to begin a whole series of projects focused on recovering the Llobregat River environment and landscape.

Two executive projects were drawn up in 2006 which were approved and assigned in May 2007 by the MMAMB, accordingly delegated to act by the Consorci, and are at present in the implementation phase. Two stretches of the river have been chosen as the first operations for which projects have been drawn up to recover the environment and landscape. One runs from the Martorell Gorge to the confluence of the river with the Rubí torrent, affecting the municipalities of Martorell, Castellbisbal, Sant Andreu de la Barca and Pallejà. The other begins at the Sant Boi de Llobregat municipal limits and passes through Sant Joan Despí, Cornellà and Hospitalet reaching the C-31 viaduct running over the Llobregat in the El Prat municipality. Despite the spatial diversification of the proposals for the river derived from studies carried out in the Projecte-Marc, it has been decided to begin important work on the scree and nearby fluvial area, even though the choice of stretches corresponds more to an interim situation. It was decided to continue monitoring the fluvial stretch that would be affected by the land taken up by the high-speed train line until construction finishes. The objective was to avoid interference and to be able to assess the effects of these works on the fluvial system, and thus be able to adapt environmental and landscape recovery operations to the corrective measures needed to counter the impact of the train line construction work. These two stretches, which are presently under construction, are various projects run by various agents that have been determined by tender.[6] All in all, both projects, as well as the intermediary stretch which has been developed to the stage of an advance project, show certain common criteria and characteristics and which will have to guarantee conceptual unity. These are projects which focus their operations on the environment and the landscape, which is why they have been drawn up by multidisciplinary teams able deal with the specific demands of the task.

Apart from the issue of recovering the environment and landscape, the task of regulating access to the river has also been a central consideration of these projects. They include, as a minimum requirement, a pedestrian and cycle path on each bank along the entire stretch of the river, which are situated just next to the scree edge in the area of the public water supply. Also, at certain given points, the projects propose new access means from the nuclei to the fluvial area. It would be far to simplistic to set the objective of environmental improvement in opposition to works that facilitate frequenting these areas, providing they are adequately planned. The almost non-existent relationship between the public and the river could be considered one of the determining factors behind the marginalisation of the fluvial space, therefore to re-establish this relationship is an essential factor for its recovery. The Projecte-Marc had already pointed out this absence from its own detailed research into which paths had historically linked urban nuclei and its case by case analysis of the possibilities of recovering them. This proved to be a difficult task given that in the majority of cases the construction of major infrastructures made this infeasible. This is why it has been necessary to consider, at certain points, new strategies to integrate the river into the urban network of open spaces, perceiving it as a new type of open space at a metropolitan scale comparable only with Collserola because of its magnitude and possibilities.

The recovery of the river for the general public and bringing it back into the minds of metropolitan inhabitants constitutes a project theme that we can see as a strategic objective in a large number of metropolitan areas around the world. The work by Anne Whinston Spirn and James Corner in Philadelphia, the recovery of the Anacostia in Washington or the Don in Toronto, the IBA-Emsher Park, the Thames and the River Lea in London or the impressive project for recovering the Cheonggyecheon in Seul, demonstrate the vital importance of recovering the river in metropolitan contexts as elements that generate environmental and landscape quality and, all things considered, as spatial structures capable of building the metropolis, oddly enough, from their non-urban character…just as Geddes called for.

1 Patrick Geddes, *Cities in Evolution*, 1915. Taken from the Spanish translation edition, *Ciudades en Evolución*, Ediciones Infinito, Buenos Aires 1960. The Spanish edition includes texts and some photographs from the exhibition on cities by Geddes from 1905 onwards.
2 Xavier Latorre, *Història de l'Aigua a Catalunya*, L'abecedari, Premià de Mar 1995.
3 Manuel de Torres i Capell, *La formació de la urbanística metropolitana de Barcelona*, MMAMB, Barcelona 1999.
4 Antonio Font, Carles Llop, Josep Maria Vilanova, *La Construcció del Territori Metropolità. Morfogènesi de la regió urbana de Barcelona*, MMAMB, Barcelona 1999.
5 For more detailed information on the methodology of the Projecte Marc, see Fidel Vázquez Alarcón and Ramon Vázquez López, *La transformación del espacio fluvial del Llobregat en el Baix Llobregat*, Ramon Folch (Coord.), *El territorio como sistema*, Diputació de Barcelona, Barcelona 2003.
6 The Martorell to Rubi torrent project director is the architect and landscape designer Alfred Fernández de la Reguera; the lower stretch is headed by the company of architects Batlle i Roig.

RESTORATION OF PERIPHERAL URBAN AREAS
Project for improving the landscaping of the access to Granollers along the BP-5002.

Jaume Busquets i Fàbregas

"…i aquesta ciutat la voltaria d'unes arbredes altes i verdíssimes"

(and I would enfold this city in high and lush green trees)

Josep Carner

1. Restoration of urban peripheries and landscape improvement

In metropolitan contexts, urban peripheries — understood here as the outskirts of cities — have often been forgotten areas; places that have not enjoyed the attention that we pay to historical quarters or newly-created residential areas. They are areas that almost always take on an unfinished, precarious and impersonal appearance, and in many cases, are associated with negative ideas of marginality and lack of public safety.

The urban peripheries of metropolitan areas are often the meeting point between two visible worlds (the urban world, in the strict sense of the word, and the rural world), generating an often uneasy dialogue and a landscape that seems disturbing because it fails to conform to either the tidy image of city centres or the more or less bucolic image of the countryside.

In recent decades, the dispersed nature of urban growth and the uncontrolled proliferation of peri-urban activities have contributed to an expanding area displaying some of the characteristic traits that are attributed to peripheral landscapes, such as disorder, lack of identity or the "banalisation" of these areas.

In addition, the distinction between city centre and outskirts is becoming increasingly weak in contemporary metropolitan environments, and we are seeing the creation of areas that are difficult to categorise using the conventional categories, and which are above all characterised by the hybridisation of uses and functions. One of the dangers of this dynamics is the formation of a landscape that is hard to read, while at the same time being depersonalised.

Within this context, the accesses to urban centres become tremendously important in the processes of evaluating urban peripheries; on the one hand, because they establish the relationship of function and significance between cities and their metropolitan environments, between inside and outside, between the past and the present. On the other hand, because they become a great opportunity for re-conquering peri-urban areas for public use and for creating more liveable places.

This article deals with the importance of trees and the arrangement of uses and spaces in configuring the entry points to cities, and describes the landscape improvement project for the access to Granollers along the BP-5002 road on the Palou plain, in the Barcelona Metropolitan Area.

2. Accesses to city centres and the role of trees

There was a time when the approaches to the majority of towns and cities were along roads lined with leafy trees. Travellers knew they were approaching a built up area because a kilometre before arriving they would find themselves travelling through the green archways formed by the trees at the entrances to the towns. And apart from the approaches to the towns, trees formed a common part of the make-up of many roads and stopping places.

Later, the country experienced economic growth, and the car became the vehicle of choice for the middle classes and one of the icons of a society that was striving to distance itself from the poverty of the first decades of the Franco dictatorship. In the nineteen sixties, with the increased popularity of the motor car, public areas and roads had to be adapted to its needs and demands. Old roads were widened, pavements were narrowed, parking areas were set aside (often at the cost of public areas), etc. In a short time, the automobile had become lord and master of our towns and cities, at the same time as becoming a work tool for many and an instrument of leisure for an increasingly broad swathe of the population.

The elimination of trees from our roadsides was a part of this process of transformation of the urban environment and infrastructures, in order to satisfy the needs of an ever growing level of traffic. Many still recall the sight of freshly felled shade-giving plane trees lining the roadside and the striking image of the roads left desolate. These were the times of the development boom, and trees were seen as an obstacle to progress, as an element associated with a world that seemed condemned to disappear, all in the name of a better future. The press of the day talked of security, avoiding accidents, adapting to change, etc. The truth however is that other options that might have achieved the same goals by less drastic means were not even considered. An example of an alternative strategy was that adopted by numerous French towns and now reinstated, of turning two-way streets into one-way thoroughfares; a system that allowed a great number of trees to be saved, many of which are now over a hundred years old.

Later, the country embarked upon an intensive phase of political reform, with the holding of democratic local elections. The new local authorities had to deal with high urban deficits and confront many social challenges. By then, some of the drawbacks of the age of the motor car were already becoming evident (ever-heavier traffic, gridlocked roads, chronic shortage of parking space, pollution, noise, etc.), and a new trend began, with policies aimed at recovering public areas, pedestrianising old town centres, introduction of speed limits, etc. Almost three decades later, this process is far from over, and we now live the apparent paradox of having to balance a growing number of cars on the roads with the demand for cities that are better places to live and for safer traffic conditions. As with all man-made things, the automobile, far from being a panacea, has shown itself in all its complexity, with both undoubted advantages and serious drawbacks which we need to learn to deal with rationally, to be able to make cities more comfortable places to live in and with a better quality of life for their inhabitants.

Today the need to improve urban peripheries and make driving a more pleasant experience means that trees have regained their importance and potential in the configuration of urban areas that are more people friendly, and this potential can be seen as especially useful in defining the accesses and approaches to towns and cities. In this sense, the restoration of roadside trees should not be thought of as an exercise in nostalgia, or simply an act of decoration, but as an opportunity to design decent approaches to towns and cities, to improve the environment and increase people's quality of life.

The project presented below shows how trees have been used in an urban periphery restoration project, in a case where it was not possible to replicate the traditional model of planting a double row of trees in tunnel form, since the width of the road made this option impossible.

3. The project for improving the landscaping of approvach to Granollers

The project for improving the landscaping of the southern approach to Granollers, in the area known as the Palou plain, is set within the framework of landscape improvement initiatives envisaged by *Law 8/2005 of June 8th, concerning the protection, management and arrangement of the landscape. Among other actions, this law establishes The landscape improvement of the peripheral areas and the access roads to towns and cities, and also the elimination, reduction and transferral of the elements, uses and activities that degrade them* (Article 8b) as one of the kinds of landscaping actions embarked upon by the public authorities.

The project was carried out between 2005 and 2007, by means of a collaboration agreement between three administrations: the Department of Land Policy and Public Works' Office of Architecture & Landscaping, Barcelona County Council and Granollers City Council. Their objectives were:

— The improvement of the urban infrastructure on the approach to this city along the BP-5002.

— The preparation of the area for pedestrian use.

— The improvement of the general road safety conditions.

— To dignify the image of a particular environment —the Palou plain — by maintaining its rural character.

The draft landscape improvement project was drawn up by the Landscaping Service of the Office of Architecture & Landscaping in 2005, and the executive project was produced in 2006 under the direction of architects Quim Rosell and Natalia Bernárdez . The total surface area acted upon was 29,000 sq. metres, and the total cost of the work (co-financed by the three signatories to the agreement) was 1,869,743 €, with a pass-through of 70.00 €/m^2. The tenders for the work were awarded in 2006 and the work was completed in 2007.

The Palou plain, to the south of Granollers, was formerly a district belonging to the village of Palou, until it was absorbed into the city in 1928. It consists of a flat area bounded by the railway line and the River Congost. Its agricultural nature has been maintained as a result of the desire of the city council to preserve the area as non-developable. The plain consists of an agricultural patchwork made up of a network of rural thoroughfares such as the Ral road, along which stand a number of farmhouses and a church of Romanesque origin. Other elements of historical interest include the lines of terraced houses, occupied in the 18th and 19th centuries by farm workers, grouped together in small rows alongside the road.

In recent decades, its closeness to the built up area and the city's progressive expansion, together with the proliferation of activities and buildings typical of peri-urban areas, have partially altered the traditional make-up of the Palou plain, although it still preserves its particular farmland character in one of the most active areas in the region of Vallès. This preservation has been possible due to the firm stance of Granollers City Council in recent years in defending the area's non-development character, a posture which culminated in the approval in 2007 of the Municipal Urban Development Plan, which classified this area as non-developable land.

For practical purposes, the BP-5002 road, which runs along the length of the Palou plain, has until now been the main road for accessing and entering Granollers for vehicles coming off the AP-7 motorway, and has suffered some of the most common problems in this type of thoroughfare: heavy traffic, lack of road safety, poor urban infrastructure, lack of comfort, uninspiring landscape, etc.

4. Scope and aims of the project

The project covers a 1.5 kilometre long stretch of the BP-5002 from the motorway access junction to the centre of Granollers. Up until the middle of the 20th century, as was common in many approaches to towns and cities in Catalonia, it was characterised by rows of trees planted along both sides of the roadway, as can be gleaned from photographs and chronicles of the period.

This arrangement was to disappear, as was the case in other roads in the region, with the increase in popularity of automobile use. The felling of trees and the laying of tarmac changed the appearance of the area, and it was further altered by the gradual appearance of new constructions and activities along the sides of the road (housing, workshops, shops, warehouses, restaurants, etc.).

When it came to evaluating the Palou plain project, the appearance of this area was not substantially different to a great many other accesses to town and city centres (partial and broken urban development, lack of functionally defined public areas, disordered presence of advertising, the continued existence of obsolete elements, etc.), yet it had one remarkable feature: the coexistence of this set of problems together with an exceptional landscape potential: a quality environment, wide views of the Palou plain farmland, availability of areas to act upon, etc.

The specific goals of the project were aimed at putting right the multiple deficits that the area presented, and involved:

— Restoring an overall unitary image of the approach, adapting the width and level of the road to the current physical determining factors and functional needs.

— Planting roadside trees as a continuous element along the whole of the route, while strengthening the area's most valuable visible elements and filtering out the less fortunate sites.

— The formal definition and delimiting of the areas adjacent to the road in terms of their safety, functionality and harmony.

— The setting out of public areas for pedestrians to move around and spend time in.

— Slowing down the traffic flow by redefining the road width.

— The provision of urban fixtures.

— The removal of overhead cables.

One of the most important challenges of the project was to find a suitable solution to the asymmetry that existed between the two sides of the road, both in terms of the distribution of space, and the layout of buildings and the diverse elements that accompany the thoroughfare. The road runs in a north-south direction, from Granollers to the motorway junction. The eastern side of the road has the greater amount of buildings and activities, whereas on the western side, next to the river, the physical occupation of the area is less pronounced. This leads to an intermittence of views on the mountain side, and a more constant view on the river side, where the majority of the farmhouses and the small village of Palou stand. In a north-south direction, the sector closest to Granollers, some 500m long, is practically free of buildings, which are in contrast concentrated in the half that is further from the town.

Finally, it should be noted that the BP-5002 road landscape improvement project is part of a more ambitious process of municipal actions aimed at restoring the whole Palou plain. The more important of these actions include improvements to the Ral road that runs alongside the main road and the river, the dredging of the river bed and the creation of a flowing current, and other more specific actions aimed at strengthening other significant elements.

5. Features of the project

The main idea behind the project for improving the landscaping of the southern access to Granollers was to develop the landscape of the area so as to restore its character as a "gateway to the city". In this context, conceiving the road as a "gateway to the city" meant that throughout its length, the BP-5002 had to become a privileged route from which to perceive the approach to the town and the relationship existing between the city and its surrounding areas. A second important idea, closely related to the first, was the improvement of the thoroughfare's urban functionality and comfort, especially for pedestrians and local residents.

The project envisages the road as an element integrating the activities and buildings that lie along its length, and as a prominent and structuring element of the wider Palou plain restoration project. With this end, it provides a wide-ranging and coherent response to the succession of situations and needs arising along the thoroughfare, at the same time as strengthening the visual and unitary perception of the area's landscape.

One of the features of the Palou plain already mentioned is the lack of symmetry between the two sides of the road. The project resolved this asymmetry by designing a differentiating width of the two roadsides, combined with a homogenous treatment of the same throughout its length. In addition, it reinforces the presence of the network of small roads on the Palou plain, by selectively planting vegetation where these roads form crossroads with the main road, in such a way that a logical visual connection is established between the two road systems that attenuates the separation between the main road and its surrounding area.

The main actions that have allowed the goals of the project to be achieved are detailed below:

Restructuring of the width of the roadway

The width of the roadway was reduced significantly: from an average width of 9.5 m including verges, it was reduced to a width of 7 m for vehicles. This reduction allowed the number of lanes to be retained, while promoting a reduction in traffic speed to 50 kph, as in any urban area. Traffic lights, improved signposting and the setting out of parking areas were other actions that contributed to pedestrian safety and mobility.

The slowing down of the traffic rate was a key aspect of the proposal, since the reduction of the space available to traffic enables pavements to be installed with enough room for planting vegetation and creating a more agreeable environment for pedestrians and residents. In addition, it has enabled the creation of new areas designed to enable people to relax and take in their surroundings.

Construction of pavements

The construction of pavements along the whole stretch allowed pedestrians to walk in safety and comfort. The size of the pavements was adapted to the dimensions and elements of the stretch of road itself, although maintaining a minimum width of 1.5 m at all times. Some elements were maintained constant throughout, such as the paving and lighting, whereas others were installed in a discontinuous though coherent and unitary manner, such as the urban fixtures.

The paving consists of prefabricated concrete paving stones. Two colours have been used, yellow and red, with similar shades, and these are interlaced in such a way as to create a pattern that evokes the adjacent agricultural structure. The project maintains vehicle access to the properties by means of sloping kerbstones on the pavements.

The installing of new urban fixtures along the route and new lighting along the western pavement completed the work of adapting the pavements and the public area as a whole.

Planting of new vegetation

Together with paving, vegetation is one of the main elements that define the road's new image. The presence of vegetation, particularly trees, enables an order and continuity to be introduced over and above the heterogeneity of some often clashing forms and elements. In addition, trees

enable a rhythm to be established that acts as a guiding element on the route, as well as providing comfortable areas of shade.

In the project, the vegetation has been structured into three arrangement criteria, which pursue clearly separate aims and results:

— The planting of a sturdy line of trees that accompany the main road on its eastern side and enable the road to be identified as a new civic thoroughfare, while at the same time harking back to its former design. The species chosen for this row of trees is a variety of maple, Acer Freemani: the trunk size and dimensions (approximately 15 m of height reached within 20 years). together with the seasonal colour variations of this tree make it especially attractive for urban environments.

— Formation of small clumps of trees, on the western side. The main function of these clumps is to highlight and create new points of interest, normally related to junctions with country roads or to areas of activity. They are made up of trees of a single species — poplars, Judas trees, liriodendrons, chinaberry trees, ginkgoes, etc. — that offer an attractive and varied counterpoint to the homogenous rows on the opposite side of the road, while at the same time helping to frame or highlight certain visual elements.

— The planting of a grass verge, made up of a single species in a compact mass and uniform texture and outline, to border the road. Grass was planted on the banks and areas marking the limit between the fields and the pavement, and also in the openings made for the planting of trees between the pavements and the roadway, in such a way that, in some stretches, the pedestrians pass between them.

Setting out the technical infrastructures

The rationalisation and improvement of the technical supply infrastructures was another of the project's main actions. The work carried out to redesign the areas created the opportunity for running power lines underground and installing the telecommunication network (including the providing of empty ducting to cover future growth in the current network). In addition, the existing network of drains and sewers was also improved or renewed, and the water supply optimised.

Elimination of advertising hoardings

The presence of a large number of advertising hoardings arranged in a disordered manner is a factor that has a negative affect on the quality of the landscape. They are intrusive and act as visual barriers that hide or limit views. Arranging them in a more ordered way or removing them altogether leads to an instant improvement in the appearance of the landscape in any setting.

In the case under study, there were various sets of hoardings standing at right angles to the road. The intention of the project, though not a straightforward matter given the existence of the various legal procedures to be overcome, was to remove the hoardings, and where appropriate, to regulate these elements in the future to ensure that no more of these eyesores could again be put up.

Improvement of the walls of adjoining properties

The presence of various unsightly and poorly-maintained property boundary walls is another aspect to be considered in this type of operation. The local residents often put up walls at the boundaries of their land, be they residential or properties or cultivated terrain. This leads to the appearance of a repetitive element that does not respect any common guidelines, and results in the forming of poor quality environments.

The project proposed installing a single type of boundary wall, with the aim of regulating and unifying the criteria for their installation. This was also a difficult goal to achieve, given the pre-existence of these features, and the difficulty of intervening directly in elements that form a part of private property.

Maintenance provision

— With regard to vegetation, both the materials and the plant species employed were selected to ensure maximum durability with minimum maintenance. Species were chosen that would adapt perfectly to the conditions of the area, and which, once consolidated, would not require watering. Nonetheless, a number of minimum maintenance tasks was envisaged, such as annual tree pruning and the mowing of the grass.

— In addition, the choice of concrete paving was made to ensure the maximum durability of the pieces and the maximum ease of replacement. They were laid on a concrete base to ensure both the stability and durability of the paved surface, even in the event of vehicles running on them. Lastly, the models of urban fixtures chosen were the most suitable for public areas, however, as these are elements susceptible to acts of vandalism, they are the ones that require the greatest amount of attention by the maintenance service.

Conclusions

The strong turnout by residents of the Palou plain on the day the finished project was inaugurated by the Minister of the Territorial Policies and Public works of the Generalitat, Joaquim Nadal (July 14th 2007), in the presence of the Mayor of Granollers, Mr Josep Mayoral, and the Director General of Architecture and Landscaping, Mr Joan Ganyet, was a clear sign of how well-accepted this type of project can be by its most direct users.

The execution of the Palou plain landscape improvement project has provided a solution to some of the important urban problems concerning local residents, as well as giving added dignity the environment in which they spend their daily lives. Both the residents and the public passing through have been able to see how an area that had until that point been peripheral, unsafe and difficult to access, has been transformed into an accessible and comfortable area that encourages the establishment of new, more satisfactory social relationships.

Faced with the recurring and specific landscaping problems presented by the approaches to urban areas, and certain bad practices that have often led to the gateways to cities becoming a haven for untidiness, and which have led to the destruction of a historical heritage of trees with an undeniable landscaping value, there is a need to promote actions that restore order and value to such areas.

Public administrations have a special responsibility in this task, since it was their neglect and their errors in the past that was often the root cause of these processes. Along the lines initiated by the Law regarding the protection, management and ordering of landscapes, interventions in such areas has become both a priority and a challenge. The Department of Land Policy and Public Works, by means of its Office of Architecture & Landscaping, and thanks to the collaboration with other administrations, is determined to promote landscape improvement projects like the one described in this article, i.e. those aimed at restoring landscapes and capable of standing as examples.

In this same vein, 2007 saw the first announcement of the granting of tenders for public area landscaping improvement actions for avenues, boulevards and other tree-lined thoroughfares in municipalities in Catalonia; an initiative which springs from a desire to have a positive effect on the improvement of public urban areas by using roadside trees as a leading element in these projects.