaces of Montgrí, Medes Islands and Baix Ter Natural Park.

One of the most significant features of this territory is with no doubt the system of villages and towns that has been consolidated as the settlement struc-

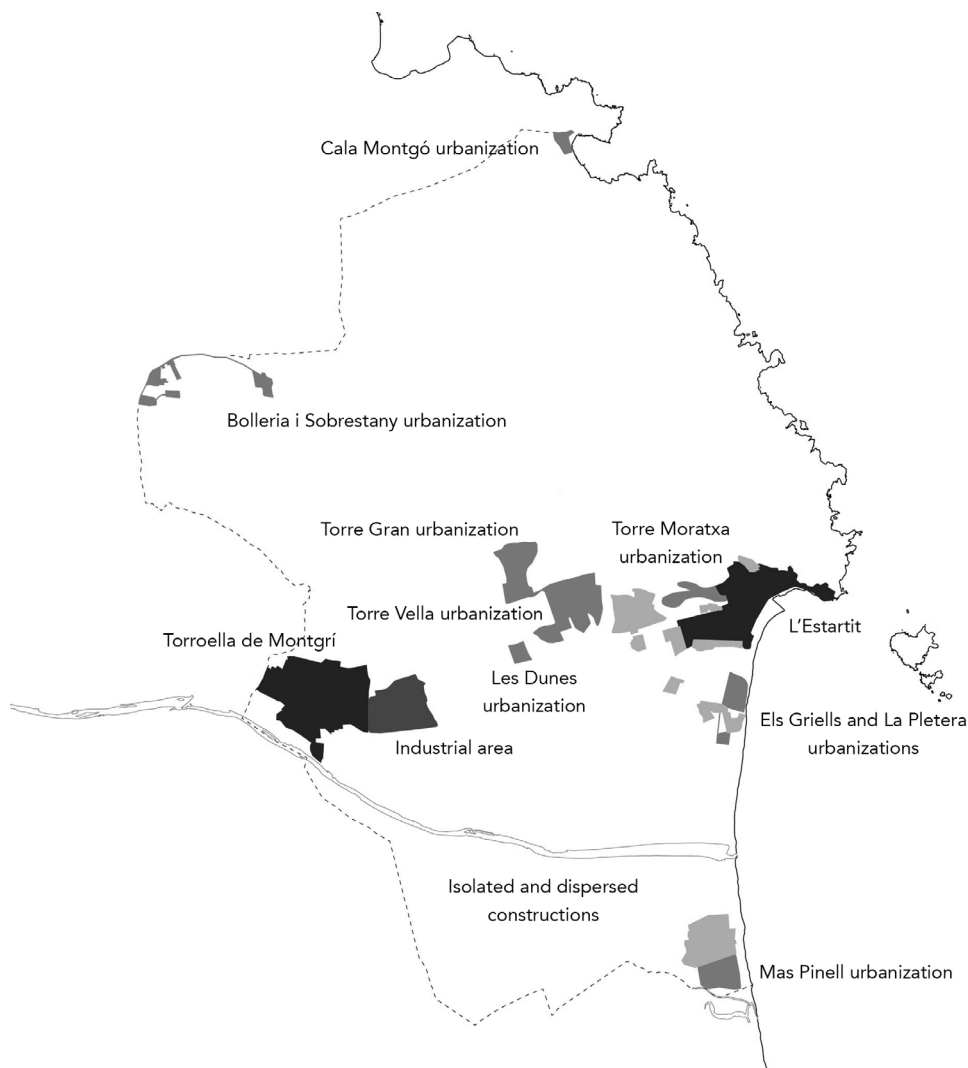


Fig. 1 – The twenty urban pieces of the municipality. In soft grey, the nine campsites (image: Francesc Baquer and Laura Plana).

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Fig. 2 – Mobility projects for the municipality proposed in the *Pla General d'Ordenació Urbanística* and the *Pla Territorial Parcial de les Comarques Gironines* (image: Francesc Baquer and Laura Plana).

ture (Observatori del Paisatge, 2010). In the Empordà region, this territorial organization strengthens even more and the network of villages is considered one of the major values in the plain landscape. Due to the urban dynamics in the last decades, the historic polycentrism has increased greatly and today the inhabited urban centres are no longer the

historical town centres of Torroella de Montgrí and l'Estartit, but it is now possible to identify up to eleven different urban settlements. In the summer, owing to the great presence of campsites (some of them, bigger than Torroella de Montgrí historical centre itself) the number of urban pieces radically increases up to twenty units (fig. 1). Countless piec-



es hardly attributable to the image of an original puzzle, fairly uniform inside, but between them unequal, interrupted and separated by unbuilt spaces, fields, natural areas or fabrics built dispersed and not so homogeneous (S. Munarín, M.C. Tosi, 2001). Torroella de Montgrí changes rapidly and radically throughout the year. The municipality is affected by important mobility flows of different intensities that modify the way it works: especially due to summer tourism and because of the numerous events that are organized. The contemporary strat-

egies that guide the mobility planning of the municipality are part of the *Pla General d'Ordenació Urbanística*, on the urban scale, and of the *Pla Territorial Parcial de les Comarques Gironines*, on the territorial scale. As to mobility, the main objective of these two planning programmes, written in 2002 and 2010 respectively, is to improve the fluency of private motorized traffic during the summer period proposing, as a key project, the construction of a detour around the urban centre of Torroella de Montgrí and a new route of the C-31 road (fig. 2).

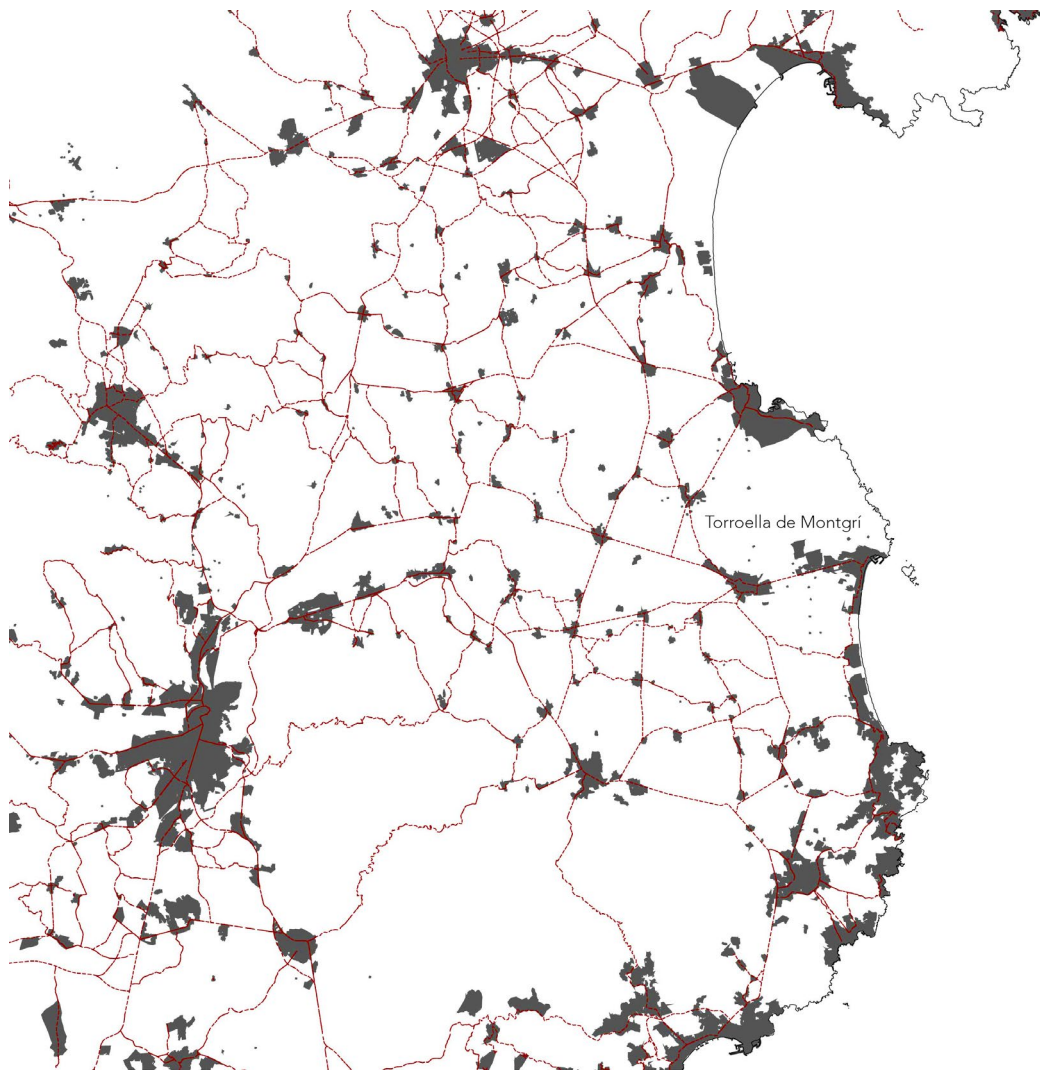
The Sustainable Urban Mobility Plan (SUMP) is a strategic planning document that proposes a territorial project for the future of the municipality. Its goal is to establish the basis and to guide the course of actions towards turning Torroella de Montgrí into a sustainable municipality. To achieve the set goals, the project proposes four strategies, which are briefly described below. Each strategy holds different spaces, which, in turn, include strategic projects.

Strategy 1. Weaving a city of 50x50 km

The resident's extensive use of the territory¹ makes it necessary for the first SUMP strategy to widen the field of study. Like in the explorations carried out by Secchi and Viganò research group in the Veneto area, an imaginary square of 50x50 km (being Torroella de Montgrí in its centre) is defined. This imaginary square allows confronting a vast and extensively used territory that corresponds to the resident's daily mobility area. The 50x50 grid shows how, at a territorial scale, historical town centres, urban expansion districts, residential areas, industrial states and isolated buildings coexist in the same territory although they are physically separated one from each other, and, because of the lack of a sustainable mobility territorial project, they cause people's dependence on motorcars to get around on a daily basis.

When the relationship networks cover the entire territory and make it possible for this to become a city (Nel-lo, 2001), it is common to think about the impossibility of turning a dispersed, polycentric, low-density territory into a sustainable territory. To tackle this, the contemporary urban planning strategies in Catalonia bet on a reduction of the motorized mobility to maintain the image of the traditional compact Mediterranean town. The SUMP of Torroella de Montgrí, far from proposing to transform all towns and urban pieces in the Empordà region into bits of the longed traditional Mediterranean city – which would mean to provide them all with the necessary equipment and services – suggests taking the contemporary configuration of human settlements of this territory as an opportunity to drive an integrated territorial urban strategy. The dense infrastructural tissue in the Girona region, defined by the *Observatori del Paisatge* as one of the main historical and aesthetic values in the region, becomes the element on which the idea of an integrated and sustainable territory should be focused: a city of 50x50 km.

The first SUMP strategy suggests driving a sustainable mobility territorial project that improves the relationships between the different urban town centres and the other disperse urban settlements around the territory, ensuring equal opportunities



independent of the place of residence. It is about building a territorial image far from the municipal administrative rigid limits and fostering the relationships among the different urban pieces.

The main goal of this strategy is not reducing mobility itself, but rather the opposite, providing this infrastructural network with the basic characteristics so that mobility becomes a healthy and safe act, which faces the economic, environmental and social challenges that a polycentric and low-density territory offers. It's about working to guarantee

the accessibility to the whole territory and making it possible for urban pieces that are physically apart to work together: reweaving the territory to strengthen and get back the physical and social bonds which allow to construct an extensive city of 50x50 km. The first SUMP strategy is organized according to two strategic spaces, which, in turn, include their respective strategic projects.

The first strategic space, named The Urban Grid, illustrates a large and dilated city whose project cannot be separated from the small and capillary net-

work of roads (Fabian, 2012) and refers to the dense infrastructural support that has been the backbone of the Girona region for centuries, connecting all the city centres one with each other and offering the image of an isotropic territory, highly heterogeneous, where no directions prevail. The proposals for this space are based on the willingness to recover the idea of an articulated territory using the current infrastructure network that, albeit the scattering of smaller or bigger urban pieces over the territory, it is still possible to identify it as the key element to organize the configuration of the contemporary territory (fig. 3). The mobility over the different urban pieces shaping the territory is the essence of The Urban Grid. This space has a structural role on the mobility improvement: thanks to a sustainable mobility territorial project, it gives residents the opportunity to think up their own 'city', based on their own movements and not on the rigid administrative limits.

In broad terms, the actions proposed are to insert a network for a sweet mobility system along the axes defined by The Urban Grid; to invest on the study and implementation of collective transport capillary network coherent with the characteristics of the territory and the residents demands; to relocate the stop spots of the collective transport all along the axes of The Urban Grid and improve the accessibility

conditions from the urban centres to the stop spots; to improve the existing infrastructure network to guarantee safety journeys; to create and mark parking spaces at the entrance of the urban settlements so that the urban areas would be decongested and pacified; to study and implement a more competitive and sustainable goods transport system along the axes of The Urban Grid.

The second strategic space, named Small Avenues, refers to one of the most controversial subjects for the municipality: to manage the motorized traffic through the urban centres of Torroella de Montgrí and l'Estartit. Without a clear mobility strategy, both urban centres act like bottlenecks that, in certain periods, worsen the fluency in the mobility flows and favour the traffic jams that generate such unease. The interaction of territorial mobility flows with the urban centres is one of the most delicate issues in the system and, that is why the proposals set out for this space come from an accurate analysis of the different projects on the table when writing the SUMP.

To give an answer to the traffic jam episodes, the SUMP proposes to provide the urban centres of Torroella de Montgrí and l'Estartit with a clear and legible road scheme, easily interpreted by the motorized traffic and which allows to transform the axes through which the traffic circulates into urban spac-



Fig. 4 – The Small Avenues in Torroella de Montgrí nuclei (image: Francesc Baquer and Laura Plana).

es of reference, thus increasing the area for pedestrians and cyclists and recovering walking and activity spaces (fig. 4) and avoiding the need to build new and invasive infrastructures dedicated to motorcars. In this case, the actions proposed are to eliminate the parking areas along the urban main routes, to reduce-limit the number of accesses to other streets, to foresee enough loading and unloading zones, to add cycle lanes along the routes, to guarantee the continuity of the sidewalks, to naturalize the Small Avenues taking back the idea of the old boulevards that access the town centres increasing the urban landscape quality.

Strategy 2. Recycling the urban tissue in favour of public space and sweet mobility

Public spaces have been the support of collective life in all Mediterranean villages and cities. For many years, paths, streets and squares have become the main room of the Mediterranean houses: the socialization, exchanging and relation spaces par excellence.

In Torroella de Montgrí, public spaces have given shape to the first urban agglomeration, leaving a great number of collective open spaces. In the last decades, however, the urban tissue has exclusively been designed for people moving by car. More and more space is used to welcome the increasing num-

ber of vehicles moving around, and which, once they get to their destination, need to be parked. Big areas appear, in and out of villages and cities, where vehicles can park, which added to the extraordinary area designed for their circulation, compromise the character of public spaces and make it difficult for pedestrians and cyclists to get around (figg. 5-6).

In this context, recycling means giving back to the road the role that in the cities of southern Europe has always had not only a transit device but also a public space in all senses, a place of relationship and social interaction (Fabian, 2013). Public space becomes the element that allows rethinking the municipality urban tissue. The proposal is to create a quieted and healthy network of public spaces that connects the intense activity spaces in the urban centres of Torroella de Montgrí and l'Estartit. Paths, streets and squares have to become the support of collective life again, which is mostly an outdoor life in this latitude.

The main goal of this strategy is to recycle the urban tissue in Torroella de Montgrí and l'Estartit; a project that recovers the space taken by cars and that gives back a public space of high quality to its residents. It is about drawing the street sections again in favour of flow coexistence and driving specific isolated projects that return maximum permeability to the dense network of roads and streets. The





Fig. 7 – Paths, Streets and Squares in Torroella de Montgrí nuclei (image: Francesc Baquer and Laura Plana).

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Figs. 5-6 – Urban landscape in Torroella de Montgrí and l'Estartit (photo: Francesc Baquer and Laura Plana).

proposals for this strategy have a great deal of benefits at a personal, social, communicative, environmental, and even, commercial level. Thus, strategy 2 makes sweet and active mobility the centre of everyday life.

The second strategy proposed by the SUMP is based on one strategic space, named 'Paths, Streets and Squares'. This one refers to public spaces in the urban centres of Torroella de Montgrí and l'Estartit that the SUMP intends to recover. The proposals for this space have its origin in the willingness to create a new spatial structure that arranges the urban tissue of both settlements and connects the highly intense activity and urbanity points through quiet-spaces (fig. 7). Apart from structuring the urban tissue prioritizing foot and bike mobility, this space has also the objective of recovering the emblematic and historic spaces of the urban landscapes of Torroella de Montgrí and l'Estartit.

In broad terms, the actions proposed are to remove the parking areas for motorized vehicles; to reduce the spaces for motorized vehicles to one direction traffic lane; to eliminate or reduce the architectural barriers that break up public space, to naturalize streets and squares so that quality public spaces are guaranteed, to accurately mark the main itineraries indicating the distance and trip timing on foot and by bike.

Strategy 3. Articulate a park system

The municipality of Torroella de Montgrí is extraordinarily rich in natural areas. Orography and hydrography have enabled the developing of a complex vegetal landscape of great ecological value. The Montgrí Massif, with its greyish tones, the olive trees crops on the first waves of transition between the plain and the mountain, the alluvial plain originated on the rivers Ter and Daró, the agricultural mosaic, the coastal natural spaces with steep cliffs, dune coasts, lagoons, marsh lands and the small archipelago of les Medes form a landscape that needs not only to be protected but also dealt with and arranged. Nowadays, there are different figures that recognize the natural and ecological values of the municipality: the Montgrí, Medes Islands and Baix Ter Natural Park, created in 2010, the Space Natural Interest Plan (SNIP) and *Xarxa Natura 2000*. Apart from these protected or inventoried spaces, the municipality of Torroella de Montgrí has also numerous natural and social areas of interest which, due to the urban dynamics deriving from the beach tourism, to the urban uses to be developed or to the consequently abandoned areas, are now deeply damaged and cause significant fractures that affect the ecological, landscape and social permeability of the territory (fig. 8).

Water, present all around the municipality, becomes



the element around which these natural spaces can be articulated. The SUMP proposes to create an interconnected system of green areas, in the shape of a park, all around the water spaces, which, apart from improving the ecological connectivity, increases the social permeability among the different parts of the municipality. Water has always had and will have a main role in the configuration of the terri-

tory of l'Empordà and it is for this reason that the third strategy that the SUMP proposes is based on the dynamics associated with water. Moreover, this strategy also reinterprets some of the spaces that are still waiting to be developed.

The main objective of this strategy is to articulate a big ecological system that improves connectivity, legibility and the quality of open spaces and that al-



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Fig. 8 – An abandoned area near the urban centre of Torroella de Montgrí nuclei (image: Francesc Baquer and Laura Plana).

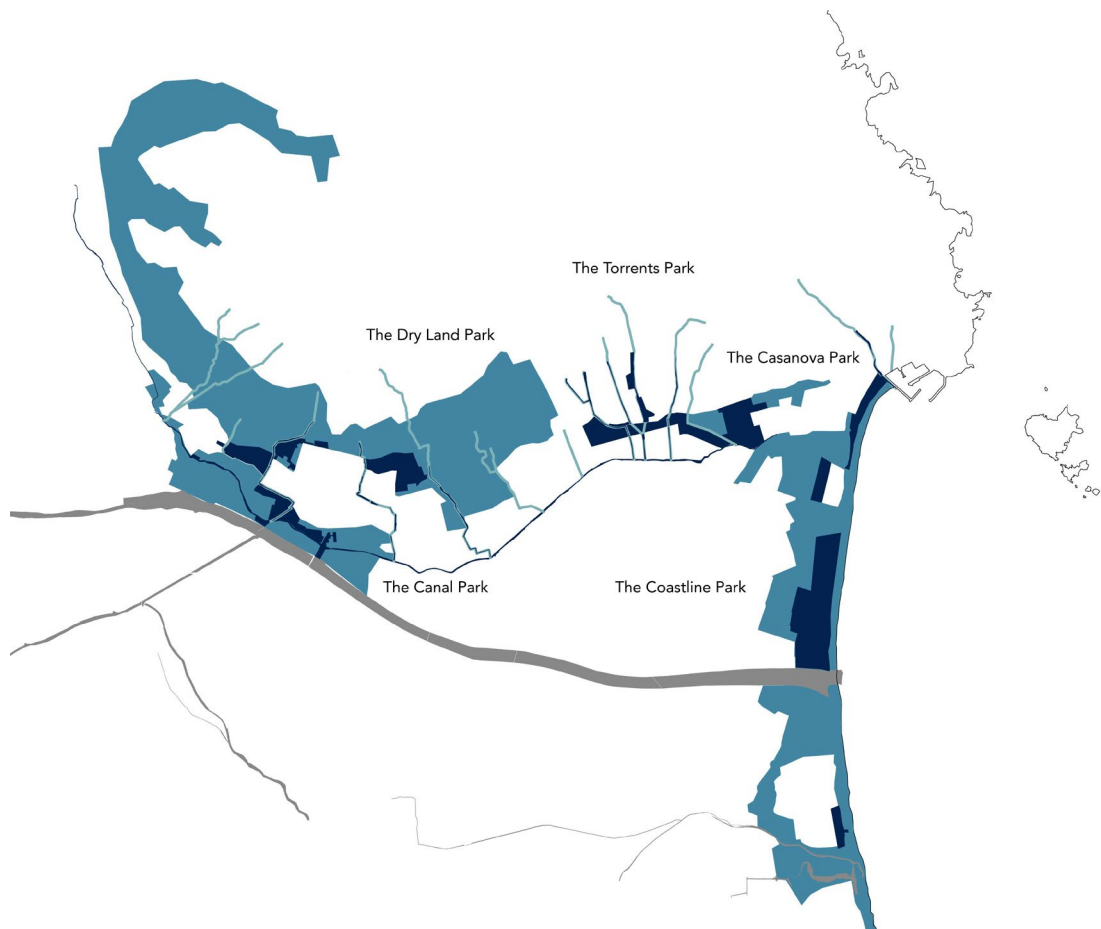
lows solving the lack of continuity in terms of use, activities and movement. The parks have nothing to do with the idea of green area put forward by the current municipal planning, which are understood as small and isolated pieces. They supply with a new spatial relationship among equipment's, activity areas and the different urban settlements. Building parks implies giving shape to dispersion and, at

the same time, recovering and revaluating the local landscapes. The term park not only refers to a place for leisure but also a place to embrace a set of situations in which the environmental character is the basis for developing the activities. Parks become the support in which a great deal of situations can be carried out, providing the territory with a bigger flexibility.

The different landscapes of the municipality are the starting point to define parks (fig. 9). Each park responds to a different landscape in the municipality. Parks limits are defined according to the landscape units and following the criteria in the Connectivity Study of Torroella de Montgrí, carried out for the municipality in 2009. Parks become areas that, with their characteristics and dimensions, can absorb the sudden waves of population that affect the municipality – with big parking areas and/ or with spaces where events are held – in the summer period and, at the same time, they become big natural socialization spaces during the rest of the year, responding to the principles of flexibility and elasticity.

The third strategy of the SUMP develops from five strategic spaces that, in turn, include the respectively strategic projects.

The first space, named The Canal Park, comprises the area situated in the south of the nuclei of Torroella de Montgrí and its extension to the town cen-



tre of Ullà, between the limit determined by the existing buildings and the bank of the Ter River. The vegetable gardens shape the landscape of the park, which articulates around the Madral Canal, the Molí Canal and the Vell Canal. The vegetable gardens and the canals have awarded, for centuries, an important ecologic and social value to the citizens of Torroella de Montgrí.

The main purposes of The Canal Park are to connect the urban centres of l'Estartit, Torroella de Montgrí, Ullà, Bellcaire and Sobrestany through the Madral Canal, the Molí Canal and the Vell Canal route; to improve the landscape quality of the south east façade of the urban centre of Torroella de Montgrí; to define a transitional space between the urban

scene and the vegetable gardens of Tamariuà and to the Ter River; to turn the Madral Canal, the Molí Canal and the Vell Canal into a big ecologic, landscape and social passage; to revalue the historic landscape of the vegetable gardens.

The second space, named The Dry Land Park, includes the strip of woody dry land crop situated on the southwest slope of the Montgrí Massif, between the alluvial plain and the forest land of Montgrí. The parcelling of cropland, small and surrounded by tree edges and dry stalls are a clear exponent of maximum naturalness in an agricultural space altered and managed by man. Olive trees have been growing in the dry land for centuries and convey a landscape of great aesthetic and historic value,

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Fig. 9 – The five parks proposed
(image: Francesc Baquer and Laura Plana).

which must be preserved and fostered. The sports centre, the Montgrí High School, the Saint Gabriel School, the Guillem de Montgrí School, the Petit Montgrí kindergarten, the cemetery and the funeral home are part of the Dry Land Park.

The third space, named 'The Casanova Park', comprises the area around the GI-641 Road between the residential area of Les Dunes and entrance of l'Estartit. This area, which was formerly cropland, have been abandoned partly because of the consequences of the urbanization in the last decades and of the qualification of developable soil awarded by the municipal planning. The GI-641 road is, at this stretch, an axis around which different commercial activities have been implemented, especially those related to leisure and free time.

The main goals of the Casanova Park are to connect the residential areas of Les Dunes, Torre Gran and Torre Vella and the Ter, Castell Montgrí, Empordà and Rifort campsites with the urban centre of l'Estartit; to improve the landscape quality and the relationship with the open spaces surroundings around the GI-641 road; to provide the residential areas with collective open spaces for improving their conditions and reinforcing their identity; to favour the development of open air ludic activities and sports along the GI-641 road and the Camí Vell of Torroella de Montgrí.

The fourth space, named The Coastline Park, covers the area of former marshlands, lagoons and dunes that formed the littoral landscape in the plain of Baix Ter. Although the whole of it offers a very diverse state of preservation, this space stands out for its great ecologic and landscape value. The urban dynamics undertaken during the last decades damaged part of this coastal landscape. The presence of 2 campsites, a group of storehouses, three residential areas and the corresponding roads that give access to them, endanger the ecologic connectivity of the natural spaces in the coastal façade and turn it into a fragmented space. It should be pointed out the work that is being carried out and almost being finished of the LIFE *Pletera* project to recover a great part of this place naturalness.

The main objectives of the Coastline Park are to connect the urban centre of l'Estartit with the residential areas of Griells, la Pletera, el Mas Pinell and the Delfin Verde Campsite; to recover, foster and revalue the landscape and ecologic nature of the coastline strip; to provide the residential areas of Griells, la Pletera and the Mas Pinell with shared open spaces that improve their conditions and reinforce their identity; to improve the ecologic connectivity between the Ter Vell and the river Ter; to favour and encourage the exploration of natural spaces in the coastline façade by sweet means of transport.



Fig. 11 – New spatial structure for the municipality. Strategic projects and spaces proposed by the SUMP (image: Francesc Baquer and Laura Plana).

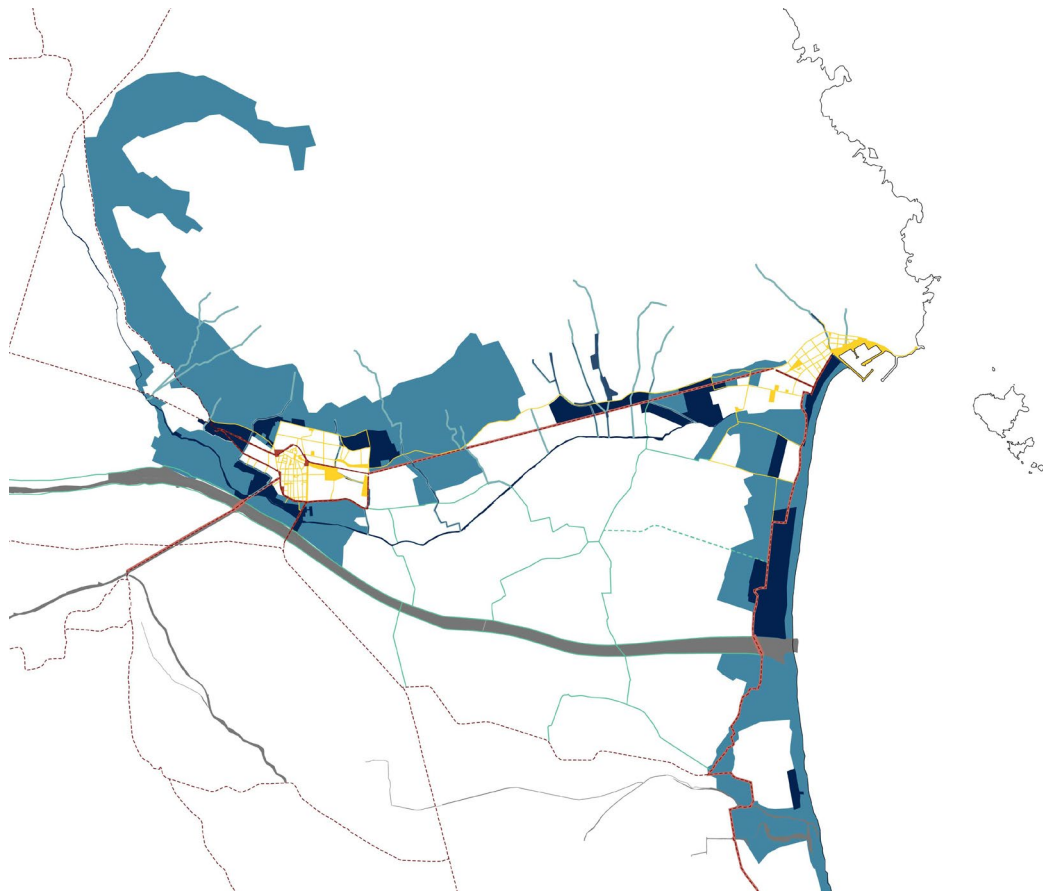
The fifth space, named 'The Torrents Park', encompasses the set of watercourses that flow down from the Montgrí Massif and head to the agricultural plain. Watercourses are ecologic and landscape connectors and, in most cases, are the only elements that can function as potential connectors between the Montgrí and the agricultural plain.

The main goals of this strategic space are to establish connections north-south so that the urbanized spaces on the Montgrí slope can be connected to the urbanized spaces at a lower height and also to the main west-east axes of sweet mobility; to improve

the landscape quality and the relationship with the surroundings of the torrents that cross the main urban areas; to define a natural transitional space between the Montgrí Massif and the agricultural plain; to respond to environmental challenges related to the water storage that the future lays out.

Strategy 4. Foster and preserve the agricultural plain

Agriculture covers more than 24% of the municipal surface and it is one of the most symbolic and relevant elements of the landscape in Torroella de



Montgrí. The Baix Ter horizontal topography has made it possible for the Ter River to shape an extensive alluvial plain that reaches both sides of its course. In return, the soils fertility and the water supply system develop a rich and diverse agricultural patchwork that plays a significant part as a landscape, ecologic and social connector. The aesthetic values of this landscape have made it highly attractive and, consequently, numerous visitors access it to admire its qualities. This has implied the introduction of activities/uses different from the agriculture ones in the agricultural plain and has encouraged urban and tourist mobility in it. The coexistence of the agrarian mobility with the urban and tourist mobility is often a reason for conflict. That is why it is of vital importance to arrange and man-

age mobility flows in the agrarian space. To solve this problem, this strategy proposes a green itinerary network that regulates mobility and frees the main roads used by agriculture of the tourist and/or urban mobility. The SUMP also proposes to study strategies to discourage or restrict motorized urban mobility through agricultural space.

The fourth strategy of SUMP encompasses one strategic space, named Green Agricultural Paths, which refers to the paths in the agricultural plain that the plan considers strategic to foster and preserve the agricultural plain (fig. 10). The proposals for this space starts from the will of creating a new itinerary network that structures the agrarian space and foster it for a social organized use.

At a general level, the proposed actions are to dis-

courage the traffic of the motorized non-agrarian vehicles along the agricultural plain; to regulate the circulation by bike and on foot; to determine the Agricultural Green Paths; to accurately signal the itineraries indicating the mobility distance and time; to recover and favour tree rows along the paths; to elaborate a code of conduct according to which, among others, circulation rules and priorities are indicated.

Conclusions

The SUMP for Torroella de Montgrí intends to be a dynamic plan, which, from an accurate reading of the reality, proposes a project for the transition to a sustainable mobility model. The set of actions considered start from the willingness of providing the municipality with a new spatial structure that supports the polycentric shape of the territory. The hypothesis supported by the SUMP is to make it possible to reduce the external costs of the current territorial model with a collective project on mobility spaces, which can increase the connectivity of the territory, making it permeable and porous (Viganò, 2010). Instead of building new infrastructures, that enables a quicker mobility, a reinterpretation of the existing spaces is proposed in favour of sweet mobility and collective transport. Among the main benefits are the improvement of residents' health, the reduction of traffic accidents, the increase in re-

al estate values, the increase in local relationships, the improvement of air quality, or the reduction of traffic accidents.

The focus of attention has been on the spaces and their reinterpretation to adapt them at a human scale. The shape of the territory is in the centre of the proposed projects, which support the idea of a polycentric and open territory where the empty space becomes a fundamental project figure, acquiring a primary role in relation to the constructed space (fig. 11).

The position, apparently contradictory, that has been the guidance in the creation of the SUMP is that building a more sustainable territory does not necessarily mean to start from limiting mobility nor restructuring the activities over the territory, but rather the opposite, that it is the project based on restructuring spaces for mobility the element capable of providing a new cycle of life to what already exists.

Note

¹ According to data from the *l'Institut d'Estadística de Catalunya*, the 85% of the daily mobility carried out by the inhabitants of Torroella de Montgrí takes less than 30 minutes and more than a 40% of it takes less than 10 minutes. As the vast majority of the everyday mobility is made by private car that means that, the inhabitants of Torroella de Montgrí exceed the municipal limits to carry out their daily activities.

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Wind farm nearby Vizzini, Catania (Photo: A. Frascari, 2013).

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