

tavira

Tavira City Sustainable Mobility Plan



Phase 3 - Formulation of proposals and Program of Interventions

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LIST OF ACRONYMS

AEC	Curricular Enrichment Activities	HCL	<i>Highway Capacity Manual</i>
All	Intervention Area	LED	<i>Light emitting diode</i>
AMAL	Intermunicipal Community of the	<i>Maas</i>	<i>Mobility as a Service</i>
Algarve	AML Lisbon Metropolitan Area	PAMUS	Sustainable Urban Mobility Action Plan
AMT	Mobility and Transport Authority	SME	School Mobility Plan
ANS	National Road Safety Authority	PMS	Sustainable Mobility Plan
R	Portuguese Child Safety Association	PMSCT	Sustainable Mobility Plan for the City of Tavira
APSI	Bank of Portugal		Mobility and Transport Plan
BdP		PMT	
CAOPS	Official Administrative Charter of Portugal	PPM	Period of Ponta da Manhã
EC	European Council	PPT	Afternoon peak period
CM	Municipal Path	SIG	Geographic Information System
CO ₂	Carbon dioxide	SWOT	<i>Strengths, Weaknesses and Opportunities and Threats</i>
DL	Decree-Law	IT	Individual Transportation
E.B.	Elementary School	ICT	Information and Communication Technologies
IN	Municipal Road	TP	Public transportation
EN	National Road	TPCR	Public Collective Road Transport
ER	Regional Road	TRL	<i>Transport Road and Research Laboratory</i>
GHG	Greenhouse Gases National	TVDE	Individual and paid passenger transport in unmarked vehicles
GNR	Republican Guard	UEVL	Light Vehicle Equivalent Unit

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1. INTRODUCTION

1.1. FRAMING THE PROBLEM

Recent years have been characterized by an increase in complexity and a change in mobility patterns, which have been largely based on the ever-increasing use of the car in everyday travel.

Urban growth over the last few decades has contributed to increasingly unsustainable mobility, with more and more time and energy spent on travel, increasing travel costs and environmental impacts. This reality makes travel increasingly complex and dependent on the private car.

In the specific case of Tavira, there has been population growth (+5.2% between 2011 and 2021 and 1.9% between 2011 and 2021 in the parish), with a consequent expansion of the city's urban perimeter to the north of the EN125, in the areas of Mato de Santo Espírito and Vale do Caranguejo.

The growth of outlying urban agglomerations, such as Santa Luzia and Cabanas de Tavira, has also contributed to the increase in motorized travel and the problems of accessibility to the city of Tavira.

The growth in the use of individual transport shown in phase 1 of this plan has led to congestion on some access routes to the city of Tavira (eg ER125, EM515), with the emergence of critical junctions on the road network.

On the other hand, the city of Tavira has a high demand for parking, particularly in the more central areas of the city and next to the main facilities (eg health center, schools, market), especially in the summer, which puts pressure on the public space, either by occupying it with parking cars, or by the circulation of vehicles looking for parking spaces at times of greater pressure.

As the transport system is a fundamental element of territorial planning, it must be articulated with it in order to meet the population's mobility needs and presents high levels of operational and environmental efficiency, contributing to improving the attractiveness of the municipality, the population's quality of life and public health.

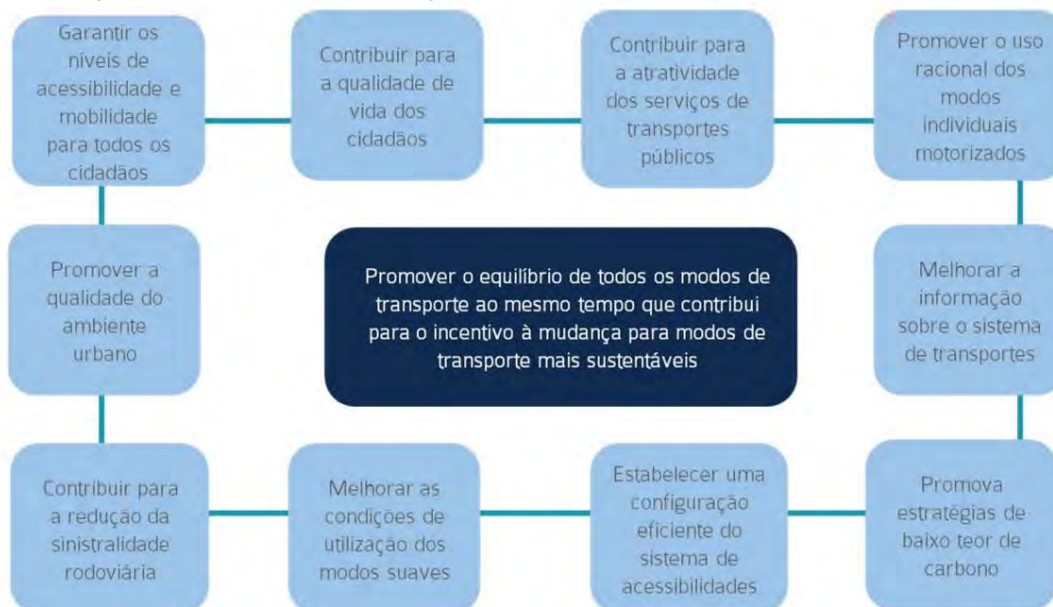
The promotion of more sustainable mobility patterns, one of the main objectives of this plan, should be linked to the requalification of the public space, in order to encourage greater use of soft modes and, at the same time, contribute to a greater experience of the city space, both by residents and tourists. It should be noted that, given the high seasonal population in the municipality and the city, there are greater urban mobility challenges in the summer. However, visitor satisfaction must be guaranteed without compromising the quality of life and safety of residents.

The paradigm shift does not only involve upgrading public spaces and infrastructure, but also changing the population's travel habits and patterns, which necessarily implies a parking policy that encourages greater use of public transport and soft modes, accompanied by training for the younger population groups and raising awareness among the population in general.

1.2. OBJECTIVES AND METHODOLOGY

Thus, this Sustainable Mobility Plan for the City of Tavira, hereinafter referred to as the SMTP, aims to be a strategic and operational instrument that contributes to improving mobility, the objectives of which are shown in Figure 1.1.

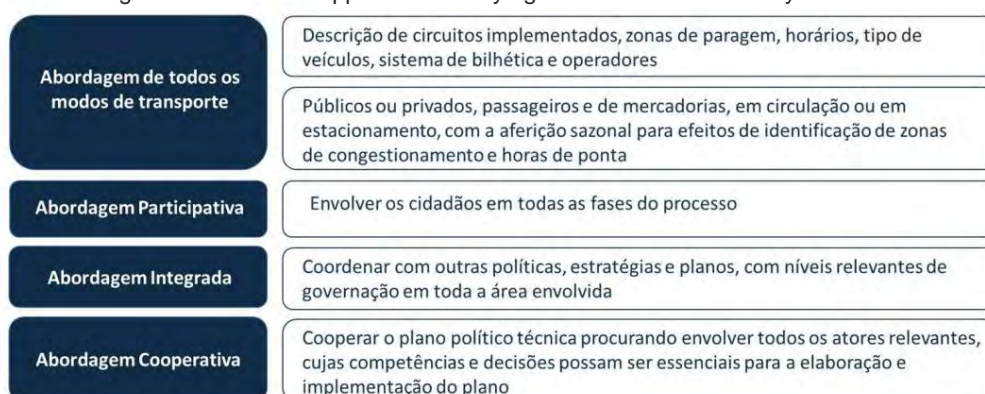
Figure 1.1 - Objectives for drawing up the sustainable mobility plan for the city of Tavira



1.3. METHODOLOGY

The project's general approach respects the set of national guidelines that provide methodological recommendations for drawing up plans of this nature. It is presented in Figure 1.2 and focuses on achieving quantifiable, locally appropriate goals that derive from the operational objectives outlined in the global sustainable development strategy.

Figure 1.2 - General approach to carrying out the SMP for the City of Tavira



The activities required to draw up the PMSCT are divided into four distinct phases, each encompassing a set of tasks. This phase is structured as shown in Figure 1.3 and described below:

- Phase 0 - Start-up, which corresponds to the initial phase, with the detailed programming of fieldwork, zoning and the preparation of the communication plan to be implemented during the preparation of the plan;

- Phase 1 - Characterization and Diagnosis, which corresponds primarily to the collection of information, through the compilation of available statistical data and the preparation of specific fieldwork, the analysis of existing studies is important for the development of the plan, in order to support the qualitative and quantitative analyzes to be developed. The analyzes focused on the following themes: dynamics and occupation of the territory, mobility patterns, soft modes, public transport, cabs and TVDEs, interfaces, individual transport, parking, urban logistics and road safety, ending with a SWOT analysis of the mobility and transport system in the city of Tavira;
- Phase 2 - Scenario Building and Strategy Definition, which involved identifying the driving forces (internal, external and political) that influence the mobility and transport system in the city of Tavira, as well as building different territorial transformation scenarios to which development alternatives (scenarios) for the transport systems that serve the city are associated.

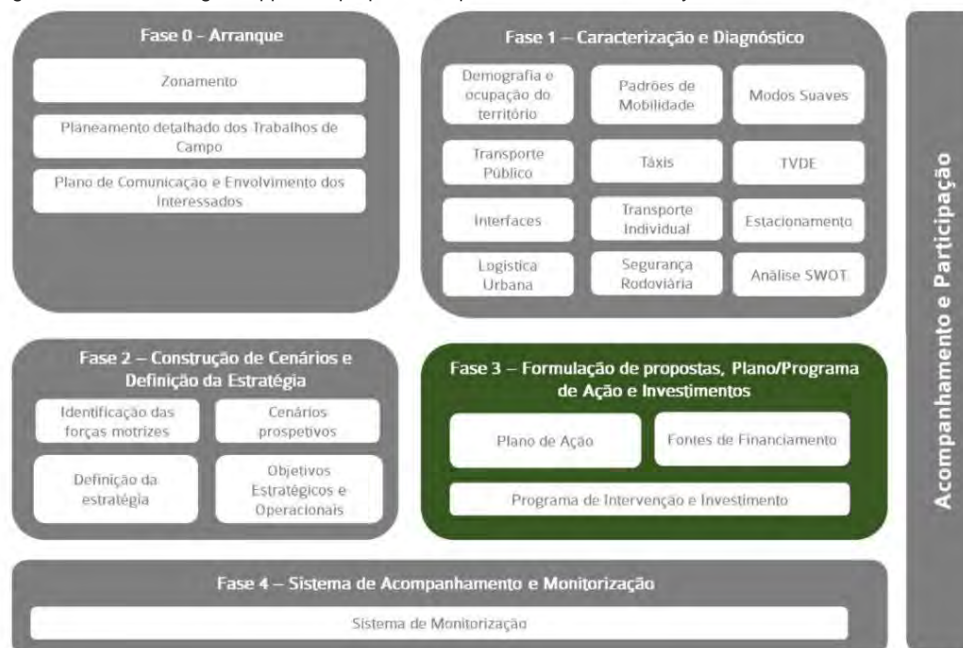
Taking into account the city's and county's territorial development prospects for the next decade and the main challenges facing its development, a strategy has been defined that will support the realization of the strategic vision that is intended for the city's mobility and transport system, establishing itself as the benchmark for the strategic objectives that will guide the interventions to be proposed in the subsequent phase of the plan.

- Phase 3 - Proposal formulation, Action Plan/Program and Investments, based on the plan's strategy and the objectives defined in the previous phase, this phase includes the 10-year Action Plan, which includes a set of proposals taking into account the different transport subsystems (IT, PT, soft modes, parking, urban logistics) and the respective synergies with land use planning.

This phase, which corresponds to this report, ends with an implementation program that includes: i) the set of intervention proposals and their timetable, considering three time horizons (short, medium and long term); ii) the investment estimates associated with the implementation of the measures proposed in the action plan; iii) the identification of possible sources of funding, and the entities responsible and/or involved in their implementation.

- Phase 4 - Follow-up and Monitoring System, which will include the definition of the main monitoring indicators (output and result), the evaluation metrics and the targets to be achieved with the implementation of the plan, as well as a proposal for the creation of a monitoring structure for the plan.

Figure 1.3 - Methodological approach proposed for phase 3 of the Tavira City SMP



1.4. ORGANIZATION OF THIS DOCUMENT

This document corresponds to Phase 3 of the SMP for the City of Tavira, which defines its action plan, sources of funding, as well as the timetable for measures and investment. In addition to this chapter, it is structured as follows:

- Chapter 2 - Structuring projects, which describes the projects planned by the municipality with an impact on Tavira's mobility and transport system:
- Chapter 3 - Integrated Mobility Strategy, which presents the strategy and concept for the mobility system in the city of Tavira.
- Chapter 4 - Action Plan, organized around the objectives and guidelines defined in the previous phase of the plan and which presents the measures and projects that make this plan a reality;
- Chapter 5 - Contributions of the proposals to the objectives, which assesses the impact of the measures on the pursuit of the strategic objectives of the Tavira City TMP:
- Chapter 6 - Financing Sources, which presents the main sources likely to finance the proposals in this plans;
- Chapter 7 - Intervention Program, which includes the timetable and budget for the proposed measures;
- Chapter 8 - Monitoring and Implementation - which proposes result and achievement indicators to be used to measure project implementation.

two. **MUNICIPAL PROJECTS**

 2.1. **INTRODUCTORY NOTE**

In parallel with the development of this sustainable mobility plan for the city of Tavira, the municipality is developing public space requalification projects for a number of urban streets, whose recommended interventions should be linked to the sustainable mobility strategy that this plan advocates for the city.

It is also important to bear in mind that the mobility plan for the city of Tavira considers the requalification of the central public space to be a very important aspect for improving the urban environment and the city's territorial attractiveness, contributing significantly to achieving the objectives of: (i) promoting soft modes; (ii) reducing the use of individual transport; (iii) reducing accidents in urban areas.

Within the framework of the intervention concept recommended for the city, the following projects are considered structural.

Figure 2.1 - Structuring projects for the city of Tavira


Requalificação da Praça Dr.º António Padinha

Esta praça, localizada na margem esquerda do Rio Gilão e no centro da futura zona de coexistência a criar, com uma elevada vivência urbana e onde é fundamental criar uma zona de circulação pedonal segura e confortável.


Requalificação da Rua Dr.º Marcelino Franco

Esta praça detém uma localização privilegiada no centro da cidade, na margem direita do rio Gilão, numa zona de potenciação e valorização dos modos suaves como principais modos de deslocação para viagens de curta distância.



Requalificação do Largo da Feira com criação de parque de estacionamento de longa duração, enquanto estacionamento de longa duração, permitindo a trabalhadores e visitantes estacionar comodamente e evitar a procura de estacionamento no centro da cidade

 2.2. **REFURBISHMENT OF DR. ANTÓNIO PADINHA**

Praça Dr. António Padinha, located on the north bank of the River Gilão, is centrally located in the city's historic center. It is currently home to numerous restaurants and other establishments

commercial premises, whose terraces and street furniture occupy the existing sidewalks, making it impossible to use them as pedestrian circulation channels. One building is being renovated.

In order to minimize conflicts between road traffic and pedestrians, the municipality has painted pedestrian channels in the middle of the road, which surround the spaces occupied by terraces and shopkeepers. During the summer, the municipality closes this space to car traffic. In this square there are situations of conflict between parking and pedestrian, cycle and road traffic.

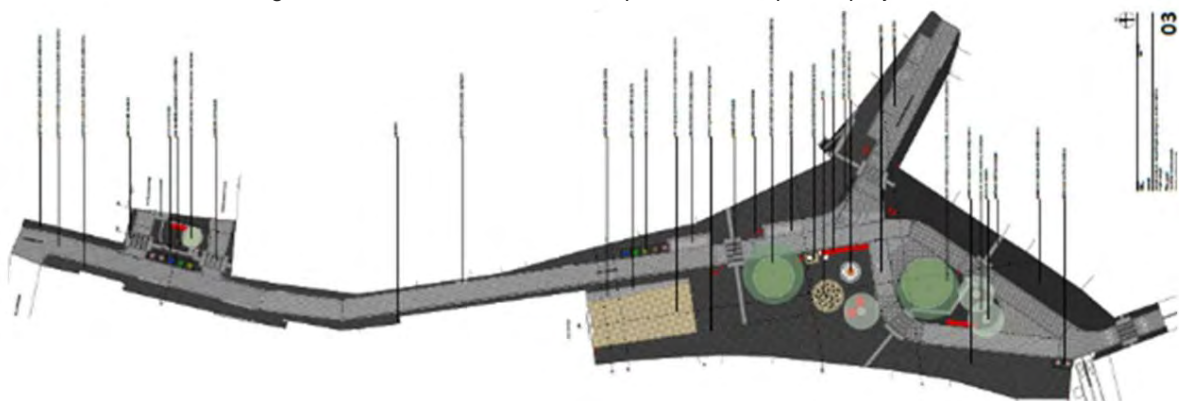
Figure 2.2 - Dr. António Padinha Square



Source: @figueiradesousa, February 2023

The redevelopment project for this square submitted by the municipality includes widening the sidewalk and relocating the existing square to the north, providing a traffic lane that connects Rua Almirante Cândido dos Reis and Rua 5 de Outubro. The entire sidewalk of the road should be speed-reducing, and it should be an area that gives priority to the pedestrian, with two tree-lined beds, bicycle parking, places reserved for loading and unloading and underground areas for waste collection (Figure 2.3).

Figure 2.3 - Dr. António Padinha Square redevelopment project



Source: Municipality of Tavira, February 2023

Recommendations for the redevelopment project

In view of the high pedestrian flows in this square caused by its occupation, it is recommended that the municipality's project comply with the following recommendations:

- Reduce the amount of motorized traffic crossing the square compared to its current use.
António Padinha;
- Create a pedestrian-only zone in the central area of the square that allows pedestrians to fully enjoy it without being disturbed by car traffic;
- Provide some short-term parking spaces, particularly for people with reduced mobility and loading and unloading, so as not to hinder accessibility and the logistical supply of activities and businesses in the square and its immediate surroundings.

In the analysis carried out on car traffic in Praça Dr. António Padinha and its surroundings, the circulation scheme shown in Figure 2.4 is proposed, in which car traffic would be eliminated to the southeast and west in order to establish an unobstructed, continuous and consequently safer pedestrian zone.

Low-speed automobile traffic would serve the area from the south, taking Rua João V. Corte Real and exiting at Rua 5 de Outubro and from the east, entering at Rua Almirante Cândido dos Reis and Rua da Porta Nova. This solution would have the great advantage of not changing the current directions of traffic in the surrounding area and of breaking the current connections that are conducive to traffic crossing the square.

It is proposed to include the square in a wider coexistence zone to be created, which will give priority to pedestrians and soft modes in a wider area of the historic city center and, in the future, a possible low emission zone.

It is also recommended that the entire intervention be carried out in such a way as to allow emergency vehicles access to the entire square.

Figure 2.4 - Proposed circulation scheme for Dr. António Padinha Square



2.3. WATERFRONT REDEVELOPMENT PROJECT - RUA DO CAIS

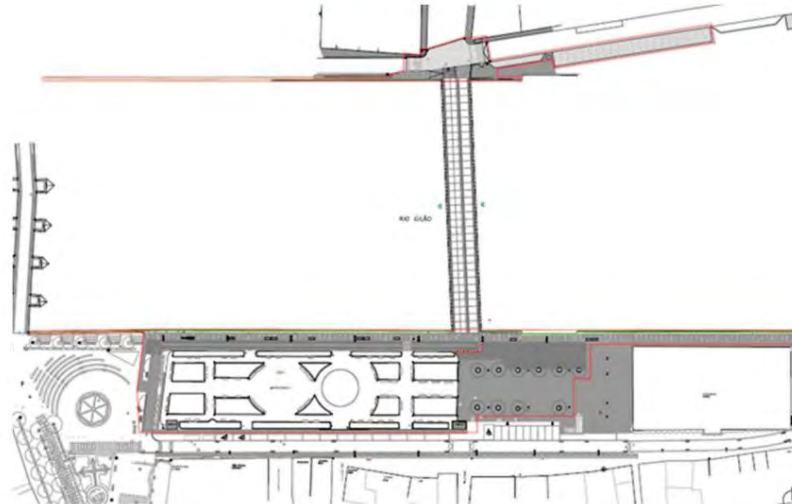
The Gilão Bridge connects the two banks of the River Gilão, between Largo da Caracolinha on the north bank and Rua do Cais on the south bank, next to Tavira's public garden, where it is compulsory to turn right, with the public garden acting as a traffic circle for those wishing to head towards the Vila Galé market/hotel area.

Figure 2.5 - Largo da Caracolinha and its surroundings on the left bank of the river Gilão



The municipality intends to place removable pillars at the entrances and exits of the bridge during the summer months, preventing car traffic on the bridge during this period, which would also prevent traffic in the Rua do Cais/ Praça da República area during the summer months, when this area has a high demand for pedestrian flows, with the creation of a pedestrian area on both banks of the Gilão, as can be seen in Figure 2.6, during the period of greatest tourist demand.

Figure 2.6 - Traffic closure project on the riverfront during the summer period



Source: Municipality of Tavira, February 2023

Recommendations for the redevelopment project

The Gilão Bridge is of great importance at the junction between the two banks of the Gilão, as it connects two important areas from a historical and tourist point of view. For this reason, it is proposed to establish axes for the coexistence of pedestrians and vehicles, both on the bridge itself and on the roads directly connected to it. Figure 2.7 shows a single direction of traffic, which is recommended to be the north->south direction, as it is the most convenient in terms of mitigating the flow of traffic through the historic center.

Figure 2.7 - Proposed circulation scheme for the municipal garden area



In addition, it is proposed that the circulation function around the garden be eliminated, to be carried out as part of a more comprehensive redevelopment project that continues the intervention already carried out in Praça da República, which would allow the riverfront on the right bank of the River Gilão to continue between Praça da República and the old market. This intervention necessarily implies the creation of a one-way road channel that will cross the current garden space, where it once existed (visible from the profile of the existing sidewalks). This proposal is seen as a transitional solution aimed at transforming the bridge into an infrastructure dedicated to soft modes and emergency vehicles, with the elimination of car traffic in the riverside area.

2.4. redevelopment of rua dr. MARCELINO FRANCO STREET

Rua Dr. Marcelino Franco is currently structured around a tree-lined central divide, with traffic allowed in both directions, with the square functioning as a traffic circle, along which parking is allowed, as can be seen in Figure 2.8.

Figure 2.8 - Dr. Marcelino Franco Street

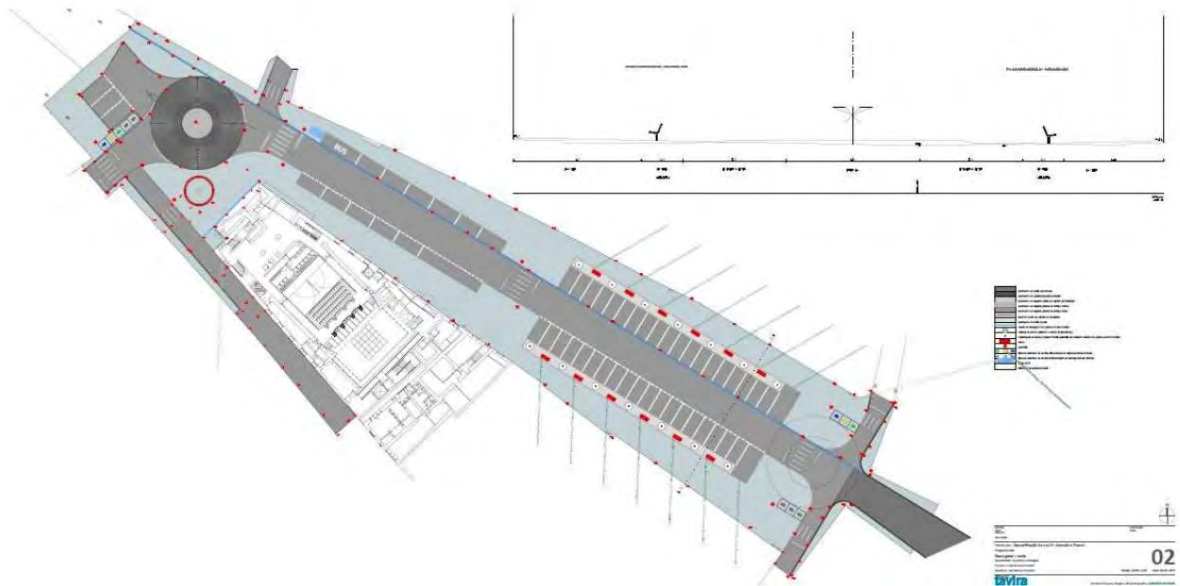


The project aims to reshape the street, with the elimination of the central divider, and the creation of parking on both sides of the road, which will now have one-way traffic.

As can be seen in Figure 2.9, in the first section of the street, parking will be perpendicular to the sidewalk with a row of trees dividing them, while in the last section, parking will be parallel to the sidewalk. The existing traffic circle will also be upgraded with a cobblestone sidewalk.

The reorganization of this street implies a rearrangement of parking, a rethink of the reduction in cab rank spaces and the creation of spaces for loading and unloading operations and the Maritime Police, as is currently the case.

Figure 2.9 - Dr. Marcelino Franco Street redevelopment project



Source: Municipality of Tavira, February 2023

Tavira City SMP recommendations

With regard to the redevelopment project presented by the municipality, we recommend the following

- Create two U-turn traffic circles at the east and west ends of the square in order to order the reversal of direction of vehicles;
- With the returns provided by Rua Dr. Augusto C. Palma, to the west, and Rua 1 de Maio, to the east, car traffic on Rua Dr. Marcelino Franco may occasionally be eliminated for a given event in this enclosed/protected space, unique in Tavira;
- In the event of opting for a single direction of traffic on Rua Dr. Marcelino Franco, and analyzing the impact on the directions of traffic on the streets of the

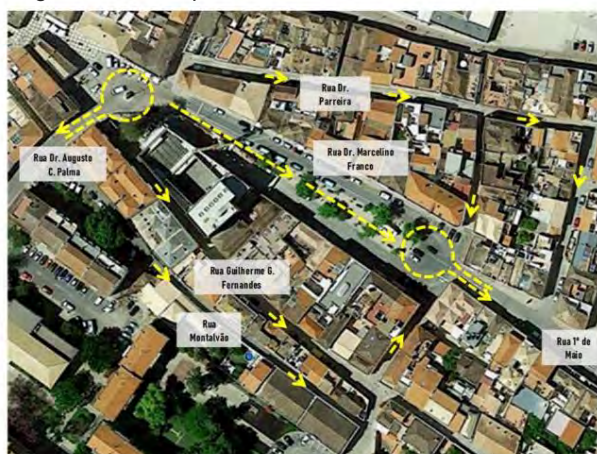
It is concluded that it would be more convenient to establish a single west->east direction, as shown in Figure 2.10, while maintaining the possibility of changing them if necessary. It should be noted that the directions of the surrounding streets do not need to be changed in either situation;

- Changing the type of parking to parallel, in order to increase the safety of bicycle traffic, since this street is proposed to have a cycle path shared with cars, which, if there is space, could be shared with pedestrians.

However, in order to eliminate the existing conflicts between traffic and parking and to reduce the number of vehicles looking for a place to park, it is suggested that traffic and parking be reserved.

parking on Rua Dr. Parreira for residents. It is also suggested that the first 2 spaces on this street be removed and that bollards be placed on the corner, taking advantage of the spaces between the balls to create spaces for motorcycles.

Figure 2.10 - Proposed circulation scheme



Rua Dr. Marcelino Franco should also be integrated into a coexistence zone that includes Rua Dr. Augusto Carlos Palma, Rua da Liberdade, Praça da República, Rua José Pires Padinha and Rua do Cais (if the municipality does not accept the proposal to penalize this street, which would become part of the garden).

In the event that the project requires the elimination of the existing cab rank and given the difficulty of relocating it to a single location, it is proposed that the Tavira Taxi Regulations be amended to allow for free rank parking in the city.

2.5. REHABILITATION OF THE MARKET SQUARE

On the third Saturday of every month, Tavira's monthly market is held at Campo da Feira, located on Rua Almirante Cândido dos Reis, opposite the Municipal Stadium (Figure 2.1 1). During the remaining days of the month, this space is not used at all. Even on market days, occupation of the space is relatively free, with no orderly occupation. The municipality of Tavira intends to redevelop this space, creating better conditions for market-goers and customers, with infrastructure and paving, with shaded areas around the stalls, which will be organized by type of sale. Outside of fair days, the area will be used as a parking lot

A 72-unit residential building will also be built on the east side of the fairground, and parking will be reorganized along Rua Zeca Afonso, on the west side, as well as the current dirt parking lot accessed from this road at the back of the Tavira Municipal Swimming Pools.

with a capacity of 479 free seats.

Figure 2.1 1 - Location of Largo da Feira



Figure 2. J2 - Proposed redevelopment of Largo da Feira - Layout plan



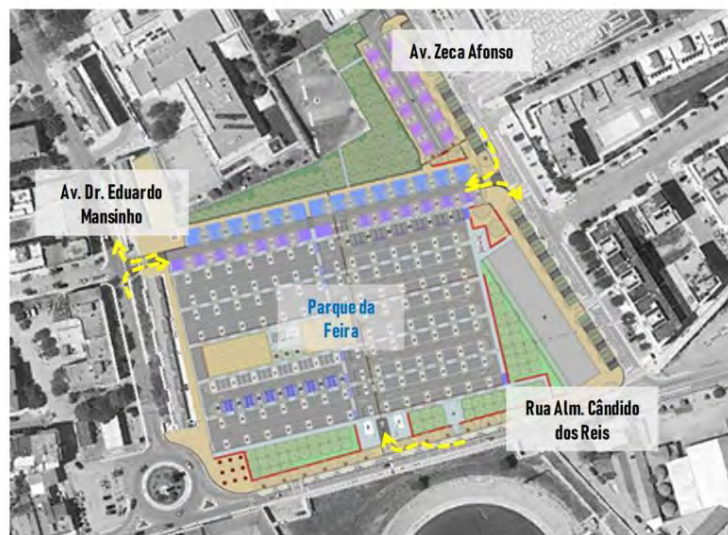
Source: Municipality of Tavira, February 2023

Recommendations for project preparation

Having analyzed the parking lot of the project submitted by the Municipality of Tavira, it is proposed that complementary entrances and exits be implemented on the roads perpendicular to Rua Almirante Cândido dos Reis in order to make road accessibility to the site more permeable. The subdivision of car flows at various points on the fairground will make it possible to distribute traffic loads, avoiding congestion and making access more flexible, particularly at times of high traffic demand.

Figure 2.13 shows a possible distribution of accesses at three points, with the entrance to the south on the main road (Rua Alm. Cândido dos Reis), the entrance and exit to the west on Av. Dr. Eduardo Mansinho and the entrance and exit to the west on Av. Zeca Afonso.

Figure 2.13 - Proposed changes



2.6. REHABILITATION OF RUA DE SAO PEDRO AND RUA DE SANTO ESTEVÃO

The road axis formed by the streets of São Pedro and Santo Estevão connects the Tavira cemetery area to the EN125. The sidewalk is in a poor state of repair, as are the sidewalks,

on top of which illegal parking is often carried out, making pedestrian traffic unsafe on an axis that is essentially residential, but through which a lot of traffic passes to access the city center. It is therefore felt that this should be a structuring pedestrian axis to be enhanced.

Figure 2.14 - Rua de São Pedro and Rua de Santo Estevão



The Tavira Municipality's project to upgrade this road aims to:

- Improving the sidewalk along the entire road, from the ALDI traffic circle next to the cemetery and the street around it to the junction of Rua de Santo Estevão with the EN125;
- Continuity of the sidewalks along the entire axis formed by these two streets;
- Parking arrangements, particularly in the Cemetery Park and also in Rua de São Pedro, next to the existing buildings;
- Re-profiling of roads, with the creation of parking and sidewalks, where their width allows, giving priority to pedestrians over parking.

One of the main objectives of the project to electrify the Algarve line is to eliminate level crossings by 2030, proposing the construction of a road and pedestrian tunnel in this area, a project that was rejected during the public consultation phase. However, it is felt that this should be revisited in order to improve accessibility in this part of the city.

Figure 2.15 - Redevelopment project for Rua de São Pedro and Rua de Santo Estevão



Source: Municipality of Tavira, February 2023

The joint redevelopment of Rua de São Pedro and Rua de Santo Estevão will improve and facilitate the use of these streets for both pedestrians and motorists. The elimination of the north-east-south-west direction on the section of Rua de São Pedro, with a narrower cross-section, between Rua Dr. Marçal Grilo Esperança Freire and Rua de Santo Estevão not only eliminates conflicts, but also takes advantage of the space freed up by a traffic lane to organize parking and increase the width of the sidewalks.

2.7. redevelopment of the rua do apeadeiro/ rua da porta nova axis

The Rua do Apeadeiro/Rua da Porta Nova road axis is essentially a residential axis that connects Praça Dr. António Padinha (which will be the target of a redevelopment project that covers Rua da Porta Nova up to the intersection with Rua dos Fumeiros de Trás) to the Porta Nova stop, crossing Rua Álvaro de Campos, a higher-level road in the city of Tavira.

Rua do Apeadeiro has some illegal parking on the sidewalk, due to its proximity to the station, and the sidewalk is in a poor state of repair.

Figure 2.16 - Rua da Porta Nova and Rua do Apeadeiro



The aim of the project is to upgrade this axis, with the resurfacing of the road, the reorganization of the parking lot and the upgrading of the sidewalks, with the creation of mechanisms to prevent illegal parking and improve the conditions for pedestrian and cycling access to the railway interface, which already has equipment for bicycle parking.

The redevelopment projects for Rua da Porta Nova and Praça Dr. António Padinha, complemented by the implementation of a shared lane system on Rua 5 de Outubro and the EN125 overpass north of Apeadeiro da Porta Nova, will establish a comfortable and safe pedestrian axis, continuing for about 1 km between the outskirts and the historic center of Tavira, serving from north to south, the outlying residential areas (CM1350), the Apeadeiro Ferroviário, Praça Dr. António Padinha and the historic center. Antonio Padinha Square, the pedestrian bridge over the Gilão and the historic center.

Having analyzed the project presented by the municipality, the consulting team has nothing to add in terms of recommendations.

Figure 2.17 - Project for Rua da Porta Nova and Rua do Apeadeiro



Source: Municipality of Tavira, February 2023

Figure 2.18 - Development of the pedestrian axis between Rua do Apeadeiro and Praça da República



2.8. CONSTRUCTION OF THE OVERPASS OVER THE EN 125

The Municipality of Tavira is planning to build a raised walkway between the area north of the Porta Nova station and the south-western end of the new housing developments that have been built between the EN125 and the Tavira Fair and Exhibition Park.

Figure 2.19- Implementation area of the raised crosswalk



With this solution, the Algarve line will continue to be crossed on the (level) railway, and the access route will have to be upgraded, as can be seen in the layout plan shown in Figure 2.20.

As this is a project involving a road infrastructure under the jurisdiction of Infraestruturas de Portugal (IP), detailed studies should be carried out to justify this investment, such as the preparation of a preliminary project involving a topographical survey and a descriptive memory of the project, including a socio-demographic framework of the project that indicates its advantages for the pedestrian mobility of the residents of the urbanizations to the north of the ER125 (eg Pegada and Pezinhos).

Figure 2.20 - Layout plan of the uneven pedestrian crossing over the EN125



Source: Municipality of Tavira, February 2023

The opening of this overpass to the EN125 will add significant value in terms of comfort and, above all, the safety of this overpass. Its ramps will allow the use of bicycles and scooters. In addition to the proposed ramps, it is recommended that a staircase be installed at the southern end of the overpass to reduce the pedestrian journey when using this great asset that will break down the current barrier effect caused by the EN125, which physically separates the central area from its immediate periphery.

 The. **INTEGRATED MOBILITY STRATEGY**

3.1. SYSTEMIC APPROACH

Planning the transport system and managing urban mobility with a view to reducing the environmental impacts associated with them and ensuring that access to goods, services and public facilities is equitable and with less environmental impact, requires a systemic approach that takes into account all the components of the system, whether they are infrastructures or services, as well as improving their relationship with town and country planning. It should be remembered that travel needs result from the dispersion of urban activities in a given territory, so the way it is organized greatly influences the reason, volume and frequency of journeys, whose needs are, in turn, ensured both by the supply of means and modes of transport and by the greater or lesser proximity between the points of origin and destination of these journeys. One of the main objectives of transport planning is to ensure that the transport system is better adapted to these needs, making available the modes that respond most efficiently to them, in addition to the desire to reduce its environmental impact. In this context, the desirable and feasible solutions depend not only on the starting point in terms of land use, but also on the supply of transport and the accessibility provided or that can be improved.

Based on an understanding of the current context (land occupation and planning, supply of transport infrastructures and services) and with a view to achieving the objectives set out for the Sustainable Urban Mobility Plan, the work was developed, starting from a global and systemic vision for the transport and accessibility system that considers both physical interventions in existing infrastructures and those to be implemented, as well as the supply and operation of transport services (at all levels and modes), in addition to policies and programs for managing components of the system (such as parking and electric and shared mobility), and education for more sustainable mobility. We have called this set of coherent and comprehensive interventions the "Integrated Mobility Model", which is based on a systemic approach that can be summarized as follows:

- Ensure effective and equitable coverage of the road network, which not only resolves or minimizes current bottlenecks, but also diverts traffic away from the city;
- Promotes complementarity between all modes of transport through better articulation and integration between them (from high-capacity modes such as rail to proximity modes), the correct location of interfaces and deterrent parks near the main transport hubs, and better conditions for the circulation of soft modes (pedestrians and bicycles);
- Encouraging a more environmentally friendly modal split, through articulated proposals for the various components of the system: (i) by improving the attractiveness of the public transport system and soft mode travel; (ii) by promoting a parking policy that encourages modal shift (deterrent parks), counteracts car abuse, particularly in central areas (tariffed parking), and contributes to minimizing the shortage of parking spaces in some residential areas (residents' parks); (iii) through proposals for public space requalification, which favor the enjoyment of urban space by the different segments

population and favoring soft modes; (iv) the promotion of electric and shared mobility and the development of the *Mobility as a Service* (MaaS) concept;

Preparing the population for a change in mobility habits, namely through awareness-raising actions in schools, company mobility plans and actions that encourage the use of soft modes and the public transport system.

3.2. CONCEPT OF INTERVENTION

The intervention concept is based on different proposals for the Central Zone from the rest of the Plan's urban area.

Central Zone

In the central area, which encompasses the historic center, the aim is to give priority to travel by soft modes and public transport, and it is considered essential to carry out structuring projects to upgrade the public space (eg the project to upgrade Rua Marcelino Franco). The aim is for it to be an area of excellence in the city and to improve the experience of all those who use the public space. To this end, the focus is on creating a coexistence zone that covers a significant part of the so-called Central area and whose aim is to discipline and clarify the rules of car, pedestrian and cycling circulation and that in the near future can contribute to the creation of a low emission zone, thus privileging the quality of the urban environment.

With specific regard to the pedestrian mode, it is important to create accessible routes that comply with the provisions of Decree-Law no. 163/2006, of August 8, and Decree-Law no. 123/97, of May 22, and promotes the inclusion of people with reduced mobility.

In order to achieve the low emission zone, and in addition to the public space requalification projects, it is essential to invest in the creation of an electric vehicle charging network. This is an important strategic investment for cities, in a market that has been growing significantly in Portugal and throughout Europe, and it is an important territorial attraction factor, especially in a tourist destination like Tavira. Incorporated into the strategy of the Tavira City SMP, it is proposed to reinforce the supply of electric vehicle chargers to be located mainly in parking lots, located around the central area.

Investing in exclusively electric vehicles for tourist activities (eg tourist trains and *rvE-rvÇ*), as well as vehicles used to operate urban public transport services. The concessions/licenses to be issued by the municipality could regulate this situation when it comes to creating the low-emission zone.

With specific regard to urban public transport, the municipality will soon be preparing a call for tenders for the operation of these services, so it is recommended that it consider the possibility of requiring the fleet assigned to their operation to be fully electric.

The public space requalification projects envisaged involve organizing parking in the central area of the city and reducing the supply on public roads. In order to maintain and attract residents and economic activities to this central area of the city, avoiding the exclusive predominance of the tourist function, it is necessary to create parking alternatives, especially solutions for residents. It is therefore important to intervene in two ways: (i) by limiting parking on some streets to residents; (ii) by creating parking spaces with permits for residents.

Some streets are already reserved for residents, but the SMP proposes extending this solution to a few more streets, including the intramural zone.

Throughout the central zone, it is essential to regulate loading and unloading that impacts on the normal functioning of the city, and we recommend a strong commitment to enforcement using the installation of devices to remotely control the occupation of spaces.

Intramural zone

The intervention concept involves restricting circulation and parking to residents, as was the case in the past, and upgrading the pedestrian mode, seeking to create accessible routes for people with reduced mobility by creating comfortable and safe pedestrian lanes, as proposed for the central area.

Bets for the city

The concept proposed above for specific areas is also based on the creation of peripheral parking lots to free up the central public space for parking. Progressively, in the central zone, there should be a move towards predominantly parking lots, with charges in the central zone and free parking outside this area.

The redevelopment of the fairground into a free parking lot with capacity for around 450 vehicles is a structuring project to support the concept developed. In addition, it is planned to create 2 peripheral car parks to be located on Rua de Macau and next to the Tavira Courthouse.

The restructuring of the urban public transport network is another strategic focus. It is proposed to restructure the existing circuits, making them shorter and more attractive for urban travel, and proposing greater territorial and hourly coverage.

Intermodality is a key aspect of improving the attractiveness of public spaces, and it is proposed to relocation of the bus terminal, preferably next to the train station.

In terms of cycling, a network of dedicated routes in the outskirts and shared routes in the central area is proposed to encourage safer journeys and, in addition, the phased installation of a shared-use bicycle system aimed not only at residents, but also at tourists.

The use of information and communication technologies (ICT) is a strategic bet for the materialization of the intervention concept. The installation of panels with real-time information on parking supply, the monitoring of the occupancy of loading and unloading bays, the monitoring of the occupancy of electric vehicle chargers and the use of shared micromobility systems will allow the municipality to have real-time information and start building a *MaaS* project.

Lastly, there is a cross-cutting issue that has to do with education for a new culture of urban mobility, which should be targeted at specific age groups in the population, but especially the younger age groups.

Figure 3.1 - Intervention concept with public road transport

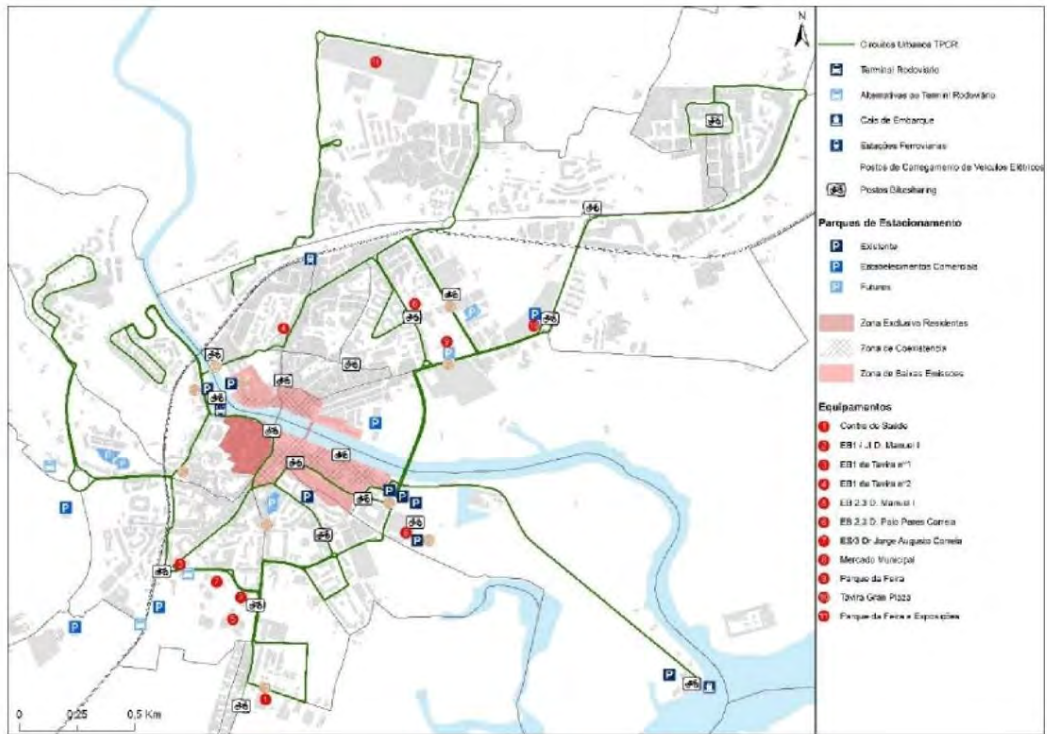
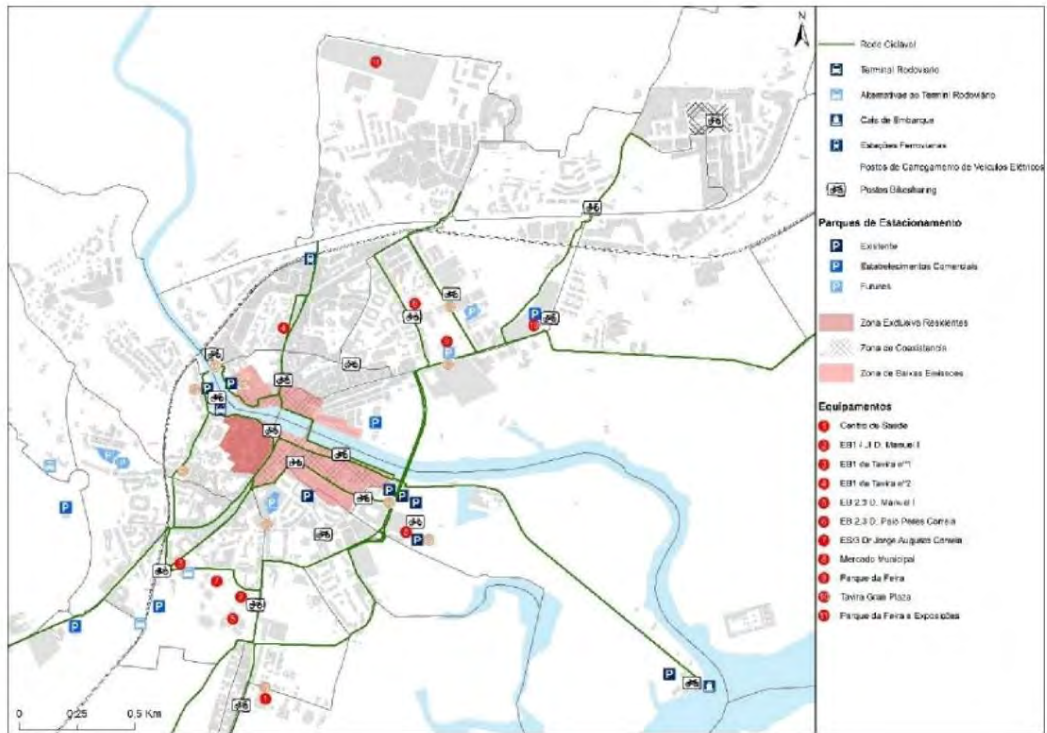


Figure 3.2 - Cycling network intervention concept



<. INTERVENTION PROPOSALS

4.1. FRAMEWORK

The sectoral policies and measures outlined in this chapter aim to help mitigate the problems and shortcomings diagnosed in Phase 1 of the plan, as well as operationalizing the intervention strategy recommended for the mobility and transport system of the city of Tavira in Phase 2 and materialized and spatialized in Chapter 3 of this report.

It should be noted that phase 2 of the Tavira City SMP defined five strategic objectives (Figure 4.1) and seven operational objectives, which form the framework for the guidelines and respective intervention proposals.

Figure 4.1 - Strategic objectives of Tavira's SMP



The following intervention proposals have been drawn up with this in mind:

- The strategic and operational objectives and guidelines set out in Phase 2 of the SMP and the diagnosis set out in Phase 1;
- The specific characteristics of Tavira's territory and the municipality's technical capacity during the plan's implementation period;
- Experience in implementing studies of this nature, seeking to define proposals that have proven their worth in other municipalities;
- The enhancement of existing infrastructures, optimizing the investments already made before proposing to creation of new infrastructure;
- The investments planned by the Municipality in Tavira's mobility and transport system, both in infrastructure and services, whose projects will be included in the scope of this SMP.

4.2. OO 1 - IMPLEMENT A ROAD NETWORK MANAGEMENT POLICY

4.2.1. Framework and guidelines

The characterization analyzes carried out during Phase 1 of the Mobility Plan led to the conclusion that the city of Tavira does not have the serious road traffic problems that are usual in the centers of large agglomerations. The main constraints are found on the north side of the city, namely on the EN125 and its articulation with the points of entry into the city, namely at crossings of the railway line, and on the axis formed by Rua Almirante Cândido dos Reis, Av. Dom Manuel I and Rua da Atalaia, to the south.

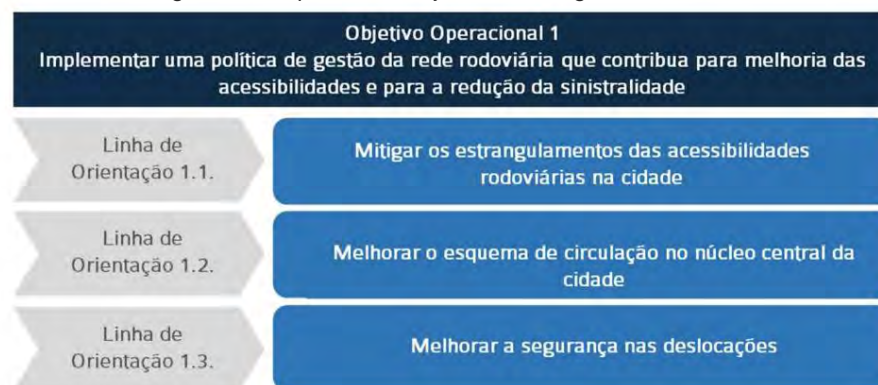
It was also noted that there are critical nodes in terms of network performance and, in some cases, road accidents, with the identification of 2 black spots and some areas where accidents accumulate.

As before, various redevelopment projects are planned in the central area of the city that involve reallocating channel space to soft modes, with consequences for the hierarchy of the road network and the city's circulation scheme. So the concept of traffic reorganization involves not only improvements to road traffic, but also other complementary factors:

- Defines the main axes of circulation, where there should be no restrictions on circulation in both directions and parking should only be allowed if the road profile is large enough to accommodate it;
- Improve pedestrian routes between the various areas of Tavira to reduce the use of IT;
- Improve pedestrian circulation conditions, with protective and routing signs, with sidewalks of sufficient width (whenever possible), with continuity at road crossings and, when possible, without stairs and without large slopes in order to serve mobility for all.

Thus, in the field of road accessibility, the main guidelines defined are systematized in Figure 4.2 and reflect interventions in the field of strengthening accessibility, the circulation scheme in the city center and improving travel safety.

Figure 4.2 - Operational objective 1 and guidelines



4.2.2. LO 1.1 - Mitigate road access bottlenecks in the city

4.2.2.1. Intervention proposals

In the field of road accessibility, in addition to the projects recommended by the municipality, the implementation of a new ring road to the south of the center of Tavira is considered to be a structuring project, in order to establish a new, more appropriate road hierarchy, diverting through traffic and allowing several of the existing bottlenecks to be mitigated.

Tavira's city center has a consolidated historical occupation with narrow streets, divided into two large areas physically separated by the River Gilão, making it a physical barrier. For this reason, the surroundings of the center are essential for establishing external and variants through which not only the traffic crossing the city will be processed, but also the penetration of traffic flows by radial routes closer to the central area where access is desired.

These characteristics of dense central urban occupation mean that the functions to be performed by the various roads that make up the overall road network in the city of Tavira are not the most appropriate for their capacity and good interconnection between them, particularly at the level of road intersections, which are invariably the most critical points in road networks.

In this type of historical agglomeration, it is even more important to rigorously analyze the functionality of each road that makes up the network and establishes a road hierarchy in order, on the one hand, to simplify the passage of traffic from outside the center and, on the other hand, to establish good access conditions to the central areas where the human activities that attract people and car traffic are concentrated.

In the existing road network, to the north of the town of Tavira, the EN125 is a structuring road that acts as a bypass to the town. With its high capacity and speed, it ensures municipal and inter-municipal crossings, relieving the capacity of the roads in the center of Tavira.

This passage of a structural road to the north is a huge advantage over, for example, the neighboring city of Olhão, which is crossed in the center by a structural road, the EN125, with all too frequent traffic jams, even outside peak hours.

This road also provides good access to the center of Tavira for those who come from or go abroad, from road intersections on the EN125, through which traffic flows penetrate radially, avoiding overloading internal roads, some of which do not have a suitable profile.

However, the crossing and radial connections to the south are not properly established or complete. It is necessary to establish a new route to the south by introducing new roads or upgrading existing roads in the Secondary Distribution Network, creating preferential circulation channels. These channels should allow traffic to circulate at 50 km/hour, safely and without restrictions.

For this reason, there is also a need to establish some local connections to the east and to the south.
west.

For this reason, the connection between Rua de São Pedro and the D. Manuel I Secondary School traffic circle should be established from west to east.

Since it is impossible to continue building new roads in the areas to the south-east of the built-up core, as they are environmentally sensitive areas, the following axes are proposed for redevelopment:

- Rua Dr. José Raimundo Ramos Passos, Rua dos Mártires da República and Rua da Comunidade Lusíada;
- Rua Almirante Cândido dos Reis, up to the intersection of Av. Dom Manuel I, including the Balsense traffic circle.

The Secondary Distribution Network should also retain the possibility of creating an internal ring road that runs roughly along the urbanized edge of the center of Tavira. This internal ring road will be made up of Rua Álvaro de Campos, Rua dos Limpinhos, Rua António Pinheiro, Ponte de Santiago, Rua Chief António Afonso, Rua dos Firefighters Municipais, Rua Sebastião Leiria, Rua Maria PiedadeVazBaganha , Rua LuisdeCamões,

Rua Dr. FaustoCansão, Rua Ataaa Pequena, Rua Maria PiedadeVazBaganha, Rua LuisdeCamões, Rua Rua Dr. António Afonso.FaustoCansado, Rua Ataaa Pequena, Rua da Atalaia, Rua Arquiteto Eduardo Souto Moura, Av. D. Manuel I, Rua Almirante Cândido dos Reis and Av. Zeca Afonso.

In order to enable this entire designated ring road, it will be necessary to reinforce the signaling of Rua Eduardo Mansinho as zone 30, which will be done by strangling its entrance at both ends, widening sidewalks, reducing parking, placing tree rows, reinforcing vertical and horizontal signaling, distinguishing the color of the sidewalk, introducing a cycle lane, and reinforcing traffic calming measures by signaling crosswalks with LED lighting.

These measures will allow this axis to become more urban, leaving the parallel street, Av. Zeca Afonso, the secondary distribution that closes the southern ring road mentioned above and proposed in this plan.

The new hierarchy of Tavira's road network is shown in Figure 4.3.

Figure 4.3 - Hierarchy of the proposed road network



In short, the proposed interventions are designed to solve the problems identified in the characterization report. As already mentioned and shown in the figure of the future road hierarchy, it is proposed to implement a new ring road to the south of Tavira's urbanized area, with the construction of new roads and the upgrading of existing roads to provide an easier route between the EN125 traffic circle to the west (Cemitério) and the EN125 traffic circle to the east (Nora Velha/Minipreço).

This infrastructure would be able to improve some of the critical points, although without the desired improvement, which would only be possible with the construction of new roads with the same layout in the environmentally sensitive areas. The proposed improvements include:

- Creation of a new road between Rua de São Pedro and the EB2/3 Dom Manuel I roundabout

This new road, which will definitively solve the physical constraint of the level crossing next to Tavira railway station, will allow the railway line to be crossed via an overpass, parallel to Rua Luís de Camões, and will allow all eastbound traffic to circulate to the educational establishments, the market, the center and also to the Ponte dos Descobrimentos.

In order to implement this solution, it is proposed to eliminate the existing roundabout next to the ALDI and create a new one.

a new roundabout at the intersection of Rua de São Pedro and the proposed new road.

Figure 4.4 - Proposed route between the ALDI roundabout and the EB23 D. Manuel I roundabout



- Requalification of the axis of Rua Dr José Raimundo Passos, Rua dos Mártires da República and Rua of the Lusíada Community

If it is not possible to create new roads, it will be important to upgrade existing roads in order to create a priority circulation channel in both directions, where people can travel at 50km/h, guaranteeing safety and eliminating constraints. To this end, on the roads to be upgraded, some parking spaces will have to be eliminated, or only allowed to park parallel to the road, pedestrian crossings will have to be taken into account, namely by traffic lights at some of the crossings with the greatest pedestrian flow, and

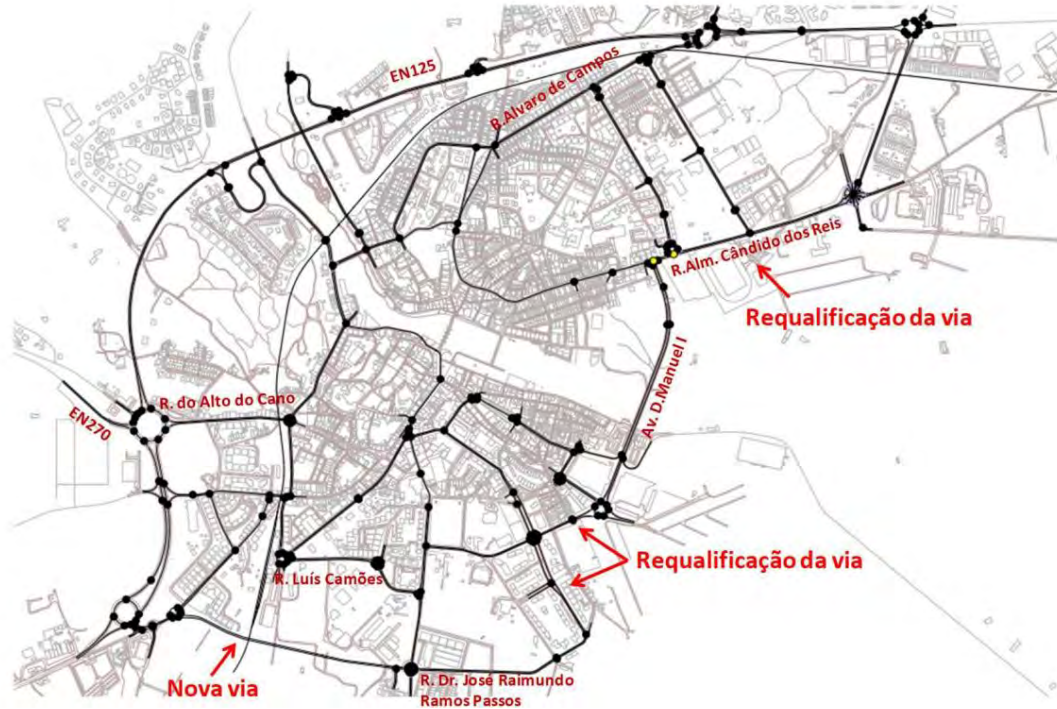
the priority scheme of some of the adjoining roads will have to be inverted to ensure continuity of circulation on the axis.

- Requalification of the Rua Almirante Cândido dos Reis axis

The redevelopment of this road is intended to give continuity to the traffic channel south of Tavira, where road restrictions are to be removed.

Figure 4.5 shows the Modeled Future Road Network built from the Current Modeled Road Network and where the proposed changes and improvements have been introduced.

Figure 4.5 - Identification of the proposed routes for the future road network



In addition to the changes proposed above in the modeled future road network, the municipality's projects, presented in section 2 of this document, which may have an impact on the *performance* of the road network, were introduced, as well as other measures to solve problems detected during the traffic simulations of the future road network, which are presented below:

- Requalification of Rua de São Pedro with elimination of direction

The proposed redevelopment of the axis of Rua de São Pedro and Rua de Santo Estevão will improve the pavement along this axis, organize and increase legal parking capacity and establish pavements to make pedestrian circulation attractive and safe. With regard to the impact on the future road network, the redevelopment will eliminate one of the directions of Rua de São Pedro, the east -> west direction, between the junction of Rua de Santo Estevão and Rua Dr Manuel Grilo Esperança Freire, a street where traffic will circulate in the direction that will be eliminated in the future.

Figure 4.6 - Requalification of Rua de São Pedro with elimination of direction



- Two-way widening of the south-east entry branch of the EN125 roundabout

According to the simulator, the entrance to the EN125 from the Aldi roundabout, with the natural increase in future traffic demand and the greater attractiveness of the southern route, this south-western branch will be more in demand, so it is recommended that the entrance be widened from one to two lanes in order to increase the capacity of this roundabout.

Figure 4.7 - Proposed widening of the EN125 entry branch



4.2.2.2. Network Performance Evaluation

For the recommended interventions, the impact on the performance of the road network was simulated in two different ways:

- At a macro level, using the dynamic traffic micro-simulation model, which was built and calibrated in the previous phase, changing the road supply, coding in particular the new road to be implemented, the roads to be upgraded, the change of direction according to the municipality's projects and also the speeds of the current roads and traffic demand, with an overall increase factor of around 20 per cent in relation to the flows calculated in the traffic counts, which corresponds to the so-called Natural Traffic Growth.
- The analysis at a micro level, using levels of service calculations that individually analyze each of the main intersections that were the subject of traffic counts in the previous phase of this study. The service level analysis of traffic conditions also added traffic flows with a factor corresponding to Natural Traffic Growth.

Natural growth in traffic demand

With regard to future traffic demand, a natural growth in traffic over the plan's time horizon (10 years) was considered, based on an analysis of Gross Domestic Product growth projections for the coming years, based on the Bank of Portugal's uniform annual variation forecasts. The natural growth rate of traffic was therefore assumed to correspond to 75 percent of the GDP growth forecast. With these assumptions, the growth figures were calculated, resulting in a traffic growth forecast of 20.4 percent in 2031.

Table 4.1- Forecast of natural traffic growth

Year	GDP growth P (%) Source	G.D. BdP traffic affic	Tr tor Annual Growth	Factor fac tor Cumulative Growth	fac tor Index 1 00 2021
2022	6,796	5.09t	1,050	1,050	105.0
2023	2.7"Â	2.0Po	1,020	1,072	107.2
2024	2,496	1.8%	1,018	1,091	109.1
2025	2,396	1.79t	1,017	1,110	111.0
2026	2.0"Â	1.5Gp	1,015	1,126	112.6
...	1,996	1,496			
2032	1,896	1,496	1,069	1,204	120.4

Traffic simulation model results

Based on the changes made to the modeled network, there have been improvements in general traffic conditions, in particular with the creation of the new road that integrates the southern ring road and which makes it possible to divert part of the traffic that circulates on the internal road network and originates and/or ends outside the city of Tavira.

To the north of the Tavira Municipal Stadium there will still be some constraints, due to the lack of an alternative route

to divert traffic away from this axis.

On Av. Dom Manuel I, in the area bordering the Tavira Market, there will also be some saturation, but it is not physically possible to create an alternative road due to the occupation of the terraces in front of the market and the 1+1 profile of the road in the section between the market and the Vila Galé Hotel.

Figure 4.8 - Future road network with current traffic - PPM



Figure 4.9 - Future road network with current traffic - PPT



Calculating levels of service for road intersections

Future traffic conditions were assessed at the intersections where traffic counts were carried out, specifically during the morning and afternoon rush hours of a working day, on the assumption that during the rest of the day the junctions will operate in better conditions due to the lower volume of traffic. The analysis was carried out in two future scenarios and, to allow comparison with the current situation, the previously analyzed scenario is also presented, which corresponds to the reference situation at the time of the counts (Scenario 0), contained in the first characterization and diagnosis report:

- Scenario 0 in which the service level calculations were based on the counts carried out at 10 road intersections;
- Future Scenario 1 is characterized by the fact that there are no improvements to the road network (Current Network) but an increase factor corresponding to Natural Traffic Growth has been added to traffic demand;
- Future Scenario 2, in which the improvements presented above were introduced. In terms of traffic demand, Natural Traffic Growth was also added.

As in the previous report on the reference situation (based on the 2021 counts), different calculation methods were used to analyze the operating conditions for junctions/entrances (HCM - /Y/gómay Capacity /tYaeva/ method) and for roundabouts (TRL - *Transport Poad and Research Laboratory* method).

For this purpose, a common classification was used called the level of

service, which is a qualitative measure of traffic quality, whose classes can be interpreted as shown in the following figure.

Table 4.2- Classification of the Operating Conditions of Road Intersections

Classificação	Condições de Funcionamento
A	Fluid
B	Good
w	Reasonable
D	Satisfactory
-	Unstable
F	Congested

The traffic volumes recorded by type of vehicle were calculated in Equivalent Light Vehicle Units (EVU) in order to standardize the values obtained and incorporate the influence of the proportion of heavy vehicles in each of the entries into the calculations. In this case, an equivalence coefficient of two was adopted for heavy vehicles (1 heavy vehicle = 2 uvl).

Table 4.3- Service levels for posts 1 to 10

				HPM			
Branch A	EN125 (N)	B	A	C	B	w	B
Branch B	Rua do Alto do Cano (E)	A	A	A	A	A	A
Branch C	EN125 (S)	A	A	A	A	A	A
Branch D	EN270 (W)	A	A	A	A	A	A
Branch E	Rua de Sta Margarida (NW)	A	A	A	A	A	A
				HPM			
Branch A	M508(N)	A	A	A	A	A	A
Branch B	EN125(E)	A	A	B	w	B	w
Branch C	Álvaro de Campos Street (SW)	A	A	A	B	A	B
Branch D	EN125(W)	A	B	B	w	B	w
				HPM			
Branch A	Av' D" Eduardo Mansinho (N)	A	A	B	B	B	B
Branch B	Alm Street . Candido dos Reis (AND)	A	A	B	B	B	B
RamoC	Av. D. Manuel I (S)	B	B	w	w	w	w
BranchD	Irene Rolo Street (NW)	A	A	A	A	A	A
Branch E	Alm Street. Candido dos Reis (W)	-	C	F	D	C	A
				HPM			
Branch A	Av. D. Manuel I (N)	A	A	A	A	A	A
Branch B	Market (E)	A	A	A	A	A	A
Branch C	Rua Arq. Souto Moura (SW)	B	A	w	B	w	B

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Branch D	João Arias Street (NW)	A	A	A	A	A	A
				HPM			
Branch A	RM° Piedade Vaz Baganha (N)	A	A	A	A	A	A
Branch B	Dr Mateus Azevedo Avenue (HUH)	A	A	A	A	A	A
Branch C	Rua Luis de Camões (E)	A	A	A	A	A	A
Branch D	LIDL (S)	A	A	A	A	A	A
				HPM			
Branch A	Rua Boss António Afonso (N)	B	B	B	C	B	C
Branch B	Santiago Bridge (E)	A	A	A	A	A	A
Branch C	Rua Boss António Afonso (S)	A	A	A	A	A	A
				HPM			
Branch A	Alm Street. Cândido dos Reis (N)	A	A	A	A	A	A
Branch B	Crab Valley (E)	A	A	A	A	A	A
Branch C	Salinas (S)	A	A	A	A	A	A
Branch D	R' A ' ' Cândido dos Reis (W)	A	A	A	A	A	A
Branch E	Mainland (NW)	A	A	A	A	A	A
				HPM			
Branch A	R. Dr Fausto Cansado (N)	A	A	A	A	A	A
Branch B	Dr José RR Passos Avenue (AND)	A	A	A	A	A	A
Branch C	M515 (S)	A	A	A	A	A	A
Branch D	R. José Falcão Berredo (W)	A	A	A	A	A	A
				HPM			
Branch A	Álvaro de Campos Street (E)	A	A	A	A	C	C
Branch B	Rua Dr Eduardo Mansinho (S)	D	D	F	~	C	C
Branch C	Álvaro de Campos Street (W)	A	A	A	A	A	A
				HPM			
Branch A	Nora Velha(N)	A	A	A	A	A	A
Branch B	EN 125 (E)	A	B	B	w	B	w
Branch C	R. Alm. Cândido dos Reis (S)	A	A	A	A	A	A
Branch D	EN125(W)	A	B	A	w	A	w

Analysis of the table above, which summarizes the results of calculating levels of service by intersection branch, shows that in Scenario 0, which corresponds to the current reference situation, the majority of intersections have no capacity problems, with traffic conditions being mostly "Fluid" (level A) and "Good" (level B) for both peak hours.

However, at junction P3, where Av. Dom Manuel I, which is at a higher level, joins Rua Cândido dos Reis, this causes congestion, especially during the morning rush hour. Also at junction P9 at the other end of Av.

Eduardo Mansinho, branch B already has level D in the current situation, which corresponds to satisfactory traffic conditions, ie very close to its maximum capacity.

In Scenario 1, in which natural traffic growth is added to the flows recorded in the counts, which is expected to be more than 20 percent over a 10-year horizon from the date of the traffic counts, the future situation is significantly more negative.

The problems at the P3 junction worsen to level F (congested conditions) on the Rua Cândido dos Reis branch, caused by the conflict of vehicles wishing to go straight ahead, in the west->east direction and at the P9 junction they also worsen to the worst conditions, on the branch coming from Av. Dr. Eduardo Mansinho for vehicles wishing to enter Rua Álvaro de Campos, especially those wishing to turn left.

According to the results, road intersections P2 (EN125 roundabout with Rua Álvaro de Campos), P5 (Station roundabout), P6 (Santiago Bridge junction), P7 (Continente roundabout), P8 (Dom Manuel I School roundabout) and P10 (Minipreço roundabout), will not require any intervention because the levels of service ("A", "B" or "C") calculated on all the branches will still have capacity reserves that can accommodate increases in traffic in the medium and long term.

In Scenario 2, which corresponds to the future scenario, but with the implementation of network supply improvements road, and since the implementation of new roads in protected areas is not permitted, the proposed improvements.

At the most problematic intersection, P3 on Av. Dr. Eduardo Mansinho with Rua Cândido dos Reis, it is necessary to eliminate the most conflicting movement of the Rua Cândido dos Reis in the west->east direction. This way, the roundabout will work without any problems.

As for road junction P9 (Dr Eduardo Mansinho Avenue junction with Álvaro de Campos Street), with the effective reduction in speed to 30 Km/h on Dr Eduardo Mansinho Avenue and the implementation of traffic calming devices that are less attractive to crossing traffic, it will be less requested because crossing traffic will have a more attractive route along Zeca Afonso Avenue and thus relieve traffic loads at this critical junction. It is also proposed that this P9 junction be traffic-lighted in order to manage conflicting left turn movements and to facilitate/order pedestrian crossing.

With the proposed improvements, all the road intersections analyzed will have levels of service "A", "B" or

4.2.3. LO 1.2 - Improve the circulation scheme in the city center

As already mentioned, the intervention concept for the city center is based on the requalification of the public space with a view to reallocating the canal space to soft modes, namely pedestrians.

Based on the redevelopment projects proposed in chapters 2 and 4, as well as the road network hierarchy proposed in the previous point, a new circulation scheme was developed, as shown in Figure 4.10.

The main changes to the circulation scheme are as follows:

- Rua Marcelino Franco, which currently has two directions with a central divider and parking on both sides of the road, is proposed to have only one direction, preferably west >> east, with the implementation of 2 return roundabouts at the ends of the road, in order to order the reversal of direction of vehicles as shown in Figure 2.10.

This intervention should allow the direction of traffic to be changed if necessary. None of the proposed alternatives require changes of direction in the surrounding streets, and the road should be prepared to have either direction of traffic, with only the alteration of vertical and horizontal signaling (painting on the pavement).

- Rua de São Pedro, from the intersection with Rua Dr. Marçal Grilo Esperança Freire and Rua de Santo Estevão, in order to create a cycle lane and widen the pavements, while eliminating conflicts between car traffic and parking;
- Largo Dr. António Padinha, with the banning of traffic in part of it, allowing only traffic in the direction of Rua Almirante Cândido dos Reis >> Rua da Porta Nova and Rua João Vaz Corte Real >> Rua 5 de Outubro, with the rest of the square becoming a pedestrian and cycling space with no parking or car traffic.
- Rua do Cais - elimination of car traffic, with the reinstatement of the continuity route from the Gilão Bridge to Rua José Pires Padinha. During the summer, the bridge would be closed to motor traffic. The directions of traffic in the surrounding area will remain unchanged.

Figure 4.1 0 - Proposed circulation scheme for the town of Tavira

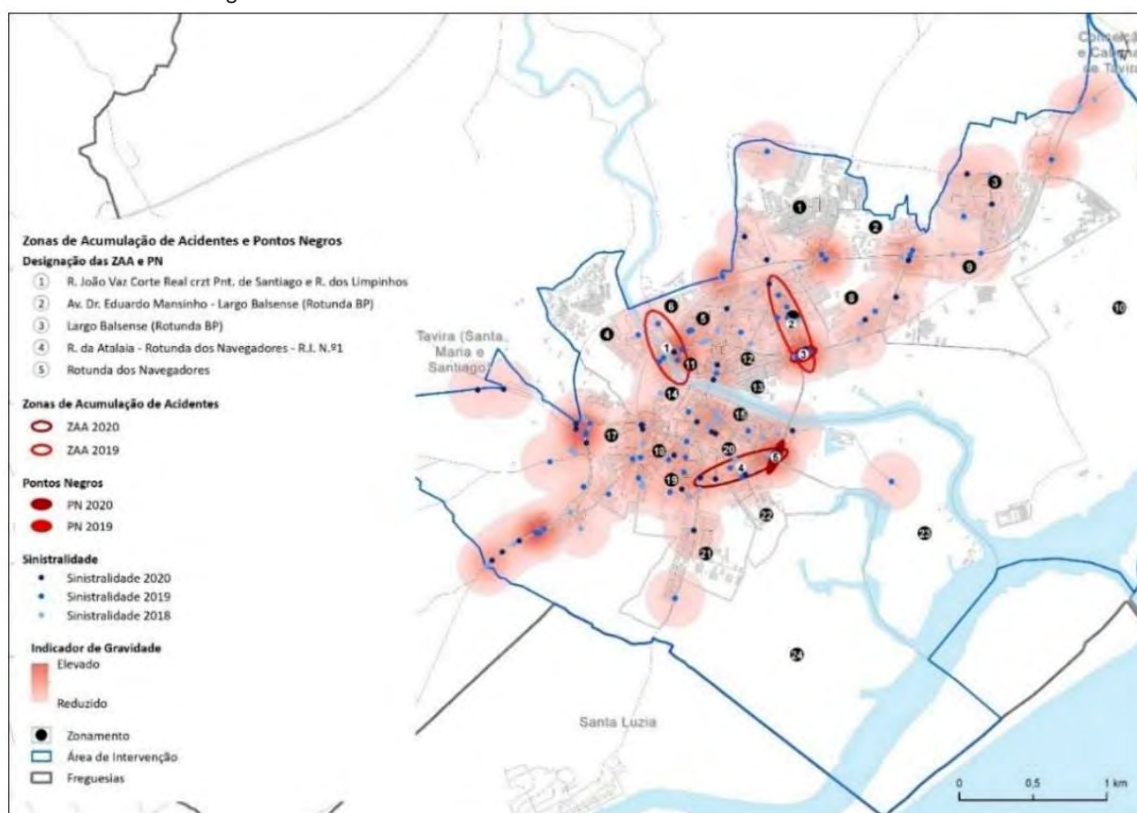


4.2.4. LO 1.3 - Improving travel safety

In recent years (2018/2020), the areas with the highest number of road accidents in the city of Tavira have been concentrated in 3 places in the city, as shown in the table below, within which there are 2 black spots for which solutions must be found to mitigate not only the number of accidents, but also their severity and the number of injuries that result from them.

Between 2019 and 2020, the accident accumulation zones recorded 27 accidents, resulting in 32 slight injuries and 1 serious injury. The majority of accidents were collisions and crashes, and there were also 4 pedestrian accidents, which always resulted in minor injuries. It is therefore important to create conditions to reduce and eliminate pedestrian accidents in urban areas, by improving pedestrian conditions, signaling and implementing traffic calming measures.

Figure 4.1 1 - Identification of AEZs and NPs between 2018 and 2020



Source: @Figueira de Sousa. Data from ANSR - National Road Safety Authority

It should be noted that reducing accidents in urban areas is one of the priorities of the National Road Safety Strategy for the next decade, with the protection of pedestrians and cyclists being one of its main objectives, along with reducing traffic speeds.

In order to reduce accident rates, we propose a series of measures to be implemented in the areas where accidents accumulate and in the black spots identified:

- Rua João Vaz Corte Real and cross. Santiago Bridge with Rua dos Limpinhos

In this area it is proposed to: (i) the construction of pavements on the initial route, with pedestrian protection bays and a reduction in the maximum speed limit to 40 km/hour and later (toponymic sign located there): (ii) the implementation of raised pedestrian crossings and; (iii) speed control traffic lights at the intersection of this axis with the Santiago bridge and Rua dos Limpinhos where they register

accidents, particularly when traveling on the left, due to speeding and failure to comply with the stop sign located there;

- Largo Balsense and Rotunda da BP and Avenida Eduardo Mansinho

Avenida Eduardo Mansinho already has a set of traffic calming measures in place, but it is necessary to upgrade the road in terms of painting the pavement, reinforcing the horizontal speed limit signs and signaling the raised pedestrian crossings with LED lights to make them more visible.

As far as the Balsense roundabout is concerned, the construction of the new bypass to Rua Almirante Cândido dos Reis will help to divert traffic through it and reduce accident levels.

- Rotunda dos Navegadores and Rua da Atalaia

On this road, it is proposed to signpost the pedestrian crossings with LED lights and to implement vertical signs indicating speed limits.

Generally speaking, it is also proposed that all streets with cycle routes on a shared road (shared with cars) should have a speed limit of 40 km/hour, with the speed limit in the coexistence zone to be created being 20 km/hour, as well as in the Vila Adentro area.

4.3.	OO2 - IMPROVE PUBLICTRANSPORT	COVERAGE ANDINTERMODALITY	COVERAGE	SERVICES	TRANSPORT
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4.3.1. Framework and guidelines

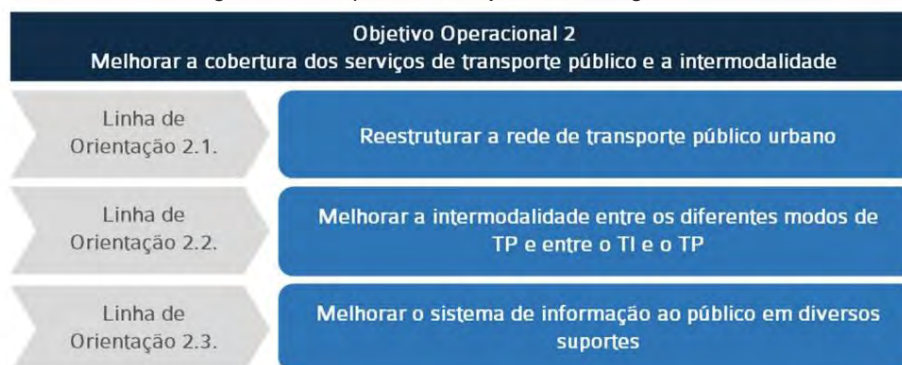
In phase 1 of this study, it was found that less than 5% of Tavira residents traveled by public transport, even although there are intercity rail services alongside intercity, municipal and urban road services, which, if properly coordinated and adapted to the needs of the population, can contribute to more sustainable mobility patterns.

Tavira's urban network, although it serves the majority of the urban territory, has very long journey times, which are not in line with the needs of the population, and does not guarantee fast journeys between centers that generate/attract journeys. On the other hand, the growth of residential areas to the north of the EN125 in the last decade has not been accompanied by the growth of the network, and there are now areas with poor coverage, especially at certain times of the day or on weekends days.

The multimodal fare integration being studied by AMAL could contribute to greater use of the public transport system, particularly for inter-municipal journeys, while also ensuring better physical, functional and operational links between road and rail transport.

Thus, improving the coverage of public transport services and intermodality involves implementing the measures shown in Figure 4.12.

Figure 4.12 - Operational objective 2 and guidelines



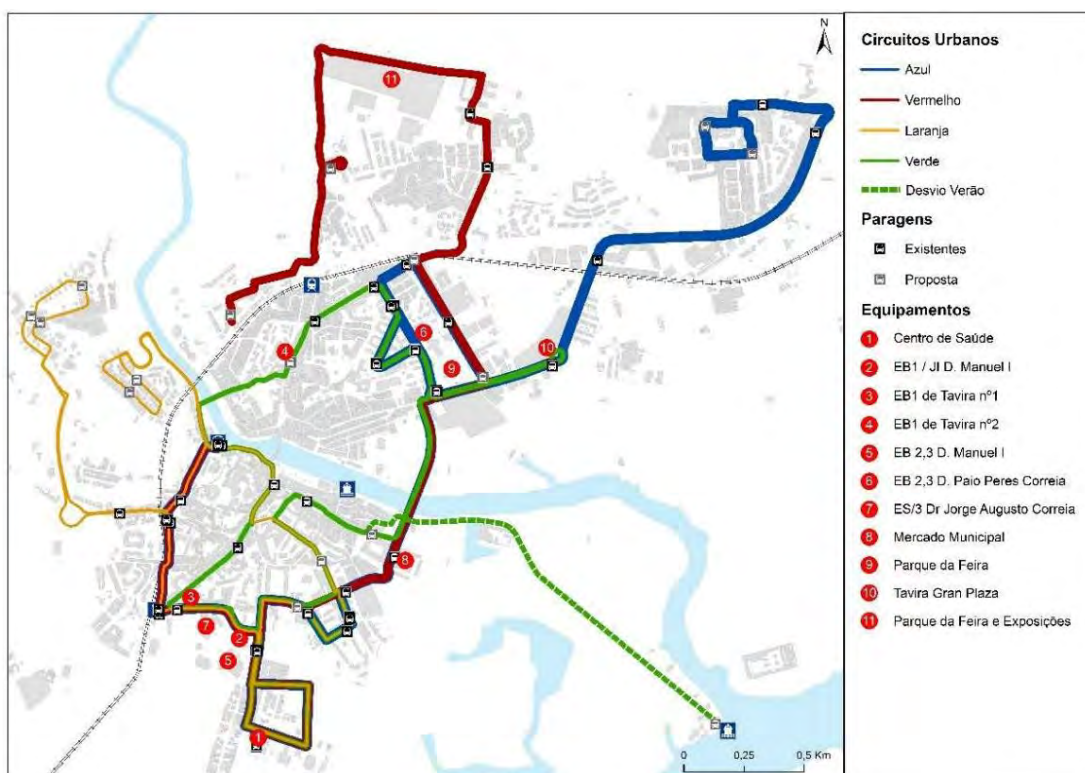
4.3.2. LO 2.1 - Restructure the urban public transport network

As mentioned in phase 1 of this plan, in Tavira there are two urban public transport lines with low frequency and long circuits, with very high journey times, which make them uncompetitive in relation to others modes of transport, particularly individual transport.

Following the entry into operation of the new municipal and inter-municipal network under the responsibility of AMAL, it is now important to restructure the urban public road passenger transport network, extending it to the city's expansion areas and adapting it to the needs of the resident and visiting population, with shorter, more competitive circuits connected at key points in the network.

A network is therefore proposed with 4 different lines, one of which has a bypass in the summer, covering the entire urban perimeter of the city of Tavira, the characteristics of which are shown in Table 4.4, and the network is shown in Figure 4.13.

Figure 4.13 - Proposed urban public passenger transport network



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The restructuring of the urban passenger transport network, namely its extension, is essentially aimed at:

- Extend the network to the expansion areas of the city of Tavira, in particular the new housing developments that have sprung up around the EN125 (eg Urbanização de Perogil, Gilão Mar, Terraços de Tavira, Quinta da Pegada, Mato de Santo Espírito);
- Reduce the average journey time to make it more attractive, so that it does not exceed 30 minutes;
- Increasing the frequency of services, proposing a minimum frequency of 1 circulation/hour per direction, with the ideal situation being 2 circulations/hour per direction. In the morning and afternoon rush hours, it is proposed that hourly services be reinforced, considering that they should run every 20 minutes between 7.00 and 9.00 and between 17.00 and 18.30;
- Extending the period of operation of services to the weekend, particularly during the summer period, in order to contribute to increasing the modal share of PT to the detriment of IT, creating alternative access to the city and to the river quays for access to the beaches, and contributing to the improvement of the urban environment.

The opening hours of the green line diversion at 4guas depend on the timetable of the river connection, as well as its operating period, and it only operates during the summer period.

Table 4.4 - Characteristics of the urban passenger transport network proposed for Tavira

Line	Name	Length (km)	Journey time (min)	Opening hours	Minimum frequency (per direction)
Blue	Bus Terminal - Mato Santo Spirit/Valley of Crab	9.92	35	07:15 - 19:30 (DU) 08:30 - 14:00 (Saturday)	PPT 1 x hour (12:00 - 14:30)
Red	Bus Gilão Mar Station Urbanization	8.15	31	7:15am- 7:30pm (DU) 08:30 - 2pm (Saturday)	2 x hour (PPM and PPT) 1 x hour (12:00 - 14:30)
Green	Bus Terminal - Tavira Plaza -Bus Terminal	8.74	31	10:00 - 22:00 (DU) and	3 x hour
Green Detour	Extension to 4 Waters	1.82	Saturdays) 7		3 x hour
Orange	Bus Terminal - Terminal road	1s	35	07:00 - 20:00 (DU) 08:30 - 14:00 (Saturday)	2 x hour (PPM and PPT) 1 x hour (12:00 - 2:30 p.m.)

* depending on the boat timetable

It is recommended that a study be carried out to define the network and the service levels to be contracted when the procedure is launched, defining not only the minimum service levels but also the resources needed to provide them,

Tavira's urban services are currently free of charge. It is considered that if the municipality decides to keep them free in the next operating contract, it should restrict it to Tavira residents, who would be given a free pass, which would, however, make it possible to monitor demand on the network.

With regard to visitors and tourists, it is suggested that transport tickets be created, namely: (i) single ticket; (ii) day ticket; (iii) 3, 5 or 7-day tourist pass.

4.3.3. LO 2.2 - Improve intermodality between the various modes of transport and between IT and transportation

4.3.3.1. Relocation of the Tavira bus station

Tavira's current bus station is located at the entrance to the city center, on the riverside, less than 300 meters on foot from Praça da República and the city center, in a low-emission area where priority should be given to soft modes. On the other hand, it requires buses to enter the city, and is more than 10 minutes' walk from the railway station, on a steeply sloping street that is difficult to cross on foot.

The Algarve's Sustainable Urban Mobility Action Plan (PAMUS) already proposed relocating the bus terminal near the railway station, without, however, defining a preferred location, with a view to increasing the physical intermodality of Tavira's transport system through greater articulation between modes.

The potential alternative locations for the Tavira bus terminal are shown in Figure 4.14:

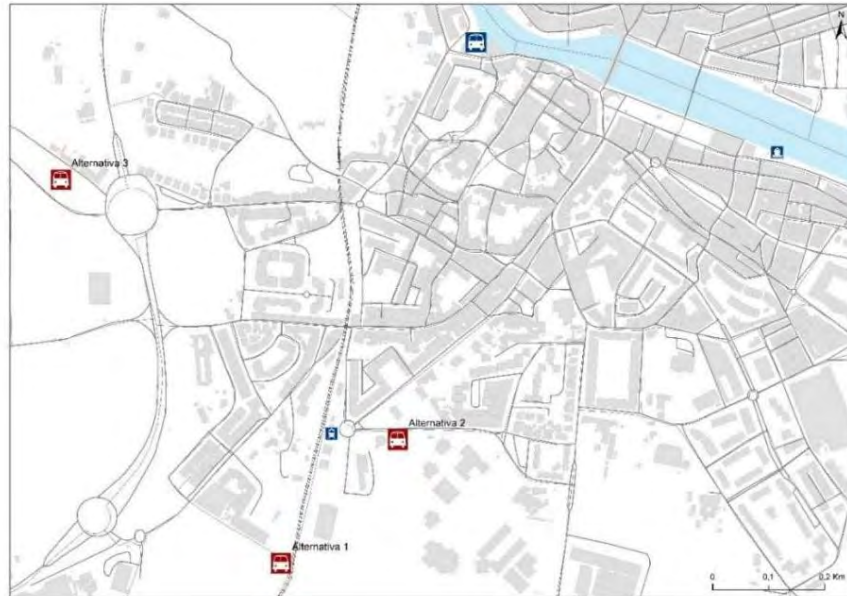
- Alternative 1 - to the west of the railway line, between it and Rua de São Pedro and to the south of the urbanization built there, with pedestrian access to the station having to be studied, which should be via a raised pedestrian walkway;
- Alternative 2 - on Rua Luís de Camões, adjacent to the Algarve Regional Directorate for Agriculture and Fisheries building, with access from the station roundabout and less than 150 meters from it;
- Alternative 3 - next to the GNR territorial post in Tavira, between the EN270 and Rua de Santa Margarida. Although this alternative is located away from the railway station, it is at the entrance to the town for those coming from both the A22 and the EN125, cutting down on inter-municipal and inter-regional journey times.

Whatever the future location of Tavira's bus station, it must be served by all the necessary services. the lines of the urban network proposed in the previous section of this report.

The implementation of this measure would allow the current terminal building to be converted into a car silo to support the city center, where a coexistence zone is to be implemented, favoring the pedestrian, which will reduce the parking supply, which is already deficient in terms of demand.

The new terminal should provide a car park for TPCR users.

Figure 4.14 - Proposed location alternatives for relocating the Tavira bus terminal



4.3.3.2. Reception conditions at LRT stops

With the definition and implementation of a new urban public transport network in Tavira, it will be necessary to reconfigure the entire network of stops and post offices.

Figure 4.15 - Examples of bus stops in the town of Tavira



It is recommended to :

- Standardizing the image of Tavira's entire urban network;
- Placing passenger shelters with benches and bins at the network's key stops, where the various routes that make up the network meet: the bus station, the train station, the health center, next to the schools, the car park at the fairground and even today's long-term car parks;

These stops should also be articulated with shared micromobility systems, and may contain stations or docks for the ó/Ëesóar/eg system or *hotspots* for scooter or *dockless* bicycle systems in the same space.

- Postcards should be placed at the other stops;
- All stops must be accessible to people with reduced mobility, particularly those with shelters, the interior of which must be accessible to people in wheelchairs or pushchairs.

Figure 4.16 shows some examples of inclusive, intelligent and modular stops that include various transport services.

Figure 4.16 - Examples of passenger shelters



Source: ACCES4ALL Project and www.O2move.com

4.3.3.3. Fare and ticketing integration

In Tavira there is no intermodal fare system to encourage greater use of the public transport system, just as there are no combined tickets for the various modes of transport in most of the Algarve's municipalities, and Tavira is no exception.

However, as Tavira's urban LRT services are free of charge, this issue does not arise in the case of combined tickets between LRT services.

As far as intermodal fares are concerned, AMAL is currently carrying out an intermodal study for the transport system which, in the future, will integrate the inter-municipal and municipal road and rail transport services that serve the municipality of Tavira, and may also integrate the future urban network of Tavira, should it cease to be free.

If the municipality decides to keep the urban network free of charge, it is proposed to create a ticket (card) for residents, while creating tickets for visitors/tourists, to be purchased on board or at the tourist office, which could be on-board tickets, daily tickets or 3-, 5- or 7-day tourist tickets.

4.3.4. LO 2.3 - Improve the public information system on various media

Tavira's transport networks have already been included in the "googlemaps" transport platform, which allows anyone with a *smartphone* to plan their journey using various alternative modes, and there are network maps and timetable panels at the stops on the inter-municipal and municipal networks. At stops on the urban network, there are timetables.

Tavira is a city with a large tourist population (both domestic and foreign), with an increasing number of *m/eee/a/e*, who are connected, sustainable tourists with a high sense of social responsibility, who use public transport and digital tools.

It is therefore considered that, in addition to the information in physical format that already exists at TPCR stops and at road and rail interfaces, there should be digital media with QR code access at the most important modal points on the network, namely where the various urban transport lines cross, and at the interfaces.

It should be noted that the intercity and municipal routes only stop at the railway station and bus station, while the urban transport service operates within the city.

allow access to *online* information such as network maps, maps of the surroundings, contacts and other useful information. These modal points should also contain real-time information panels.

4.4. OO3 - PROMOTE AND DEVELOP CYCLING

4.4.1. Framework and guidelines

Cycling, which is geared towards short-distance journeys², has numerous advantages for urban travel, both for its users (it promotes health benefits through physical exercise and reduced stress levels associated with congestion and savings on fuel costs) and for the public officials responsible for implementing the infrastructure, as well as from an environmental and energy point of view, as it promotes the reduction of fossil energy consumption and as such contributes significantly to the reduction of GHGs and other atmospheric pollutants.

Figure 4.17 - Comparison of the environmental efficiency of the various modes of transport compared to the private car for an equivalent journey in n° people/kilometres

Base = 100 (automóvel particular sem catalisador)						
Consumo de Espaço	100	100	10	8	1	6
Consumo de Energia Primária	100	100	30	0	405	34
CO ₂	100	100	29	0	420	30
Óxidos de Azoto	100	15	9	0	290	4
Hidrocarbonetos	100	15	8	0	140	2
CO	100	15	2	0	93	1
Poluição Atmosférica Total	100	15	9	0	250	3
Risco de Acidente Induzido	100	100	9	2	12	3

Source: EC, Cycling Cities Cities of the Future, 2000

In Portugal, although the share of cycling in urban commuting is still low, especially when compared to northern European countries where it is more culturally rooted, it has been growing in recent years, both due to the investments that have been made by municipalities and the greater environmental awareness of the population in general. One of the relevant aspects for greater use of this mode of transport in urban commuting is the creation of safe infrastructures that provide security and comfort in the use of this mode of transport.

* In the European Union (EU), between 3096 and 5096 of car journeys are made by private cars, with an appetite for cycling.

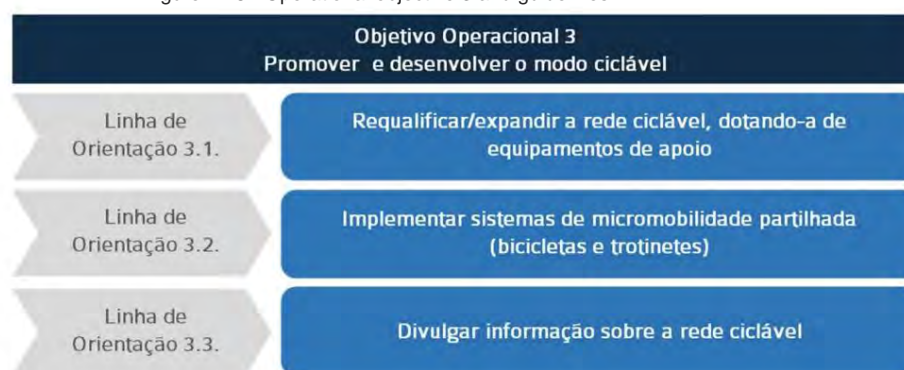
The COVID-19 pandemic could be a short-term opportunity for projects to expand the network and encourage greater use of this mode of transport. The fear of contagion associated with the disease has led to greater use of the bicycle for urban journeys, which, together with the population's growing awareness of environmental issues and the measures of the Economic Recovery Support Program on this subject, means that investing in this mode of transport should be a priority for the municipality in the coming years.

Aware of this opportunity for change, there has been a trend in several countries towards the rapid expansion of the cycling network, achieved through the creation of pop-up cycle lanes, which are structures that can be built quickly, inserted into the carriageway and achieved by sharing the road or converting lanes used for parking. Several of these lanes have subsequently become permanent and provide cyclists with greater safety and comfort when traveling.

It should be noted that the use of bicycles involves changing behavior and training the younger sections of society, so at this early stage it may be important to provide incentives for the use of this mode by these age groups.

Figure 4.18 shows the main guidelines for achieving this objective, followed by a list of the projects that make it up.

Figure 4.18 - Operational objective 3 and guidelines



4.4.2. LO 3.1 - Upgrade/expand the cycling network

4.4.2.1. Tavira's intervention proposals

cycling network

The cycle network in the area covered by this mobility plan for the city of Tavira is currently 8.95 kilometers long, of which 5.8 kilometers correspond to the Ecovia do Litoral, which is entirely on shared paths, 2.15 kilometers are on dedicated paths (cycle corridor + cycle track) between Santa Luzia and Tavira and on the Santiago Bridge in Tavira, and 1.0 kilometer is on a shared path with pedestrians, on the Estrada de 4 Águas.

The proposed cycling network for the municipality of Tavira is shown in Figure 4.19, and the proposed routes are characterized in Table 4.5.

It is considered that the current route of the Ecovia do Litoral should be altered, particularly when entering the intervention area for those coming from the west. It is proposed that it take a diversion via Santa Luzia, continuing to Tavira on the existing cycle path that links Tavira to Santa Luzia, following Rua Mártires da República to Rua da Atalaia/Rua Arquitecto Eduardo Souto Moura where it would summarize its current route, but always on a cycle path.

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A total of 12.2 km of cycle routes will be implemented, of which 5.6 km will be dedicated (cycle track), 4.9 km will be shared with cars and 1.7 km will be shared with pedestrians.

The cycle path will only be implemented on one side of the road (Figure 4.20), similar to the existing cycle path between Tavira and Santa Luzia, and it is recommended that separating elements between the cycle path and the carriageway be implemented where necessary.

Table 4.5 - Characterization of the routes proposed for the city of Tavira

route	Typology
Ecovia do Litoral	Shared carriageway Cycle track
Tavira - Santa Luzia 4-water	Shared footpath cycle
cycle path	track
Santiago Bridge cycle path	

route	Typology
Percursos Propostos	
New Ecovia route (Rua Mártires da República)	Cycle track
New Ecovia route (Rua Mártires da República)	Shared footpath
Ecovia (existing route) - D. Manuel I Bridge	Cycle track
Rua da Cara de Pau	Cycle track
Rua da Cara de Pau	Shared carriageway
Nora Velha/Mato de Santo Espírito roundabout axis	Cycle track
Zeca Afonso Avenue	Cycle track
Eduardo Mansinho Avenue	Cycle track
Rua AlvarodeCampo R.	Cycle track
Álvaro de Campos/Rotunda da Fonte Salgada/M508 axis Rua	Shared footpath
Porta Nova / Rua do Apeadeiro axis Rua	Shared carriageway
Álvaro de Campos (parallel to Rua da Porta Nova)	Shared carriageway
Marginal axis of the north riverside garden Axis	Shared footpath
Rua das Forças Armadas / Rua Jacques Pessoa / Rua 5 de Outubro / Rua João Vaz Royal Court	Shared carriageway
Rua dos Pelames	Shared carriageway
Rua do Cais/Estrada das 4 Águas axis	Shared footpath
Rua José Pires Padinha	Shared carriageway
Luis de Camões Street	Shared carriageway
Axis Avenida Dr. Mateus Teixeira de Azevedo/Rua Dr. Augusto Carlos Palma/ Rua Dr. Marcelino Franco/ Rua 1 Rua of May	Shared carriageway
Dr Miguel Bombarda EN125	Shared carriageway
to the Cemetery Rua de	Cycle track
São Pedro/ Rua Maria Piedade Vaz Baganha axis Rua dos	Cycle track
Firefighters Municipal	Cycle track

Figure 4. J9 - Existing and proposed cycling network for the municipality of Tavira

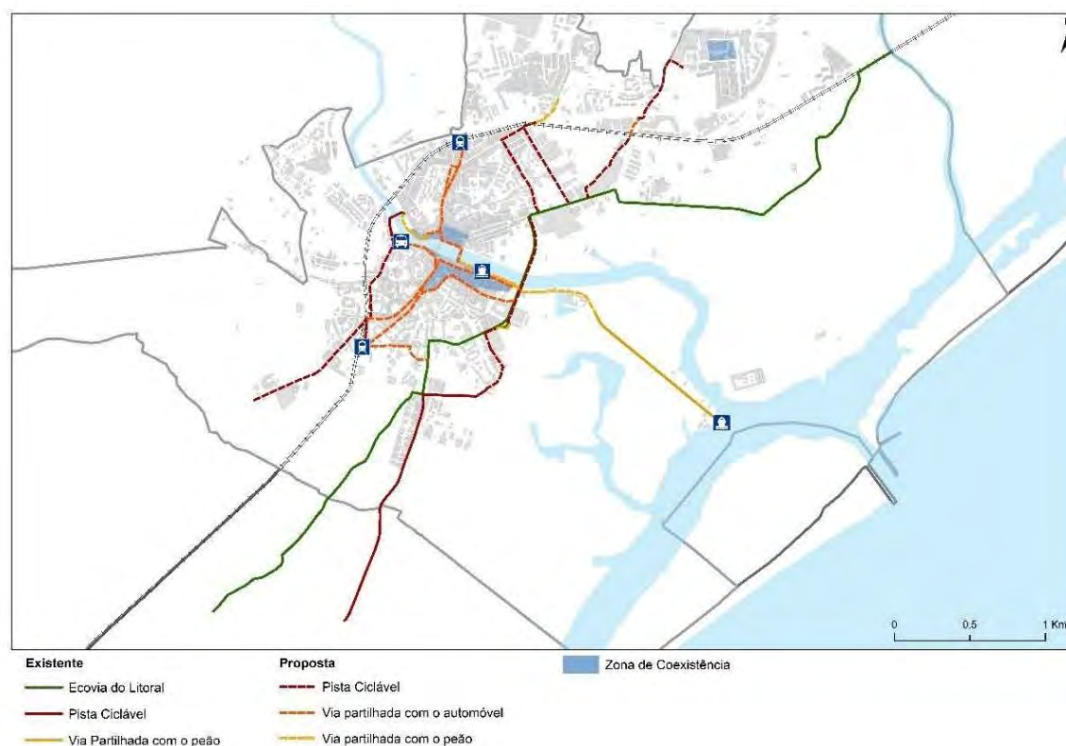
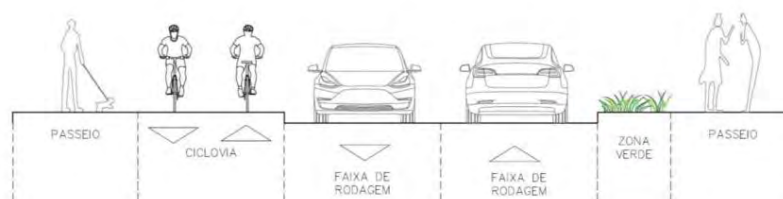


Figure 4.20 - Cross-sectional profile of cycle track type



Source: @figueiradesousa, March 2020

Equipment to support cycling

The cycling network to be implemented in the city of Tavira must be accompanied by the creation of a support network for cycling journeys that improves the conditions of convenience and comfort for users of this mode of transport, both regularly and sporadically.

Although Tavira's cycling network consists only of the Ecovia do Litoral and two cycle paths, it has an interesting range of support facilities, including cycle parking facilities, which are located in various parts of the city, whether in residential areas, tourist centers or next to transport interchanges or public facilities.

In addition to this equipment, the cycle network to be implemented should include information panels about the network, points of interest along it and a map of the surrounding area, as described in point 4.4.4 of this document, as well as drinking fountains and bicycle repair points.

The exact location of these facilities should be defined in the preliminary study or project for implementing the cycle network, and it is recommended that cycle repair points be located close to the main centers generating/attracting travel, such as educational and sports facilities, large shopping centers and employment areas.

Figure 4.21 - Example of drinking fountains


 Source: <http://www.ebanataw.com.br/trafegando/ciclovias>

Figure 4.22 - Bicycle repair point



Source: Gfigueiradesousa, June 2022

4.4.3. LO 3.2 - Implement shared micromobility systems

In recent years, shared micromobility systems, along with shared-use bicycle systems, have grown exponentially in European and national cities. They are a new mode of transport that contributes to more urban mobility that is less costly for the user, where the efficient sharing of means and their permanent availability have become the main differentiating factor for urban mobility in the 20th century.

This policy of sharing transport mechanisms, be they bicycles or scooters, based on technological or digital solutions is not, however, exclusive to the younger generations, or to a certain social or economic class, but has been boosted by the enormous development of mobile communications and associated apps, which has widespread their use, with countless operators of these systems emerging, with different business models and a huge diversity of offering.

These systems are developed in the public space and their implementation without any regulation can conflict with the rights of other users of the public space, particularly pedestrians. In view of the conflict situations already registered in Europe and even in Portuguese cities, in December 2022 the AMT published guidelines for the regulation of shared micromobility, in which legislative changes were presented with the aim of improving the way these systems are operated and their coexistence with other users of public space.

The successful use of these systems depends on a number of factors, such as the operating model (free or paid), the location of network access points and the size of the fleet, the technology selected (electric or conventional bicycles) and advertising the system to potential users. As far as advertising is concerned, it should be made available on various media (physical and digital).

On the other hand, several international studies indicate that proper management of these vehicles involves:

- Developing a safe cycle network;
- Create more parking space for bicycles/scooters by creating mechanisms that oblige them to park their equipment in the spaces created for this purpose (docks/stations/hotspots);
- Better connect micromobility modes with other modes of transport;

- Regulate the operators.

Considering that these modes can replace the car in urban areas for short-distance journeys, contributing to improving air quality, reducing noise and protecting the urban environment, from the perspective of ecological, energy and environmental transitions, they propose the implementation of a system of this nature in the city of Tavira, with 17 parking spaces, the location of which is shown in Figure 4.23. and Table 4.6.

It is also suggested that the introduction of the system be carried out in a phased and regulated manner, coordinated with the implementation of the cycle path network proposed in the previous measure, reducing the impact it will have on public space.

In addition to the sites mentioned above, and although they are outside the area of intervention of this plan, it is suggested that a dock be built in Santa Luzia at the start of the Santa Luzia - Tavira cycle path, with 8 parking spaces spaces.

It is estimated that the system could have 17 stations/óisjors, assuming that, in the first phase, it is important that the system's parking spaces are located within the coexistence zone to be implemented, as well as next to transport interfaces, as well as at the Health Center, with the remainder being *dockless* points.

It is proposed that in the first phase the system will have 40 bicycles, of which 10 will be conventional and 30 will be electric, so that in the second phase the system will have 40 bicycles, of which 10 will be conventional and 30 will be electric.

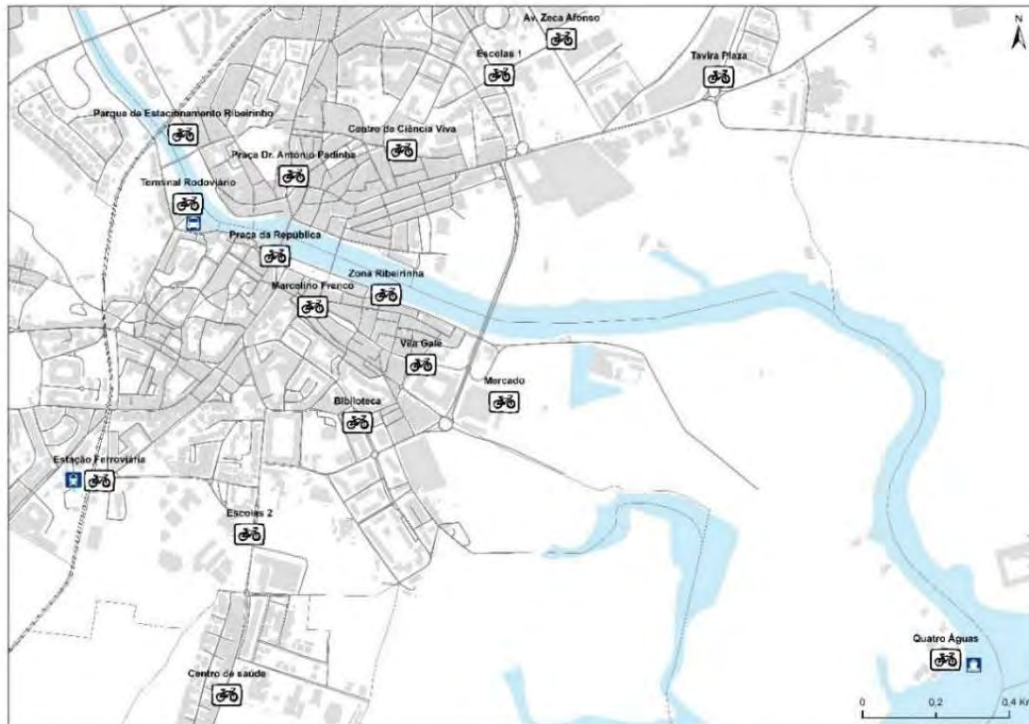
second phase, incorporating a further 30 bicycles in a second phase of dock expansion.

Table 4.6 - Location and size of the shared-use bicycle system stations

Post	Location	No. of car parking spaces	Typology
1	4 Waters River Terminal		<i>Dock/ess</i>
2	Tavira Municipal Market	(1 0)	<i>Dock/ess</i>
3	Tavira Municipal Library	5	Station/Dock
4	Rua 4 de Outubro - Hotel Vila Galé	5	Station/Dock
5	Ribeira Market - Tavira River Quay	10	Station/Dock
6	Rua Marcelino Franco - Cineteatro	5	Station/Dock
7	Republic Square	5	Station/Dock
8	Station Square	10	Station/Dock
9	Rua Dr Francisco Cansado - EB23 D. Manuel I	(5)	<i>Dockless</i>
10	Rua Dr. Francisco Cansado - Health Center	5	Station/Dock
11	Riverfront - Bus Terminal	10	Station/Dock
12	North Riverside Front - Car Park	(5)	<i>Dock/ess</i>
13	Dr António Padinha Square	5	Station/Dock
14	Living Science Center	(5)	<i>Dock/ess</i>
15	Av. Dr Eduardo Mansinho - EB23 Dom Paio Peres Correa	(5)	<i>Dock/ess</i>
16	Zeca Afonso Avenue - Municipal Swimming Pools	(5)	<i>Dock/ess</i>
17	Tavira Plaza	(1 0)	<i>Dock/ess</i>
18	EN125 - near Minipreço	(1)	<i>Dock/ess</i>
19	Dr Frederico Chagas Square (Vale Caranguejo)	0	<i>Dock/ess</i>
20	Rua D. João II (Pezinhos Urbanisation)	(5)	<i>Dock/ess</i>
		(5) 60 (65)	

(xxx) - number of dock spaces to be created in phase 2

Figure 4.23 - Proposed location of docks/stations/hotspots for the bike-sharing system



In addition to the sites mentioned, and although they are outside the area of intervention of this plan, it is suggested that a dock be built in Santa Luzia at the start of the Santa Luzia - Tavira cycle path.

In the case of bicycles, the choice of *dock/station* or *dock/ess* system will have to be made according to the municipality's options, with the recommendation of implementing a system with stations, with the characteristics shown below:

- Bicycle pick-up and drop-off stations should be located close to trip generators/attractors, the main tourist centers and public transport interchanges, with a view to promoting this mode of transport and public transport in an integrated way;

The stations, as well as the docks and bicycles, should have an information board with a map of the surroundings, operating instructions, the location of the nearest station and contact numbers for the system operator.

- The possibility of the system being used by visitors, who constitute a demand segment with a high appetite for using this mode of transport:
- The system makes conventional and electric bicycles available, which, given the age structure of both the both residents and visitors are an important aspect in promoting greater use of the system;
- Access to the system is via a mobile application, downloaded onto a mobile phone, where users can register their use, locate stations and bicycles, lock and unlock bicycles, etc.

unlock the bikes and (preferably) book parking at the docks at certain times of the day.

It should be noted that a critical factor for daily use and its incorporation into the commute of residents of these systems is the availability of bicycles at specific times of the day to ensure that potential users will have vehicles available at the station at the desired time or a parking space for the bicycle, so reserving a space or vehicle is an important factor.

A system of this nature makes it possible to centralize information on the bicycles available (eg number and location) and in use, as well as on the users of each specific bicycle, safeguarding against possible stratagems or even bicycle theft.

- The dissemination of information in different media on the use of shared systems, considering that this should also be done in different languages, namely English, Spanish and German;

Figure 4.24 - Examples of shared-use bicycle systems (Lisbon, Cascais and Matosinhos)



Source: lisboaparapessods.pt, i unho 2022, <https://www.smartfonet.pt/riems7smart-cities7coscols-this-more-intelligent> and <https://77smart->

In the case of scooters and *dockless* bicycle systems, a hotspot parking system should be opted for, in which, in the event of improper parking outside the hotspot, the system continues to charge the customer for payment, obliging the user to park in the zones delimited for this purpose.

In this case, it is recommended that there are no more than two operators of these systems in order to generate conflicts on the public highway and that a municipal regulation be drawn up for the operation of Tavira's shared micromobility systems.

4.4.4. LO3.3. - Advertising the cycling network

The cycle network defined in L.0.3.1 - Creating a cycle network and providing it with supporting infrastructure, should be presented on a map that allows the user to clearly identify existing routes, parking areas and points of interest along the network.

A cycle map of the city of Tavira should be drawn up, to be integrated into a municipal cycle map that includes all the cycle routes in the municipality (including the Via Algarviana), as well as the cycle links to the municipalities of Olhão, Vila Real de Santo António, São Brás de Alportel and Alcoutim. In the case of the city's cycle map, it can show all the routes equally, broken down by type of route (eg dedicated or shared) or by the purpose of the route (urban, tourist, linking public facilities, linking urban centers, etc.).

Given the characteristics of the city of Tavira and its surroundings, the cycle map to be developed should contain:

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- Public transport interchanges, namely railway stations (Távira and Porta Nova), the bus terminal and maritime-tourist embarkation points (Távira pier and Ouatro Águas), in order to promote the use of cycling as a stage in the TP's journeys;
- Educational and health facilities;
- Large department stores, areas with a concentration of shops and restaurants/bars;
- Parks, leisure areas and major sports facilities that can accommodate cycle routes in their sports activities;
- Main tourist sites, with signposting of routes that can be traveled using this mode;
- Main hotel facilities.

It should be noted that one of the main objectives of this measure is to promote cycling commuting, so it is important to publicize the cycling network covering the main areas where jobs and services are concentrated, as well as schools, namely EB23 and secondary schools, and the main residential areas.

Figure 4.25 - Examples of cycle network maps for residents and tourists



Source: <https://www.chestercyclecity.org/>, _____

This charter should be publicized to the general population and visitors, but the form of dissemination and communication should be adapted to the various target groups. Among the possible forms of dissemination are radio, the written press, pamphlets, posters, leaflets and digital media, on the municipality's website, *news/etter*, mobile phone applications, among others.

The cycle map to be produced should be developed in GIS (Geographic Information System) format, since this application allows the information contained on the map to be exported in different formats, times and distances between zones to be estimated quickly and it can also be linked to the maps of the pedestrian network provided for in the

LO4.1 This format also allows the maps of the cycle network to be constantly updated, which is advisable given the prospect of expanding the network, and dissemination formats should be adopted whose short-term updating does not involve high financial costs (eg / ier and mobile phone applications, among others).

4.5. OO4 - PROMOTE THE USE OF PEDESTRIANISATION

4.5.1. Framework and guidelines

In Tavira, and according to the mobility surveys carried out, the share of journeys made by soft modes (walking and cycling) was 35% in 2021, a very high figure, which was essentially due to the weight of journeys made on foot (32.5 %), but which varied substantially between the various parishes in the municipality, being highest in the city of Tavira (Santa Maria and Santiago) where 48.9% of the journeys declared by respondents were made by pedestrian mode.

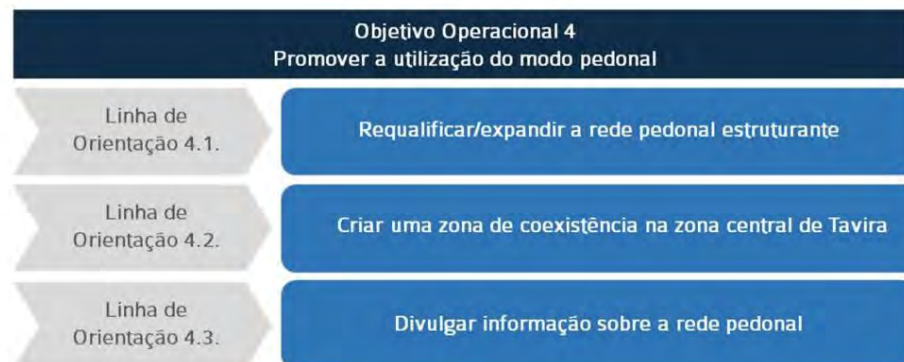
Even so, there is room for manoeuvre for a significant increase in the modal share of the pedestrian mode, with benefits for improving mobility, reducing energy bills and GHG emissions, with positive effects on improving the quality of the urban environment and spreading healthier habits and lifestyles.

Promoting the use of soft modes of transport, particularly pedestrian transport, implies changing individual behavior when it comes to choosing how to make short-distance journeys. For the desirable increase in the use of this mode to occur, it is essential to have an attractive and qualified public space that provides safe and comfortable journeys. The "requalification" of the public space is important not only for leisure travel, but also for everyday travel and for promoting traditional commerce, which plays an important role in the municipality's conurbations.

As such, the municipality should continue with the public space requalification measures it has been adopting (eg around Tavira's municipal garden and Praça Dr. António Padinha), which in many cases involve the re-profiling of streets or the reorganization of parking on public roads , with consequences in terms of reducing supply, and should therefore be implemented in conjunction with what is proposed in point 4.6.2.

Figure 4.26 shows the main guidelines for achieving this objective, followed by a list of the projects that make it up.

Figure 4.26 - Operational objective 4 and guidelines



4.5.2. LO 4.1 - Upgrade/expand the pedestrian network and LO 4.2. - Create coexistence zones

4.5.2.1. Framework

Tavira's pedestrian network consists of pavements that follow the road network and pedestrian streets located in the center of Tavira (eg Rua Amália Rodrigues, Rua Montalvão, Rua Estácio da Veiga, Travessa Dom Brites and the final stretch of Rua Marcelino Franco, as well as some crosswalks that connect Rua Dr. Parreira to Rua José Pires Padinha). On the left bank of the River Gilão, the pedestrianization of the

part of the Calçada de Sant'Anna. These streets, as well as a number of others in the city center, have narrow profiles, less than 5.5 meters wide,

The network includes a number of areas that stand out for their pedestrian vocation, where there are greater pedestrian flows and which include the streets mentioned above, as well as various streets connecting to the city center, public facilities and services, tourist and commercial centers, which are therefore structuring streets, with profiles more suited to coexistence between modes, where there are pavements 1.20 meters wide or more.

Figure 4.27 shows the classification of streets in the city of Tavira by profile width. It can be concluded that in the central core of the city, the majority of streets have a reduced profile width (less than 8.5 meters), with many streets in the Vila Adentro area or in the historic center closer to the River Gilão having profiles less than 5.5 meters wide, which severely limits the creation of pavements.

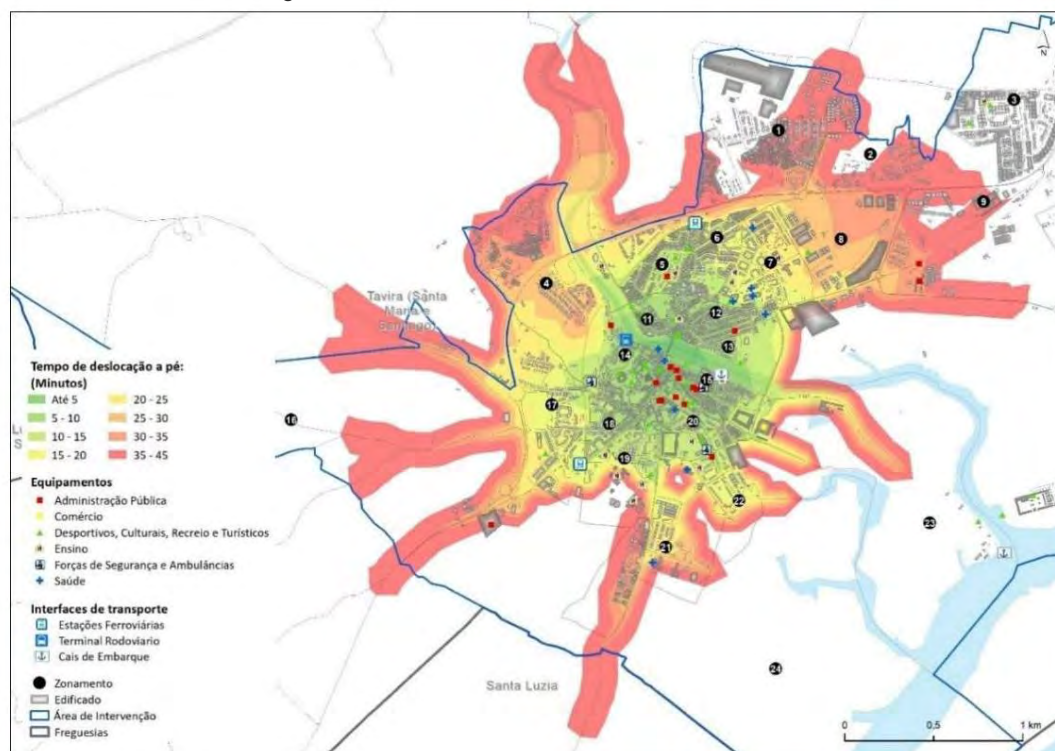
Figure 4.27 - Classification of roads by profile width



Source: CAOPS 2020 and @figueiradesousa

On the other hand, the majority of public facilities, namely education and sports facilities, as well as shops, are located less than 30 minutes' walk from the city center, and are relatively close to most of the city's main residential areas, as can be seen in Figure 4.28, which contributes to the high weight of journeys on foot in the context of internal journeys in the parish.

Figure 4.28 - Pedestrian links to the center of Tavira



Source: CAOPS 2020 and @figueiradesousa

4.5.2.2. Improving pedestrian conditions in the Vila Adentro area

Most of Vila Adentro's historic center has streets with widths of less than 5.5 meters (Figure 4.27), which often makes it impossible to have pavements or, if they do exist, they are not wide enough for safe and comfortable pedestrian movement, and are often occupied by illegal parking, which not only hinders pedestrian mobility, but also access to homes and car traffic itself.

Improving pedestrian conditions in this area involves:

- Construction and upgrading of pavements (eg Rua das Portas do Postigo, Largo das Portas do Postigo) when the profile of the streets allows it, providing them with conditions of comfort and safety and using non-slip materials with relative permeability;

Figure 4.29 - Examples of places to build pavements



- Implementation of pedestrian lanes on streets less than 5.5 meters wide and where it is not possible to build pavements.

The aim of these pedestrian lanes is to make traveling more comfortable and they should be an even, homogeneous, resistant and durable surface that is slip-resistant and relatively permeable so as to prevent water from accumulating.

Figure 4.30 - Examples of locations for pedestrian crossings



Implementation of this nature should be evaluated on some roads, where although there are pavements, they are not wide enough for safe and comfortable circulation or where they are made of Portuguese pavement (limestone), which, combined with the slope of the streets in this area, could make the pavement very slippery.

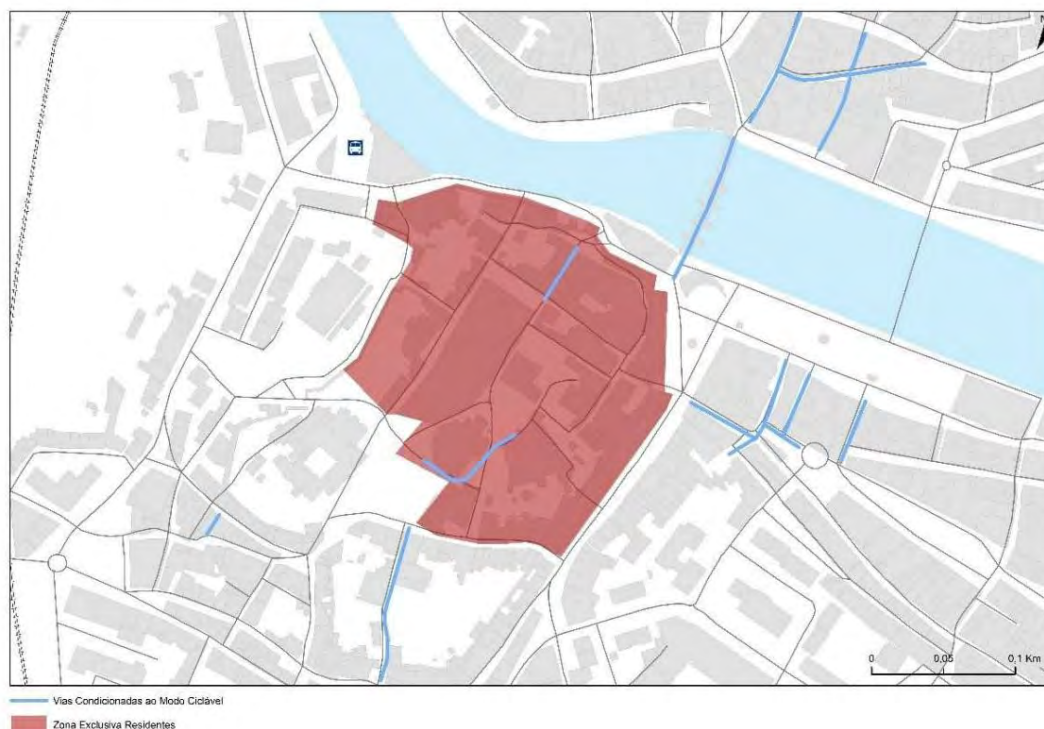
Figure 4.31 - Examples of pedestrian lanes



Source: @figueiradesousa

- Marking of pedestrian crossings, particularly in Largos das Portas do Postigo, Calçada de Santa Maria and Largo Abu-Otmane;
- Limiting the speed of traffic to 20 kilometers per hour and placing vertical signs indicating this, as well as an exclusive zone for residents;
- Adequate lighting to improve pedestrian safety;
- Traffic restrictions for cyclists on exclusively pedestrianized roads, such as Rua da Galeria, Travessa António Viegas and Travessa dos Escuteiros, as shown below.

Figure 4.32 - Roads in Vila Adentro restricted to bicycles

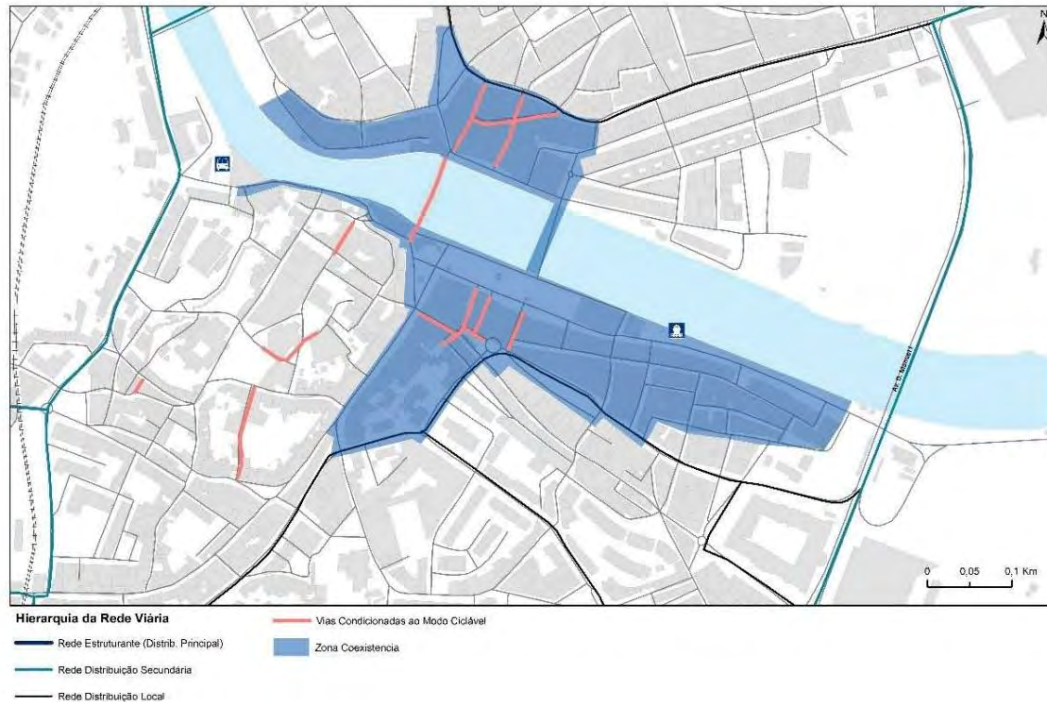


4.5.2.3. Creation of a coexistence zone in the city center

The coexistence zone to be created covers both banks of the River Giláo and is adjacent to the Vila Adentro residents-only zone, covering the area shown in Figure 4.33. It covers the city's central core, where there are the greatest pedestrian flows and the highest concentration of shops, restaurants and services, and where there are the greatest conflicts between the various uses in public space. The implementation of this coexistence zone is essentially aimed at:

- Increase road safety levels by reducing the volume and speed (maximum speed of 20 km/hour) of road traffic;
- Safeguarding street activities and public space, integrating the minimum circulation and parking needs of vehicles;
- Requalifying urban space by creating visually attractive and functional streets;
- Promoting urban environmental quality by eliminating the primacy given to motorized vehicles and encouraging pedestrian and cycling circulation;
- Increasing accessibility for the elderly and people with reduced mobility.

Figure 4.33 - Proposed existence zone for Tavira



Source: CAOPS 2020 and @figueiradesousa

The entrances and exits to this area must be duly signed with horizontal and vertical signs in accordance with the Highway Code (H46 and H47), which indicates the establishment of a new traffic regime from that point forward.

Figure 4.34 - Traffic signs entering and leaving the coexistence zone



Source: Highway Code

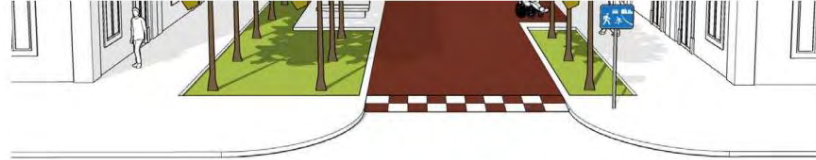
The entrance to the coexistence zone should also be marked by a change in the pavement (eg colors, texture, contrast), accompanied, whenever possible, by engineering solutions such as narrowing the street and creating ramps to increase the level, in order to eliminate the height difference between the pavement and the carriageway, keeping the public space in the coexistence zone all at the same level.

In the case of Tavira, the availability of space for the implementation of landscaping solutions at the entrances and exits to the coexistence zone should be assessed:

The construction of ramps at the entrances and exits to coexistence zones must be accompanied by the M12 sign from the Highway Code. The slope of the ramp must be 1:7.

Estrada das Quatro Águas/Rua das Salinas, Rua 1 ° de Maio, Rua Dr. Augusto Carlos Palma, Rua da Liberdade, Ruados Pelame e Rua João Vaz Corte Real.

Figure 4.35 - Example of an urban design solution for the entrance/exit of a coexistence zone



Source: Manual of Zones of Residence and Coexistence 2020, ANSR

Tavira's urban public transport services are allowed within the coexistence zone, provided they are carried out in electric minibuses, as it is part of a low emission zone. The reformulation of the network will make these lines peripheral to these zones, with only one crossing, but on a road with a profile of more than 8.5 meters, with the capacity to support this service.

It should be noted that part of the coexistence zone has already been intervened on, namely Rua da Liberdade (Figure 4.36), but it is not signposted and the pavement is not level with the pavement as far as Praça da República.

Figure 4.36 - Entrance to the coexistence zone at Rua da Liberdade and Praça da República

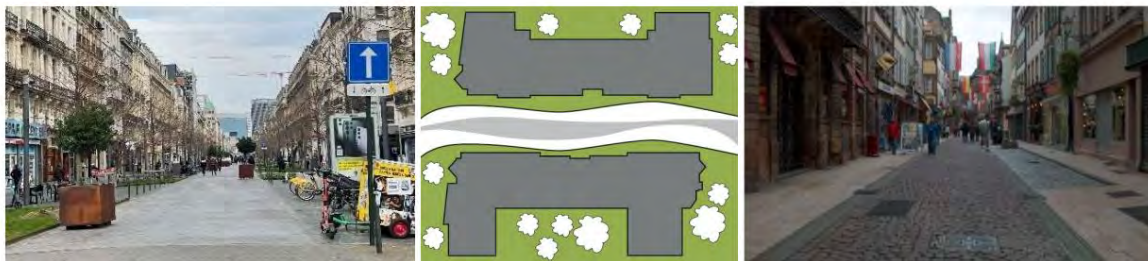


The main measures to be implemented within the coexistence zone are as follows. Leveling and differentiating pavements

As a rule, the coexistence zone does not have any segregation between the carriageway and the space for other users. As already mentioned, the height difference between the carriageway and the pavements must be eliminated.

It is recommended, however, that there should be differentiation in the paving of the various sections of road, particularly in terms of carriageways and areas for pedestrians and cyclists, with carriageways being paved with rough materials that induce lower speeds, although these can be used in pedestrian and leisure areas, particularly if they are colored. The coloring of the materials helps to create visual effects that can create, for example, the virtual effect of a gymkhana, also helping to reduce speeds.

Figure 4.37 - Examples of roads with leveled and differentiated pavements in coexistence zones



Source: Gfigueiradesousa, February 2022 and annual Zones of Residence and Coexistence 2020, ANSR

For road safety reasons, it is considered that on some roads, namely: (i) Rua dos Pelames; (ii) Rua José Pires Padinha; (iii) Rua Borda d'Água and; (iv) Rua Marcelino Franco, there should be a physical separation between the carriageways and the areas intended for other uses, through the installation of tree rows, flower boxes or bollards.

Restrictions on cycling on pedestrianized streets

Távira's riverside area has a number of pedestrianized streets that are heavily occupied by street furniture, terraces and shop displays, requiring pedestrians to walk in a gymkhana, such as Rua António Cabreira, Travessa Jacques Pessoa on the north bank and Rua Amália Rodrigues on the south bank.

Figure 4.38 - Examples of streets occupying the public highway



These roads have high pedestrian flows, particularly in the summer and at night, and it is recommended that Bicycle traffic on these roads be restricted to avoid conflicts with pedestrians, as shown in Figure 4.33.

Bicycle traffic will also be restricted on the Roman Bridge in continuation of the traffic ban in Praça da República.

Car park measures

In the coexistence zone to be created in Távira's central core, parking should be strictly necessary for residents, loading and unloading and support for the shops and services there, and should be priced and organized so as not to conflict with pedestrian and cycling traffic.

It is recommended that there should only be spaces reserved for loading and unloading, residents with reduced mobility, pharmacies, official bodies and emergency vehicles, ensuring that they are monitored effectively in order to avoid abusive occupation of the space.

In LO 5.3. it is proposed to implement signs directing vehicles to car parks. In the area surrounding the coexistence zone, visitors should be directed to the existing parking spaces, namely on both sides of the D.

Manuel I Bridge, next to the bus station, or on the north bank, on Rua Eduarda Lapa, where some parking can be reserved for residents.

The pavement of the parking spaces should be as permeable as possible and should be provided in an alternating and discontinuous manner, integrated into rows of trees or leisure spaces, so as not to become dominant. It is recommended that, within the coexistence zone, there are no pockets of car parking with more than 6 continuous spaces.

Measures should be implemented to prevent illegal parking, by placing obstacles to it and increasing enforcement (see point 4.6.2 of this document).

Areas for motorbike and bicycle parking should also be considered. Vertical and horizontal signaling

In addition to signposting the entrance and exit of a coexistence zone, the maximum speed allowed within the coexistence zone should also be signposted at each entrance, which is recommended to be 10 km/hour in Tavira, maintaining the current situation that already exists on many of the streets to be intervened.

This speed should be the same throughout the area to be intervened, with vertical signaling where deemed necessary and horizontal signaling on the main roads.

Streets where only pedestrian traffic is to take place should also have horizontal signs indicating that cycling is prohibited.

It is recommended that the signage in the coexistence zone be uniform, and that the existing signage be replaced whenever it does not conform to what is intended for the coexistence zone, in order to maintain uniform rules and not confuse drivers, pedestrians or cyclists.

There should also be signs prohibiting the circulation of heavy goods vehicles.

Figure 4.39- Examples of traffic signs to be implemented in the coexistence zone



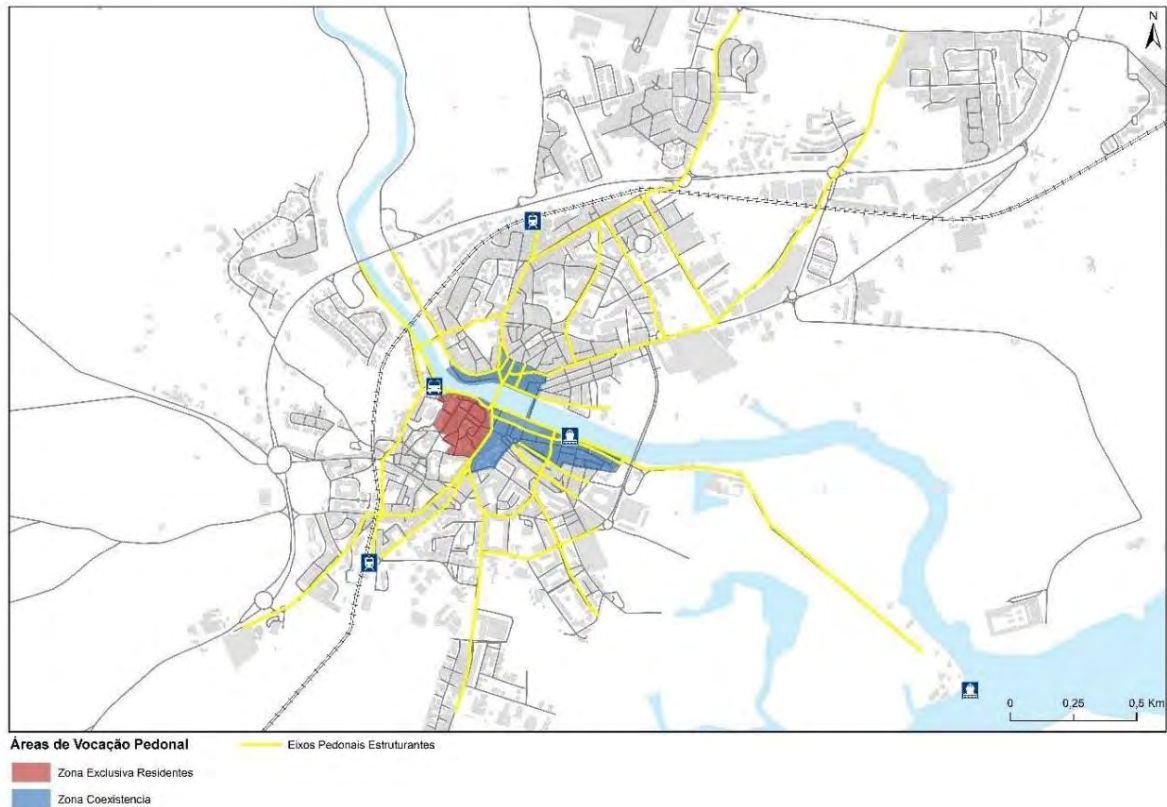
Source: @figueirade sousa and Highway Code

4.5.2.4. Upgrading structural pedestrian axes

With regard to the structuring pedestrian axes, it can be seen from Figure 4.40 that some of these axes are located in the coexistence zone created and in the pedestrianized area of Vila Adentro, and the measures proposed for these areas apply to them.

The axes were identified on the basis of their links to public facilities and services, tourist and commercial centers and the historic center, where the greatest pedestrian flows are recorded.

Figure 4.40 - Structuring pedestrian axes



The proposals for each of these structuring axes are presented below:

- Estrada Municipal 508 (M508), this road connects the urbanizations north of the EN125 to the city of Tavira, namely the Porta Nova roundabout. It has two public transport stops and is an important pedestrian route to the city center. It has pavements on one side of the road, which are in good condition.

Whenever possible, it is recommended that pavements be built on both sides, that kerbs be lowered next to pedestrian crossings and that these be posted with lighting systems.

Figure 4.41 - Walkways on the M508 and examples of possible lighting



- Rua Almirante Cândido dos Reis, which connects Tavira Plaza to the coexistence area to be created and which, between the shopping center and the fairground area, does not present any conditions for pedestrian circulation, with

There are no pavements or verges, and the route runs along the back of the petrol station (Figure 4.42).

The project to upgrade and refurbish the fairground will provide this axis with conditions for pedestrian circulation, with the construction of pavements up to the roundabout accessing the D. Manuel I bridge. As this is an accident hotspot in the city of Tavira, it is recommended that traffic calming measures be implemented, namely speed control lights, to be located before the entrance to the future car park, in order to guarantee the safety of pedestrians and cyclists⁴. It is recommended that the speed on the approach to the roundabout be 30 km/hour, reduced from the current 40 km/h.

On the next stretch, up to the entrance to the coexistence zone, it is recommended to monitor illegal parking and loading and unloading operations, as well as abusive occupation of public space.

Figure 4.42 - Alternative pedestrian route to Rua Almirante Cândido dos Reis and proposed road interventions



Downstream, this road continues to the Mato de Santo Espírito Urbanisation, with a crossing under the EN125, with a pavement on one side.

- Av. Zeca Afonso, recently built, has wide pavements and comfortable pedestrian conditions. However, the profile of the road is favorable for car traffic to reach high speeds, since this road is home to a group of schools (EB1 and EB23) and a range of sports facilities used by children and teenagers, which is why it is proposed to implement traffic calming measures, namely speed control traffic lights (see Figure 4.42), before the entrance to EB23 Dom Paio Peres Correia and before the junction with Rua Prémio Nobel da Paz/Praceta Diogo Mendonça Corte Real, which is another structuring pedestrian axis, linking to the square located there and to Av;
- Av. Eduardo Mansinho, with similar characteristics to Av. Zeca Afonso, both of which will be remodeled as part of the redevelopment of the fairground. It is proposed that traffic calming measures be implemented, namely speed control traffic lights, in order to reduce the accident rates that make this road an accident hotspot;
- Rua Álvaro de Campos, which connects the EN125 at the Porta Nova roundabout to Rua da Porta Nova in the city center, is an important pedestrian access route to the city center. On its south side, it has wide pavements, with rows of trees and street furniture in a relatively good state of repair, while the north side, occupied by single-family homes or older buildings, has discontinuous pavements, with dirt verges occupied by vehicles and pavements in a poor state of repair, with no alignment of the buildings.

It is therefore recommended that pavements be upgraded and built where there are none, and that illegal parking on pavements and the occupation of public space by terraces be regulated.

⁴ This road is part of the coastal ecovia and shared canal with cars

Figure 4.43 - Álvaro de Campos Street



- The Rua da Porta Nova/Rua do Apeadeiro axis, which will be the target of an intervention already planned by the municipality and for which there is a project, is described in point 2.7 of this report.

This axis will be followed north of the EN125 by the construction of a level crossing that the municipality of Tavira is planning to build north of the Porta Nova apeadeiro, linking it to the new housing developments that have been built between the EN125 and the Tavira Fair and Exhibition Park, thus allowing not only a safe crossing of this road, but also the creation of a continuous pedestrian axis between them and the city center.

This level crossing will also allow the residents of these urbanizations to access rail transport more quickly and safely, and the project is described in point 2.8 of this report.

- Rua do Óculo/ Largo do Carmo/ Rua Primeiro de Outubro axis. This axis connects Rua Álvaro de Campos, in the new part of the city, to the city center, with different realities and road profiles. For most of its length, it has good conditions for pedestrian circulation, with wide, well-maintained pavements on both sides of the road. At the crossing from Rua do Óculo to Largo do Carmo, a pedestrian crossing should be implemented with a traffic light signaling a pedestrian crossing in the opposite direction (a traffic calming measure to be installed at Largo do Carmo). On Rua 1º de Outubro, it is recommended that measures be implemented to prevent illegal parking;
- Rua dos Fumeiros de Trás / Rua Feixinho de Vides axis. This road has some specific restrictions on pedestrian movement, namely illegal parking and abusive occupation by street furniture and terraces. It is suggested that measures be implemented to prevent illegal parking, to upgrade the pavements and to regulate the occupation of public space;

Figure 4.44 - Examples of problems to be solved on the Rua dos Fumeiros de Trás/Rua Feixinho de Vides axis



- Rua Borda d'Água de Aguiar, to be remodeled by the municipality, along with Largo da Caracolinha.
The intervention to be carried out should emphasize soft modes of transport, with the creation of wide pavements to enjoy the riverside area and the existing garden, and pedestrian crossings near the hypermarket located there;

- Rua João Vaz Corte Real, a riverside road that enters the coexistence zone on the north bank, where it is proposed to build a pavement on the left-hand side (towards the entrance to the city). There are good conditions for pedestrian circulation in the existing urban park. It is also proposed to implement traffic calming measures such as vertical deflections or speed control traffic lights on the approach to the coexistence zone;
- Estrada das Quatro Águas, for which it is proposed to build pavements and organize parking;
- Rua de São Pedro, this street is to be upgraded by the municipality, the project for which is presented in point 2.6 of this report;
- Rua dos Firefighters Municipais / Rua Sebastião Leiria, a direct and faster pedestrian route between the railway station and the bus station, but with some restrictions on pedestrian movement, such as steep slopes and the absence of pavements in some sections. It is recommended that traffic calming measures be implemented, such as speed control lights on the descent of Rua Sebastião Leiria, as well as the construction of pavements where none exist, reducing the width of the road, particularly the carriageway. On Rua dos Firefighters Voluntários, the pedestrian crossings should be signposted with semiotic elements and vertical deflections in order to induce a reduction in speed, which is recommended to be 40 km/hour on this axis;

Figure 4.45 - Areas to be intervened - Rua Sebastião Leiria and Rua dos Firefighters Voluntários



- Rua Maria Piedade Vaz Baganha/ Largo da Estação, a road parallel to the railway line that continues the previous axis and connects it to the railway station, proposing the creation of a pedestrian crossing (footbridge) before the level crossing in the direction of those coming from the station in order to allow pedestrians to cross on the railway line side;
- Av. Dr. Mateus Teixeira de Azevedo, the road that connects the railway station to the city center, namely the coexistence zone to be created, with pavements on both sides, presenting good conditions for pedestrian circulation. It is proposed that the pedestrian crossings be signposted with semiotic elements (LED lights) and that the occupation of public space be monitored in some sections;
- The Rua Dr Augusto Carlos Palma/ Rua Dr Silvestre Falcão axis has good pedestrian circulation conditions, with only occasional abusive occupation of the public space by terraces;
- Travessa das Cunhas / Rua do Poço do Bispo / Rua da Comunidade Lusiada, an axis with a heterogeneous profile throughout its longitudinal development, but which, overall, has pavements with reasonable pedestrian circulation conditions throughout its length, with some occasional needs for requalification. It is recommended that a pedestrian lane be created at the end of Travessa das Cunhas, given the lack of pavements, that pedestrian crossings be signposted with LED lights, that motorbike parking be created in order to remove motorbikes from the pavements and that the occupation of public space be regulated, given that there is abusive occupation of this space by terraces.

Figure 4.46 - Areas to be intervened - Rua das Comunidades Lusíadas/ Rua do Poço do Bispo/ Travessa das Cunhas



- Rua Luis de Camões, the link between the railway station and Rua Dr Fausto Cansado, has good pedestrian conditions, with wide pavements on both sides of the road. It is proposed that measures be implemented to prevent illegal parking near the entrance to Tavira's EB1, namely increased enforcement or the placement of bollards to improve visibility at pedestrian crossings and the signaling of the various crossings with LED lights.

Figure 4.47 - Areas to be intervened and types of intervention in Rua Luis de Camões



- Rua de Dr Fausto Cansado (M515). As this is an entrance road into the city, it is recommended that speed control lights be placed in the area of EB23 D. Manuel I, guaranteeing a maximum speed of 30 km/hour from the junction with Rua Eng.º João Bruno da Rocha Prado (access to the health center).
The road has wide pavements and is in good condition. It is also recommended that, in its final stretch, near the barracks, the placement of street furniture (eg advertising hoardings) be reviewed, which occupy the majority of the pedestrian channel, forcing pedestrians to diversions.
- Rua Francisco de Sá Carneiro is in good condition for pedestrian traffic, with pavements on both sides of the road, and there is no need for any work.
- Rua da Atalaia Pequena/Rua da Atalaia/ Rua Arquiteto Eduardo Souto Moura axis. On this axis, it is recommended that on Rua da Atalaia, the existing car park opposite the PSP should be made parallel to the pavement so that it can be widened and upgraded. It is also recommended that the pavement on Rua do Arquiteto Souto Moura between the Convento das Bernardas and the Tavira Market be upgraded.

Figure 4.48 - Areas to be intervened in Rua da Atalaia and Rua Art.º Souto Moura



- Rua Guilherme da Costa Fernandes/ Travessa da Caridade axis. For this road, located in the city center, it is recommended that traffic and parking be restricted to residents and that a pedestrian lane be implemented along it, given the lack of pavements.

4.5.2.5 Overpass over EN125

As mentioned in point 2.8 of this document, the Municipality of Tavira is planning to build an overpass between the area north of the Porta Nova stop and the south-western end of the new housing developments that have been built between the EN125 and the Tavira Fair and Exhibition Centre.

With this solution, the Algarve line will continue to be crossed on the (level) railway, and the access route will have to be upgraded, as can be seen in the layout plan shown in Figure 2.20.

In addition to this crossing, it is also recommended that consideration be given to the implementation of a raised footbridge next to the Perogil Urbanisation, improving the safety of pedestrian access between this area and the town of Tavira.

The construction of pedestrian overpasses on the EN125 will be a significant asset in terms of comfort and, above all, safety, as they eliminate the current barrier effect caused by the EN125, which physically separates the center from its immediate periphery. It is recommended that they have stairs for pedestrians, but also include ramps to allow the use of bicycles and scooters.

4.5.3. LO 4.3 - Publicize the structuring pedestrian network

As an incentive to use the pedestrian mode for short-distance journeys, particularly commuter journeys, it is considered essential to draw up pedestrian maps.

These maps should include the main centers generating/attracting journeys, as well as the main transport interfaces, noting the pedestrian connection times between the main centers.

Pedestrian network maps can cover the entire network as a whole, or be dedicated to specific themes (eg urban routes, leisure routes, tourist routes).

An important aspect that influences the successful implementation of this measure reports to the channels selected to publicize these maps.

Figure 4.49 - Example of a pedestrian map



Source: Municipality of Maia

In the case of advertising structural routes that are mainly used by residents, it is considered that they should include campaigns to raise awareness of pedestrian use, as described in the next section of this report.

To draw up these maps, we suggest using GIS tools, which not only allow the routes to be geo-referenced, but also make it easier to carry out various calculations, such as the travel time between two points of interest, as well as allowing permanent updating of the urban regeneration interventions carried out and the pedestrianization of streets or other interventions to improve pedestrian circulation conditions, as well as the articulation of the pedestrian network with the city's cycling network.

Tavira already has several municipalities with maps of the city, and it is thought that these should be replaced by maps of the pedestrian network, with indications of the best pedestrian routes to certain destinations and the type and terrain of existing pavements, as well as route times to make it easier for users to choose.

Another important aspect that influences the successful implementation of this measure is the channels selected to publicize these maps. As this information is aimed at very different target audiences, it is thought that it should be disseminated in paper format (to be made available at strategic points in the city, in the form of pamphlets, maps and leaflets), as well as in computerized media aimed at younger age groups and tourists who can plan their trips in advance.

4.6. OO5 - DEFINE A PARKING POLICY THAT CONTRIBUTES TO MORE SUSTAINABLE MOBILITY OPTIONS

4.6.1. Framework and guidelines

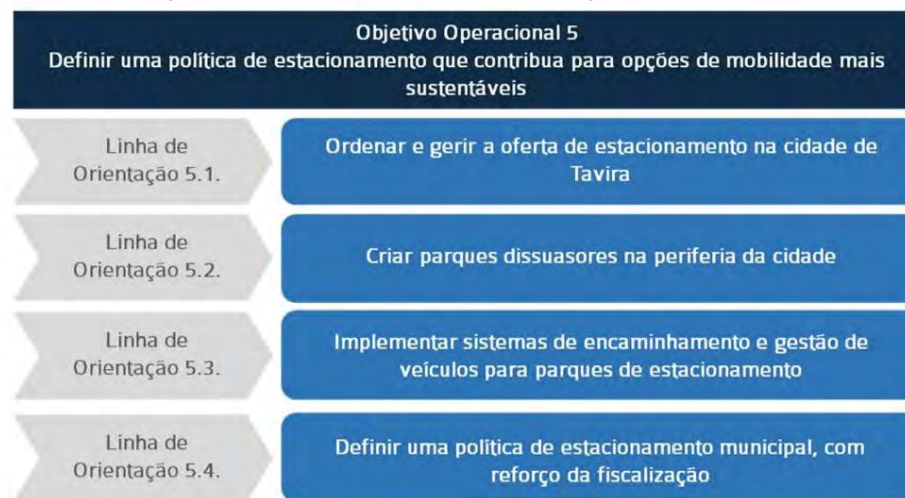
Parking policy is an important tool in the definition of a sustainable mobility policy and for the revitalization and attractiveness of urban centers, since:

- It is a tool for managing IT use (quantity, price and regulation of the length of stay);
- It is essential to promote the requalification of public space, since it is only possible to have quality space for the promotion of soft modes and new experiences in cities by freeing up space currently occupied by cars parks, which implies finding an alternative offer;
- In central areas, it is essential to have a minimum supply of parking spaces (preferably in car parks), with attractive rates for residents, to make these places attractive both for residents and, for example, to boost local commerce.

As part of the preparation of Phase 1 of the Tavira City SMP, it was possible to conclude that there are some issues that need to be resolved, such as the lack of parking in the city center and insufficient enforcement, which can lead to abusive parking, particularly in loading and unloading bays and in areas with a higher concentration of shops and services.

The main guidelines in this area are shown in Figure 4.50, and the projects that embody them are described below.

Figure 4.50 - Operational objective 5 and guidelines



4.6.2. LO 5.1 - Sorting out and managing the car parking supply in Tavira town

The intervention concept proposed for the city of Tavira in point 3 of this report aims, among other things, to upgrade the public space, to which the reorganization and management of parking contributes, as a deterrent to the use of IT and integrating measures that contribute to the mitigation of existing problems, specifically in terms of coexistence between the various modes (road, cycle and pedestrian).

The proposed measures for reorganizing parking on public roads are presented in Table 4.7 and located in Figure 4.51, and can be grouped into 3 specific types:

- Elimination of parking due to urban requalification projects, namely in the coexistence zone to be created, as a result of pedestrianization of roads, widening of pavements, creation of cycle lanes, among others;
- Changing the type of parking in cases where it is proposed to change from perpendicular parking and/or oblique to the carriageway to park parallel to it, specifically to increase the safety of manoeuvres and road and cycle traffic on the carriageway or to widen pavements;
- Formalization of car parks, particularly in dirt areas, which are currently used as informal dirt pockets;
- Reserving parking spaces for residents As is the case elsewhere in the city, it is proposed that in some streets in the city center, particularly in the coexistence zone to be created, parking should be reserved for residents.

Figure 4.51 - Location of the proposed car park measures

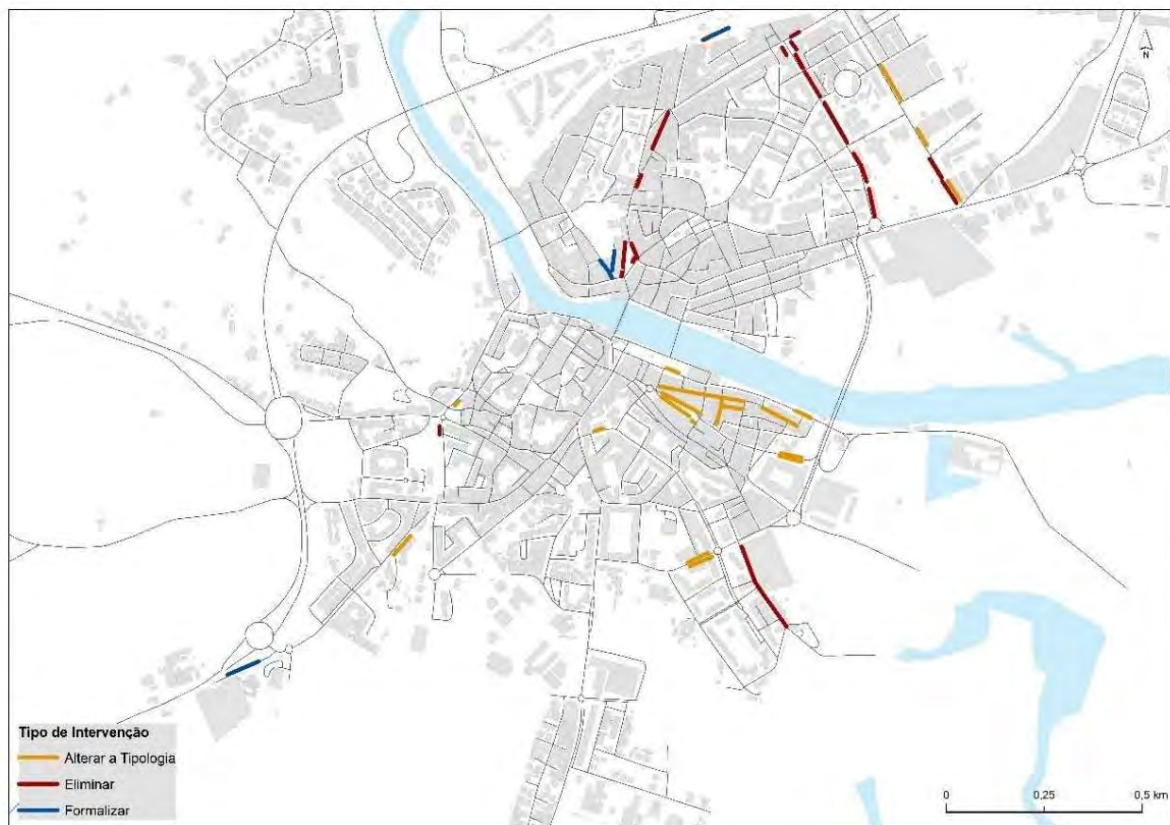




















Table 4.7 - Proposed measures for car parking in the city of Tavira

street	Typology and Description	Photo
Rua da Porta New	Elimination of parking - the intervention planned for this road, transforming it into a structuring pedestrian axis linking to the Porta Nova stop, implies the elimination of all the free parking there.	
Rua Álvaro road Fields	Elimination of car parking - the following is planned for this road deconstruction of a cycle lane that runs along the north side of the the junction with Rua Eduardo Mansinho and the level crossing, so the existing car park on this section should be eliminated, and upgrade the current kerb.	
street stop	Formalization of the existing dirt parking pocket next to the Porta Nova apeadeiro, which is currently only accessible via Rua Álvaro de Campos due to the illegal extension of a yard by a resident in Rua do Apeadeiro, allowing only pedestrian access between the parking pocket and the interface.	
Rua Dr Edward Mansinho	Elimination of parking - This road and the streets that lead off it are a neighborhood urban area, with the characteristics of a neighborhood, centered around the school grouping located there, and with the potential to boost travel by soft modes. In view of the proposal for a cycle lane on the right-hand side of this road, it is suggested that parking be eliminated on this side of the road, as well as on the half-moon near the junction with Rua Álvaro de Campos, in order to reduce the number of parking spaces. in order to widen the pavement and mark the entrance to zone 30 to be created.	
Zeca Avenue Afonso	<p>Elimination of parking - Part of the car park on this road will be eliminated to make way for the car park proposed by the municipality for the Fairground. This is a direct replacement, but given the existence of a project for a new car park covering the Fairground up to the carriageway, it has been decided to remove the car park on the left-hand side of the road from the uphill side, replacing it with the project for the Fairground car park.</p> <p>Change in the type of car park on the left-hand side of the road, with the transformation of the spaces from perpendicular to parallel in order to implement a cycle lane, which will move to the right-hand side of the road next to the Tavira Tennis Club.</p>	 
Alley of Santana	Formalization of a parking pocket - which should be reserved for residents.	
sidewalk Sant'Anna	Formalization of parking spaces - reserved for residents.	
Doctor Antonio Padinha Square	Elimination of parking spaces - this square will be the target of an urban regeneration project, and will be part of the future coexistence zone of Tavira's central core, becoming in the future a predominantly pedestrianized area without any parking.	

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street	Typology and Description	Photo
Street of Firemen Municipal	<p>Change in the type of car park, from perpendicular parking in front of the fire station to parallel parking and widening of the pavement.</p> <p>Elimination of perpendicular parking next to the bus stop to allow the implementation of a cycle lane.</p>	
Rua Dr Augusto Palma Carlos	<p>Change in the type of car park, transforming the perpendicular car park in front of SEF into a parallel car park.</p>	
José Pires street Padinha	<p>Change in the type of car park, transforming perpendicular parking into parallel parking and widening the pavement.</p>	
St. Street Peter	<p>Change in the type of car park, transforming perpendicular parking into parallel parking and widening the pavement.</p>	
Martyrs of Republic street	<p>Elimination of parking along the entire right-hand side of the road to implement a cycle lane (proposed Ecovia layout).</p>	
1st May Street	<p>Change in the type of car park, transforming the car park oblique to the pavement into a parallel car park.</p>	
Dr Marcelino Franco Street	<p>Elimination of parking and alteration of the type of parking This road is due to undergo an intervention by the municipality of Tavira, with the elimination of the central divider, the widening of the pavements and car traffic in one direction only. The municipality planned to create parking in a spine (perpendicular to the kerb) and in parallel, and it is proposed that it should all be in parallel, in order to improve safety for cyclists, since it is planned to implement a cycle path on this road in a shared lane with the car or, if the kerb is wide enough, in a shared lane with the car. in a shared lane with the pawnbroker.</p>	
Rua da Parreira	<p>Reserved parking for residents and elimination of the first two spaces by placing bollards to allow unrestricted car circulation (see point 2.4).</p> <p>It is also proposed that the parking spaces on Rua da Palmeira and Rua Terreiro Garção should also be reserved for residents.</p>	

street	Typology and Description	Photo
EN125 cemetery	<p>Formalization of parking, with a municipal project in place for the creation of an orderly car park to support the Tavira Cemetery, which will replace the car park area informal area in front of the entrance.</p> <p>Elimination of car parking - the creation of the aforementioned car park will eliminate the current 24 existing car parking spaces, redesigning the them and providing them with shade and better conditions.</p>	

4.6.3. LO 5.2 - Set up deterrent parks on the outskirts of the city

The creation of a coexistence zone in the central area of Tavira, with restrictions on car traffic, the implementation of cycle and pedestrian routes and the realization of urban requalification projects that promote and value soft modes to the detriment of the car, are measures aimed at reducing the number of vehicles within the city.

In order to help reduce car traffic in the city centre, it is important to create car parks on the outskirts of Tavira, served by the future urban public transport network. These car parks should be free, well signposted and easily accessible from the A22 and EN125.

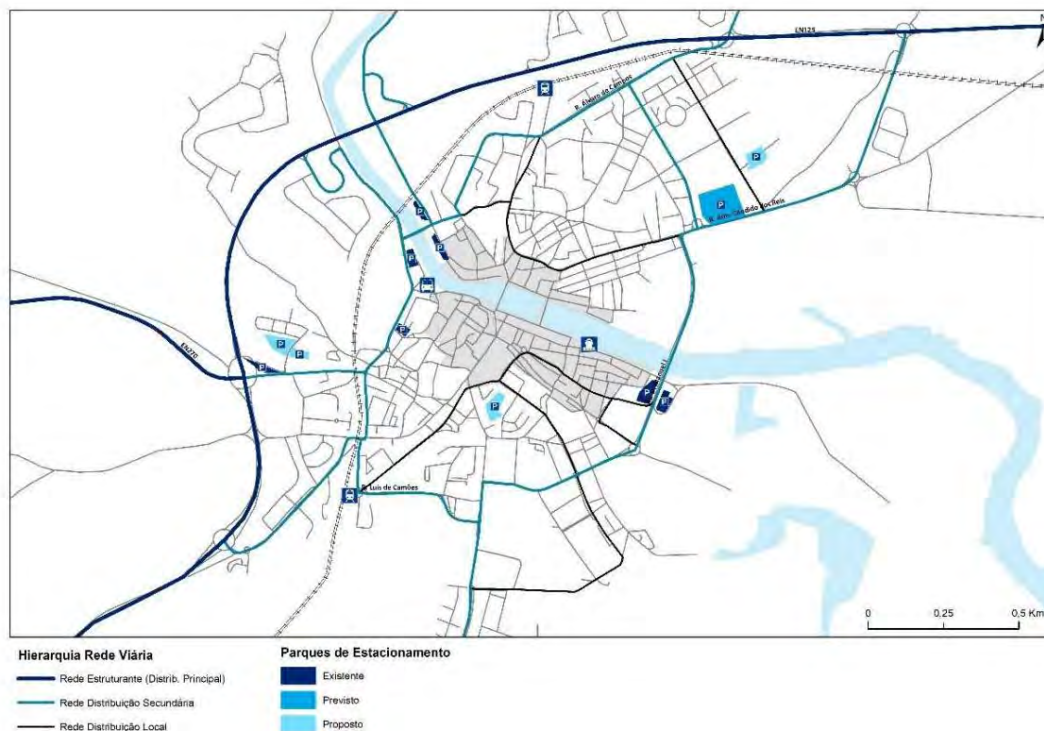
In addition to the car park already planned for the fairground between Tavira Plaza and the Balsense roundabout, with 458 parking spaces, it is proposed to create the following car parks:

- Acquisition of car parking spaces in the existing underground car park in Praceta Eduardo Félix Franco.
This car park will be aimed at residents of the city center, making up for the shortage of spaces identified in phase 1 of this plan, which will be exacerbated by the interventions to be carried out in the coexistence zone, which will see the number of surface parking spaces reduced, namely in Largo Dr António Padinha and Rua Marcelino Franco. This car park should guarantee around 100 spaces for residents;
- Rua de Macau, on the land that exists there and where a car park with capacity for 300 vehicles should be provided;
- Av. Zeca Afonso, next to the municipal swimming pools and in conjunction with the park planned for the Fairground. This park, for which there is already a defined *layout*, will have shade and capacity for 79 seats;
- The Municipal Market, with the construction of a car silo in the existing car park, with 2 floors in addition to the ground floor, would almost triple the parking capacity associated with this area (+450 spaces);

The proposed locations for these car parks are shown in Figure 4.52 In total, the new car parks in Tavira (including the car park at the Feira site) will create around 1,400 new parking spaces.

It is thought that it will also be necessary to acquire a plot of land in the central area of the city, north of the River Gilão, to build a car park for residents in order to meet the needs in this area. Two vacant plots of land have already been identified, both facing Rua dos Fumeiros de Trás.

Figure 4.52 - Location of existing and proposed peripheral car parks



Supply Demand Balance

The implementation of the measures proposed in the previous points will increase the parking supply in the city of Tavira by around 1,400 parking spaces, bringing it to 13,614, of which 1,714 are charged and 688 are reserved, including for residents.

It is now important to take stock of parking demand in the city of Tavira, taking into account the measures proposed in this chapter.

Analyzing Chart 4.9, it can be concluded that there are still 6 areas with a shortage of supply, particularly during peak demand periods. These include the Salinas area, often associated with informal parking in dirt areas, and the Living Science Center area, in the city's central core, where action must be taken to deal with illegal parking, often on the pavement and in places that hinder car and pedestrian traffic, causing constraints on road safety.

As previously mentioned, it is still necessary to find space in the north central area of Tavira to build a car park for residents with a capacity of around 80 to 100 vehicles in order to solve the problem of the shortage in the Living Science Center and Pingo Doce areas, and it is considered that the shortage in the Salinas area will be solved with the car park to be built at the Fairground. The shortfall in Santa Maria do Castelo will be resolved with the construction of the car park in Rua de Macau (area 17 - Railway Station).

Table 4.8 - Supply-demand balance after implementing the parking measures proposed in this plan

number	Name	Free offer	Price Offer	Reserve dOffer	Total	Search	Balance Sheet
1	Fairground and Exhibitions	1 340	0	42 1 382		327	1 055
2	Quinta do Morgado	332	0	0	332	209	123
3	Mato Santo Espírito Santo	812	0	1 1	823	516	307
4	Quinta do Perogil	247	0	8	255	137	1 18
5	New door	357	0	32	389	287	102
6	water park	662	0	7	669	282	387
7	Our Lady of Mount Carmel	985	0	27 1 012		606	406
8	Tavira Gran-Plaza	1 418	0	13 1431		197	1 234
9	Crab Valley	632	0	4	636	135	501
10	Salinas	60	0	0	60	186	-126
11	Santa Ana	75	0	46	121	116	5
12	Living Science Center	53	44	9	106	172	-66
13	sweet drop	154	252	13	419	423	-4
14	Santa Maria do Castelo	229	12	66	307	350	-43
15	town hall	1 1	21 5	1 56	382	400	-18
16	National Road	288	0	12	300	203	97
17	Railway Station	989	0	16 1 005		409	596
18	Garrett	107	104	15	226	247	-21
19	Schools	321	76	60	457	424	33
20	Infantry Regiment	317	202	61	580	498	82
21	health center	484	0	11	495	180	315
22	Municipal Library	419	0	31	450	397	53
23	Municipal Market	1 290	269	44 1 603		322	1 281
24	cemetery	1 70	0	4	174	5	169
	Total	11 752	1 174	688 13 164		7 028	6 586

4.6.4. LO 5.3 - Implement vehicle routing and management systems for car parks

The implementation of parking routing systems aims to minimize the traffic associated with the demand for parking by providing information on the supply of free parking and directing drivers to the car parks that have free spaces. Signs displaying the offer in real time should be placed at the main access points to cities, making it possible to optimize journeys (by indicating the shortest route) to the available parking spaces.

The main advantages of these systems are: (i) greater profitability of existing car parks and parking areas by optimizing supply; (ii) reduced congestion and, consequently, improved quality of the urban environment.

Information is made available to drivers via directional and interactive panels with guidance signs and information on the available offer.

The images in Figure 4.53 are an example of this type of system being implemented, with the panels powered by solar energy, a solution that is proposed to be applied to the system to be implemented in the city of Tavira.

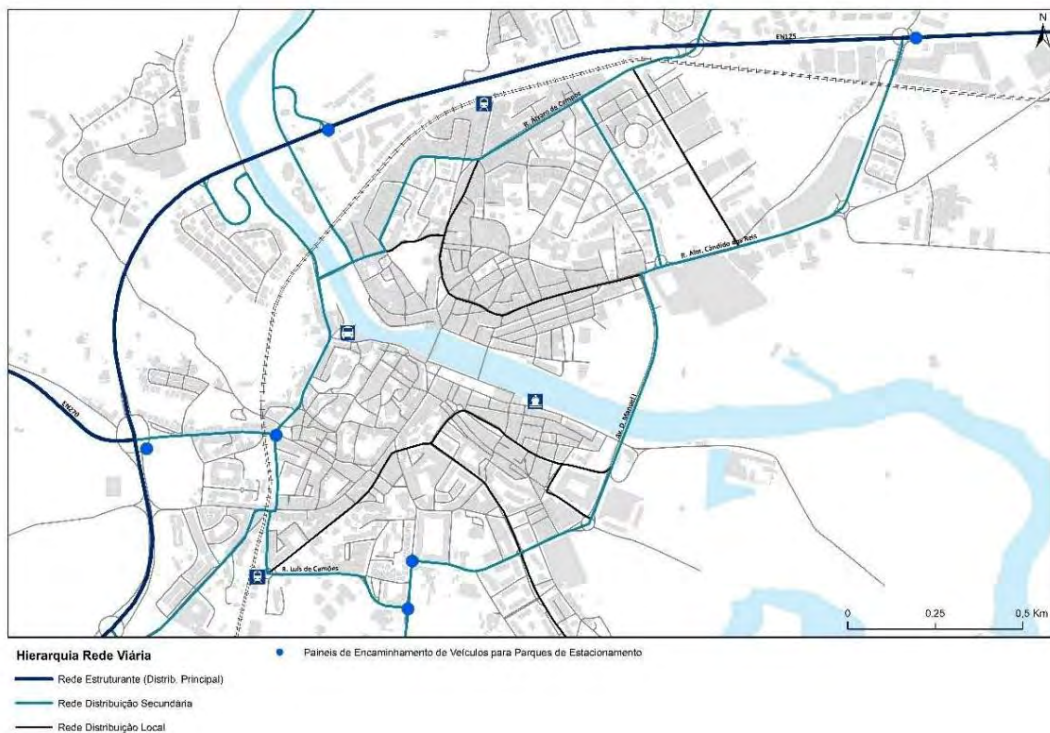
Figure 4.53 - Vehicle routing panels for car parks in Albufeira



Source : <https://www.sulinformacao.pt/2020/07/albufeira-instala-sinaletica-nas-ruas-que-indica-ocupacao-dos-estajamentos-e-funciona-a-energia-solar/>

Analyzing the location of the existing and proposed car parks in the city of Tavira, it is proposed to implement 6 panels of this nature, to be placed at the entrances to the city and at key junctions, in order to indicate the location of the car parks and the spaces available in each one.

Figure 4.54 - Proposed location of vehicle routing panels for car parks



4.6.5. LO 5.4- Defining a municipal enforcement policy with reinforced monitoring

In 2017, the municipality of Tavira signed a concession contract for the operation and supervision of limited duration parking zones in the city of Tavira, with a duration of 15 years and which defines 2 limited duration parking zones in the city of Tavira, one with a maximum limit of 2 hours and the other with a duration of 4 hours.

Tariffs are the same during the summer and winter periods, and there is no increase in tariffs for longer periods of parking; the 4th hour of parking has the same tariff as the 1st hour.

On the other hand, there are situations of illegal long-term parking, particularly in the city's most central areas, which is often associated with street vending and which must be combated, as it contributes to reducing parking turnover and increasing traffic circulation associated with the demand for parking.

In order to increase parking turnover in Tavira town center and help relieve the pressure that parking demand exerts on the public space, it is proposed to:

- Differentiating the tariffs for limited duration parking zones between the summer and winter periods, encouraging the use of peripheral car parks at the times of year when demand is highest, and discouraging trips to the city center that are not necessary;
- Increased charges from the 2nd hour of parking, especially during the summer period, which will help to discourage medium-term parking (up to 4 hours) and increase turnover, with less impact on the quality of the public space;
- **Granting free monthly parking for a period of time to be defined (eg 20 minutes) to residents of the municipality of Tavira so that they can travel to the town center to do their shopping, access services or resolve personal matters. It's a measure to encourage people to travel into town and allows residents to use traditional shops, differentiating residents from non-residents:**
- Reduced tariffs (eg 20 per cent discount) for payments made via digital means (eg via verde or other applications);
- Strengthening enforcement, which should be improved at two specific levels: (i) enforcement of parking location, which is the responsibility of the security forces; (ii) enforcement of non-compliance with paying the tariff in areas where there is tarified parking on the public highway, which is the responsibility of the parking concessionaire.

Increasing the effectiveness of enforcement could be achieved by dematerializing the resident's registration, through digital reading of the number plate, as well as through mechanisms for sensing the occupation of loading and unloading bays on public roads, as mentioned in point 4.7.3 of this report .

4.7. OO6 - OPTIMIZE THE LOGISTICS NETWORK AND URBAN DISTRIBUTION SYSTEM

4.7.1. Framework and guidelines

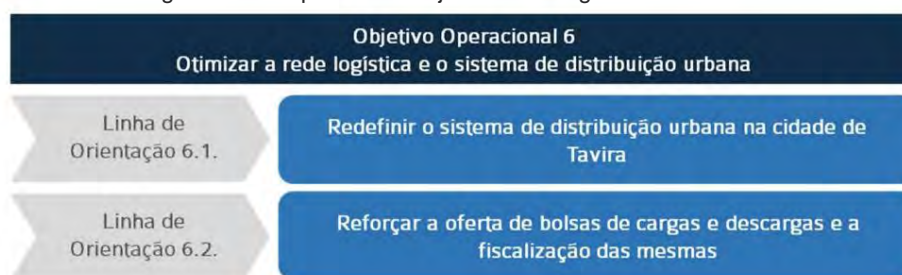
Logistics is an activity that has a significant impact on the functioning of cities and the urban environment, particularly due to the concentration of heavy goods traffic on certain roads, which causes traffic constraints and, if not properly regulated, has negative consequences in terms of atmospheric emissions, noise, road safety and the degradation of public spaces.

A rational and efficient urban freight distribution system contributes not only to the decongestion of the urban and peri-urban road network, but also to better management of urban mobility by regulating the access of heavy vehicles to urban centers, contributing to greater energy efficiency in the city and municipality, reducing costs and environmental impacts.

In the specific case of the city of Tavira, it is important to regulate urban logistics activities in the central core of the city, namely loading and unloading operations in the low-emission zone to be created, reducing conflict situations throughout the city and contributing to the goal of decarbonization associated with the transport sector and improving the quality of the urban environment in the city of Tavira that is intended with the implementation of this plan.

In order to improve Tavira's urban distribution system, 2 guidelines are proposed which are shown in Figure 4.55 and whose operationalization is described below.

Figure 4.55 - Operational objective 6 and guidelines



With this in mind, it is proposed that an urban logistics plan be drawn up that encompasses the entire municipality of Tavira.

4.7.2. LO 6.1 - Redefines the urban distribution system in the city of Tavira

The reordering of loading and unloading operations in Tavira's central core, namely in the low-emission zone to be created (see point 4.8.5), should not only contribute to improving road and pedestrian circulation conditions in the city center, namely on narrower roads (width of less than 5.5 meters), but also to improve the energy efficiency of the city's economic activity and decarbonizing the transport sector by reducing emissions associated with urban logistics and increasing the quality of the urban environment.

The issue of urban goods distribution should be addressed not only by drawing up a plan to regulate and organize logistics distribution at municipal level and linking it to the regional network, but also by introducing smaller, more environmentally efficient vehicles into urban goods distribution and creating a micro-logistics center to relay goods distribution from the sub-regional and municipal level to the local level .

4.7.2.1. Introduction of smaller, more environmentally efficient vehicles

In the low-emission zone to be created in the city of Tavira, and in addition to recommending that loading and unloading be carried out in low-emission vehicles (electric or *plug-in* hybrid), there is a vast set of narrow streets (see Figure 4.27), with a predominantly pedestrian vocation, where the channel space is shared between road, pedestrian and cycling modes and where some restrictive measures are proposed for car parking and circulation, with the creation of a coexistence zone and an exclusive area for residents in the Vila Adentro area.

As a measure to mitigate the constraints and, at the same time, contribute to improving environmental quality in the center of Tavira, without prejudice to others that the municipality of Tavira may consider relevant and pertinent in the context of drawing up the municipal urban logistics plan provided for in the previous measure, it is proposed to use smaller, less polluting vehicles to carry out urban refueling in the central area of the city of Tavira.

It is therefore proposed that Tavira be supplied by electric vehicles of the type shown in the following figures.

In conjunction with the measure presented below (micro-logistics center), the municipality could purchase these vehicles and make them available to Tavira's traders to supply their establishments from the micro-logistics center to be implemented.

Figure 4.56 - Example of an electric vehicle available for use by the



Source: www.alke.pt

Figure 4.57 - Example of vehicles to be made available to micro logistics center traders



<http://www.transportesemrevista.com/Default.aspx?tabid=210&language=en-PT&id=54214>

With regard to the vehicles to be made available to traders for self-supply, they should be small, powered by electricity or hybrids, and the choice may even fall on cargo bikes or electric motorbikes, which may generate fewer conflicts with pedestrian and cycle traffic, or even cause fewer constraints on car traffic.

It should be noted that CTT has electric vehicles for urban distribution, and it is important that the municipality negotiates with this organization to introduce these vehicles in Tavira.

Figure 4.58 - Electric vehicles used by CTT - ECO CTT



Source: CTT.pt

4.7.2.2. Creation of a micro-logistics center and parking for heavy vehicles

The aim of this measure is to create one or more warehouses where goods are "deposited" for later distribution. Associated with the creation of these structures, urban distribution services for the goods should be made available in small vehicles, preferably electric, the characteristics of which are described in the previous section of this document.

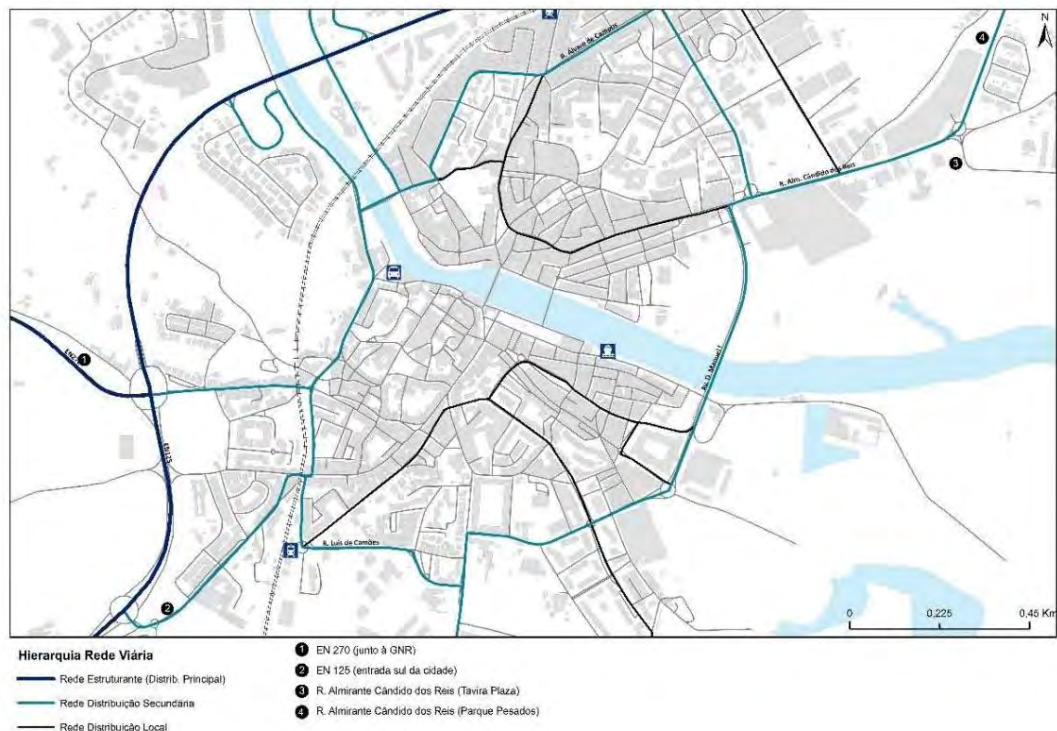
The main function of the future micro-logistics center is to remove larger goods distribution vehicles from Tavira's central core, which cause problems for car traffic if there are no reserved loading and unloading bays large enough for this type of vehicle or if they are unduly occupied .

To this end, it is important that this logistics center is located at one of the city's access points, relatively close to it so that traders can get there without wasting too much time, and where it is possible to supply the large supermarket chains. From this centre, local businesses could be supplied using smaller, more environmentally efficient vehicles, and the distance to Tavira's central core should be as short as possible.

The following alternative locations for the micrology center are proposed:

- Alternative 1 - next to the Tavira GNR Territorial Post, at the A22 access junction, taking advantage of one of the alternatives for the future location of the bus station;
- Alternative 2 - on Rua de São Pedro, next to the ALDI roundabout, just after the EN125 exit;
- Alternative 3 - next to Tavira Plaza, on the available land between Rua Almirante Cândido dos Reis and Rua Shameless;
- Alternative 4 - in the current free car park for TIR trucks, next to the Tavira roundabout Plaza, making use of part of the Municipal Shipyard's land.

Figure 4.59 - Proposed location for the Tavira micro-logistics center



It is also important to consider the management model for the micro-logistics center to be set up and the services it will provide. associates.

In the event that this infrastructure is managed by the municipality, the Municipality of Tavira will be responsible for building/adapting it (if it adopts an existing infrastructure), acquiring the vehicles used for urban distribution and managing the services. It is suggested that, in the initial phase, this could be the operating model, so that, in a later phase of the project, once the operating model has been consolidated, other entities could be involved, particularly private ones, with the municipality retaining the role of regulator. In this case, the investment and operating costs would be borne by the municipality.

There is also the alternative of contracting out the construction/operation of the warehouse, for which a set of specifications must be drawn up to safeguard the municipality's interests.

This increase in distribution also brings benefits to traders, as it allows them to:

- Increasing the storage capacity of goods by reducing the number of deliveries;
- Avoiding additional costs with some distribution processes.

In addition to a warehouse, the micro-logistics center should, at this stage, include:

- 2 to 3 electric vehicles for urban distribution and the hiring of the respective drivers. The vehicles could be owned by the micro-logistics center or by private individuals, and urban distribution could be carried out through the provision of services;
- Light vehicles to be made available to shopkeepers for self-supply;
- One person responsible for managing the warehouse and one responsible for loading and packing the goods in the warehouse.

4.7.3. LO 6.2 - Reinforce the supply of loading and unloading bays and their supervision The reinforcement of the supply of loading and unloading bays in the city of Tavira should be carried out according to the needs registered by both the municipality and the traders and in accordance with what is defined in the Circulation and Parking Regulations of the Municipality of Tavira.

This reinforcement should be carried out in the city center, in the areas with the highest concentration of shops, and they should be marked with vertical and horizontal signs indicating their opening hours and the maximum length of stay.

It is also recommended that the supervision of loading and unloading bays be stepped up to ensure that they are used correctly, namely that they are only used for these operations, at the times set aside for them and during the time limit allowed for them.

In order to improve the monitoring of loading and unloading bays, including those in limited duration parking zones, it is proposed to implement intelligent systems for managing loading and unloading bays, which make it possible to monitor, in real time, the occupation and length of stay of vehicles in the bays intended for these operations.

These systems make use of the installation of on-site sensors that detect the occupation of loading and unloading spaces, which is communicated to a central monitoring system in real time, allowing it to be managed by a *backoffice* system that can analyze the time spent loading and unloading and, if this is exceeded, issue an alert.

These systems also have the possibility of being controlled by the agents/authority responsible for parking enforcement, via the mobile application, which can receive warnings of vehicles in breach and allow notices to be issued.

Figure 4.60 - How a loading and unloading bay monitoring system works



Source: *smartparkingsystems* and *smmar/funchal.ivorldpres*

There are even systems that can be integrated into municipal parking systems that even allow an operator to reserve loading and unloading spaces via a mobile app or a mobile phone.

web, through which you can inform the system of the occupation of the loading and unloading slot or request entry to an area restricted to residents to carry out these operations.

4.8. OO7 - IMPROVING THE ENERGY EFFICIENCY OF THE TRANSPORT SYSTEM

4.8.1. Framework and guidelines

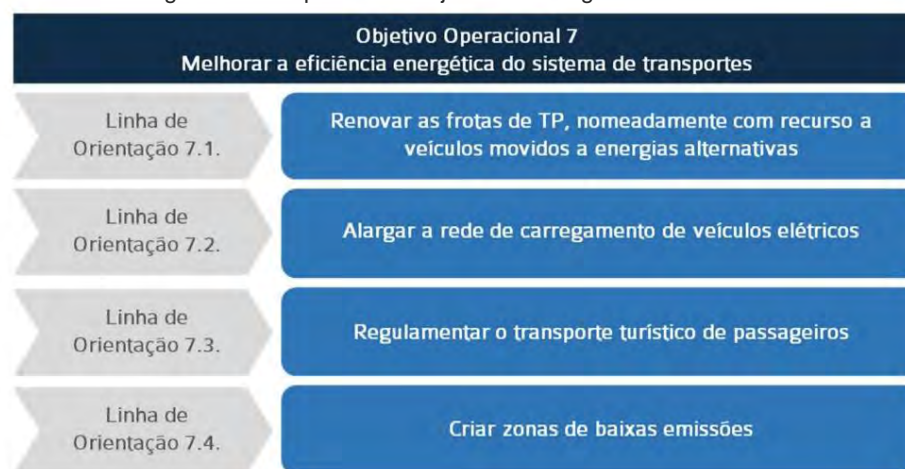
Sustainable mobility is becoming more and more of a challenge for city managers, and we need to find attractive ways to promote it. Legal obligations to reduce energy consumption, greenhouse gas emissions and atmospheric pollutants, and the need to reduce congestion in cities, means that new ways of attracting people to more sustainable modes of transport are being considered, changing the modal split, namely by reducing car use and increasing the use of public transport and soft modes.

The Portugal 2030 Partnership Agreement, which frames and regulates the implementation of the European Funds for the 2021-2030 period, defines Priority 2B - Sustainable Urban Mobility - in the area of the Thematic Program for Climate Action and Sustainability, which in the Algarve Operational Program is called 2B.

- Mobility and Decarbonisation, which aims to promote sustainable multimodal urban mobility as part of the transition to a zero net carbon economy.

This objective should be pursued by implementing a set of guidelines aimed at promoting low-carbon passenger and freight transport solutions using more energy-efficient technologies, including the use of alternative energies.

Figure 4.61 - Operational objective 7 and guidelines



4.8.2. LO 7.1 - Renew PT fleets, particularly with alternative energy vehicles

Investing in the development of public passenger transport systems in urban areas with low greenhouse gas (GHG) emissions is one of the main objectives of the transition to a low-carbon economy, in line with the decarbonisation objectives of the European Union and Portugal set out in Portugal 2030 and in the thematic programs that make it up, namely through the Sustainable 2030 Programme.

The pressures exerted by the transport sector on air quality and GHG emissions are an important factor that must be tackled, particularly those associated with road traffic.

the measures applicable to the transport sector in urban environments are particularly important in terms of air quality and the benefits associated with noise and climate change.

In general, public transport vehicles have a very significant impact on pollutant emissions in urban environments and are, with a few exceptions, powered by fossil fuels. This is the case with the vehicles associated with Tavira's "Sobe e Desce" service, a service which is fueled by fossil fuels.

The aim of this guideline is therefore to implement actions aimed at using more efficient vehicles that use fuels with better environmental performance, namely through the purchase of vehicles powered by gas, electricity or hybrids.

It is therefore recommended that the next trend for the contracting of Tavira's urban transport network assesses the possibility of introducing electric vehicles into the future operator's fleet, considering that, at the very least, the vehicles on the two lines serving the city's central core should be powered by alternative energies, namely electricity, but recommending that the contracting process value an all-electric fleet.

4.8.3. LO 7.2 - Expand the electric vehicle charging network

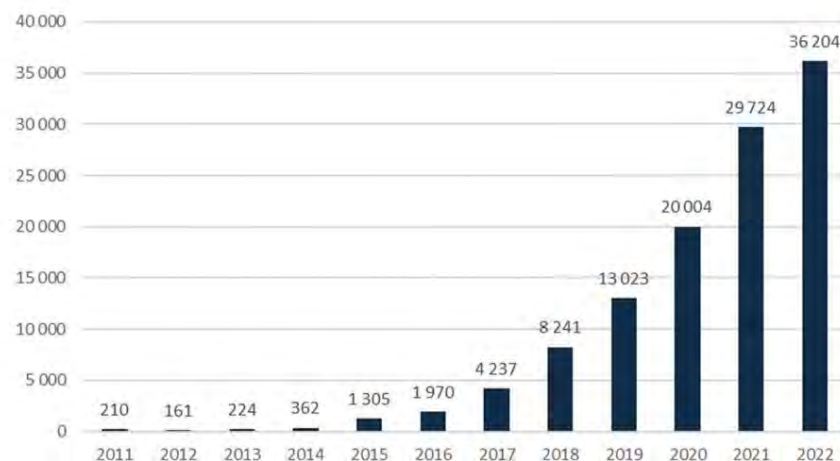
Since 2012, Portugal, like the rest of the European Union, has been investing in the electric mobility sector as a way of reducing the transport sector's energy dependence on fossil fuels and improving efficiency in the use of resources, inducing more sustainable production and consumption patterns not only for companies but also for the general population.

By implementing measures and setting national targets to reduce CO₂ emissions associated with the transport sector due to the introduction of electric-powered vehicles, Portugal is also helping to achieve European decarbonization targets.

As a result of this strategic commitment, the electric mobility market (electric and *plug-in* hybrid vehicles) has been on an upward trend in Europe (534,583 electric and *plug-in* vehicles registered in 2019 compared to 22,986 in 2012, i.e. a growth of more than 2,000%. Since then, the growth trend has been slowing down, but between 2019 and 2022 it will still be 400 per cent, with electric vehicles expected to account for 18 per cent of vehicles registered in Europe this year. There are currently an estimated 3.75 million electric vehicles on the road in European Union countries.

In Portugal this growth has been even more exponential, with an increase of more than 22,000 per cent between 2012 and 2022, as can be seen in Figure 4.62. By the end of April this year, 18,817 electric and *plug-in* vehicles had been sold in Portugal, which is 8,203 more than in the same period last year, indicating that the growth trend will continue, as a result of the incentives that have been granted for the purchase of electric vehicles, but also of technological developments in vehicle production and the progressive increase in their autonomy and the decision by the European Parliament in February 2023 to ban the sale of fossil-fuelled vehicles from 2035.

Figure 4.62 - Sales of electric and plug-in vehicles in Portugal (201 1/2022)



Source: <http://www.uve.pt> Association of electric vehicle users

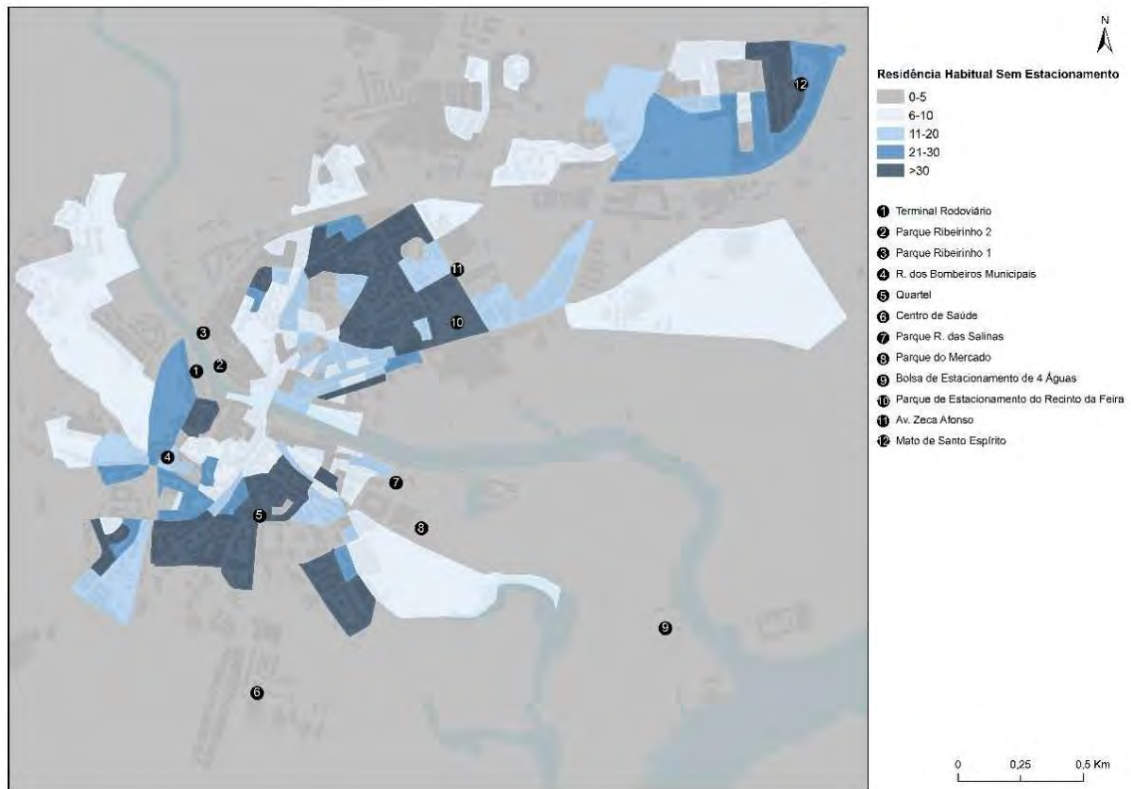
The trend towards accelerated growth in the electric mobility market in recent years poses new challenges for municipalities, creating the conditions for more widespread use of this option by extending the public vehicle charging network, favoring charging at home and in the workplace, and providing incentives for the purchase and use of electric vehicles.

Tavira already has a number of public charging stations for electric vehicles in the car parks of large retailers, such as LIDL next to the railway station, or in Tavira Plaza, or even in hotels, such as Vila Galé Albacora. However, there is no network of stations located on the public highway, and these stations are located in places that may be closed on certain days or at certain times of the day, since, although they are publicly accessible, they are private.

It is therefore important to develop and implement a charging network for electric vehicles in public spaces, which should first and foremost be located in municipal car parks and parking spaces, next to the main facilities and attractors/generators of commuting, in the areas with the highest concentration of shops and services and also next to residential areas where the accommodation does not have a garage, since these are the places where the implementation of this equipment is most urgent, in order to encourage the purchase of electric vehicles by residents.

On the other hand, there are areas of the city of Tavira where there is a greater number of homes with a lack of parking within the plot, which makes it difficult for residents to purchase electric vehicles if there are no public electric vehicle charging stations nearby. It is therefore recommended that, in addition to the locations mentioned above, the installation of these infrastructures should also be prioritized in places where there is a greater shortage of parking, provided that the public space is suitable for this purpose, and Figure 4.63 shows the location of the proposed electric vehicle charging stations.

Figure 4.63 - Proposed location of public charging stations for electric vehicles in the city
Távira



All charging stations should be able to charge not only purely electric vehicles, but also of *plug-in* hybrids, the sizing and characteristics of which are shown in Table 4.9.

Table 4.9 - Sizing of electric vehicle charging stations to be implemented

Post	Location	No. of chargers	Type
1	Riverside Park	4	Slow and fast
2	Bus Terminal 2	4	Slow and fast
3	Riverside Park 1	4	Slow and fast
4	Firefighters Street car park Municipal	∞	Slow
5	Barracks (Rua do Poeta Isidoro Pires)	∞	Slow
6	Health Center (Rua Eng. João Bruno da Rocha Prado)	∞	Quickly
7	Rua das Salinas car park Market	2	Slow
8	Park Ouatro	6	Slow and Fast
9	Águas car park Fairground	4	Slow and Fast
10	Car Park Zeca Afonso	10	Slow and Fast
11	Avenue (Sports Park)	4	Quickly
12	Mato de Santo Espírito	4	Slow
Total		48	-

In this way, and not counting the chargers installed in private public car parks, the city of Tavira now has 12 public charging stations for electric vehicles, which will allow 48 vehicles to be charged simultaneously, giving an estimated ratio of 777 public charging stations per million inhabitants, a figure lower than the 1.704 recorded on average in the European cities analyzed in the *"International Evaluation Study of Public Policies for Electromobility in Urban Fleets"*, but still higher than those recorded in Copenhagen (750 stations per million inhabitants) or Stockholm (350 stations) or even Cascais in the AML (245 stations per million inhabitants).

Table 4.1 0 - Electric vehicle charging station ratios per million inhabitants

Cities	Ratio of EV charging stations to million inhabitants	Inhabitant	No. of public posts
Oslo	2400)	634293	1522
Utrecht	2350)	1307 000	3 071
The Hague	2400	514861)	1236
amsterdam	2250	821752	1849
Rotterdam	2500	623 652	1559
Bergen	1350	271949	367
Lisbon	991)	504718	500
Tavira(city)	777	15432	48*
Copenhagen	750	602481	452
Stockholm	350)	975551)	341
Cascais	245	212474)	52

Source: International Evaluation Study of Public Policies for Electromobility in Urban Fleets - /n/erea7/ora/ c'vec//c'n *Clean Transportation*, November 2018

* proposed

4.8.4. LO 7.3 - Regulating tourist passenger transport

The municipality of Tavira in general, and the city of Tavira in particular, has seen an increase in requests for licenses for tourist transport vehicles (eg rv£-rv£ and tourist trains).

These activities add value to the development of tourism in the municipality, helping to diversify the offer. However, it should be borne in mind that these activities, if not regulated, often conflict with motorized and pedestrian traffic, causing an overload of vehicles in certain parts of the road, particularly in historic areas where the profile of the streets is, *per se*, a conditioning factor for car traffic.

The growing pressure on Tavira's central core caused by the multiplicity of uses and the conflicts that are already occurring in some parts of the city (eg Praça Dr. António Padinha, Praça da República), justifies the need to define circulation areas and stopping and parking places for different types of vehicles, even though Tavira's traffic and parking regulations already include an article dedicated to tourist vehicles.

It is therefore considered important to regulate the operation of the activity in the city of Tavira, safeguarding the quality of the urban environment and ensuring compliance with the principles of competition and equal access to the activity.

It is therefore proposed to draw up a Regulation for Tourist Transport in Tavira, which should be extended to the entire municipality, helping to promote balanced compatibility between tourist traffic, in the various modes that make it up, and other traffic, namely

^ *International Council on Clean Transportation*, November 2018

with non-tourist public transport, safeguarding the accessibility and fluidity of road, cycle and pedestrian circulation in the city of Tavira, and should also promote careful management of the use of public space, avoiding the emergence of congestion and overuse phenomena.

The main aspects to be taken into account in this regulation are set out below:

• Definitions:

- o Tourist circuit: the transport itinerary promoted by a legal person licensed to carry out the activity of tourist entertainment, using a vehicle legally authorized for the purpose, with a defined route and period of circulation;
- o Quota: the maximum number and type of vehicles through which the same operator can promote the operation of regular tourist circuits or services in the municipality of Tavira;
- o Operator: the natural or legal person who, being licensed to carry out the activity of tourist entertainment, is authorized to operate a particular circuit or service in the municipality of Tavira;
- o Stop: the duly signposted place, not coinciding with public transport stops, with a visible bollard intended for picking up and setting down passengers from duly authorized vehicles, when operating a tourist circuit, for the time strictly necessary to get off and/or disembark ;
- o Post office: the post placed by the municipality of Tavira where licensed operators place their nameplates at the terminal or at the stop on a tourist route;
- o Terminal: the place marked with a signpost, where tourist circuits begin and end their journey on a pre-defined itinerary, where vehicles used in the operation of tourist circuits, duly authorized for this purpose, may be parked within the circulation period defined in the License (applicable only to vehicles assigned to the tourist train).

• Scope and Object of the Regulation:

- o The regulation should establish the system for operating tourist transport services, as well as the system for the use of public space by vehicles used for this activity;
- o The following types of vehicles are considered to be transport vehicles for tourist use: (i) tricycles or quadricycles (aka *ivÉ-ivÇ*: (ii) *jeep-type* and all-terrain vehicles that carry out organized excursions; (iii) light passenger vehicles for tourist use including *Uber CabiTy* (excluding taxis); (iv) tourist buses; (v) tourist trains.

• Licensing:

- o In the case of tricycles or quadricycles (*ivÉ-ivÇ* and tourist trains), the activity depends on prior municipal licensing or operating authorization, under the terms and conditions to be defined in the regulations:
- o In the case of tourist entertainment companies, the regulation should lay down the procedure for granting an operating license, which may be granted by public tender or by submitting a license application to the municipality;

- o The application for a license to carry out the activities referred to in the previous points must include: (i) the applicant's identification documents; (ii) a commercial registration certificate (in the case of a legal person); (iii) a license to carry out the activity, (iv) proof of civil liability insurance; (v) proof of licensing by the IMT; (vi) a term of responsibility attesting to the suitability of the drivers to drive the transport vehicles in question and; (vii) opening hours, days of operation, frequency and prices for using the services.

- Contingent:

- o In order to avoid oversupply, it is recommended that the regulation provides for a maximum number of registrations for each type of service to be regulated, particularly in the case of tricycles or quadricycles (FvÁ-fvÇ and the tourist train;
- o We also recommend: (i) prohibiting the transfer of licenses to operate these activities, without prior consent of the municipality and; (ii) the definition of the license term.

- Traffic conditions:

- o It is up to the municipality to determine: (i) the circulation circuits allocated to tourist train vehicles and; (ii) the streets to be closed to tricycles and quadricycles (ív£-ívÇ.
- o The circulation of tourist vehicles will be subject to compliance with the following conditions: (i) compliance with the Highway Code, and therefore circulation in pedestrian areas is expressly prohibited; (ii) not jeopardizing the conditions of circulation and normal flow of other traffic and; (iii) do not jeopardize the stops and routes of regular passenger transport.
- o It is recommended that vehicles, particularly *tuk-tuk* and tourist trains, be electrically powered as a condition for traveling in the low-emission zone to be created, in accordance with LO 7.4 presented below;
- o In the case of the tourist train, it is recommended that it does not travel through pedestrian areas, and the need to alter/adapt its route should be assessed after the interventions to be carried out in both Praça Dr António Padinha and Rua Dr Marcelino Franco.

- Car parking on public roads:

- o It is recommended that the parking and stopping of vehicles on public roads be prohibited outside of the places duly signposted and regulated for this purpose, which should be defined during the licensing phase of the activities or with the entry into force of the regulations to be drawn up.

4.8.5L . O 7.4 - Creating low emission zones

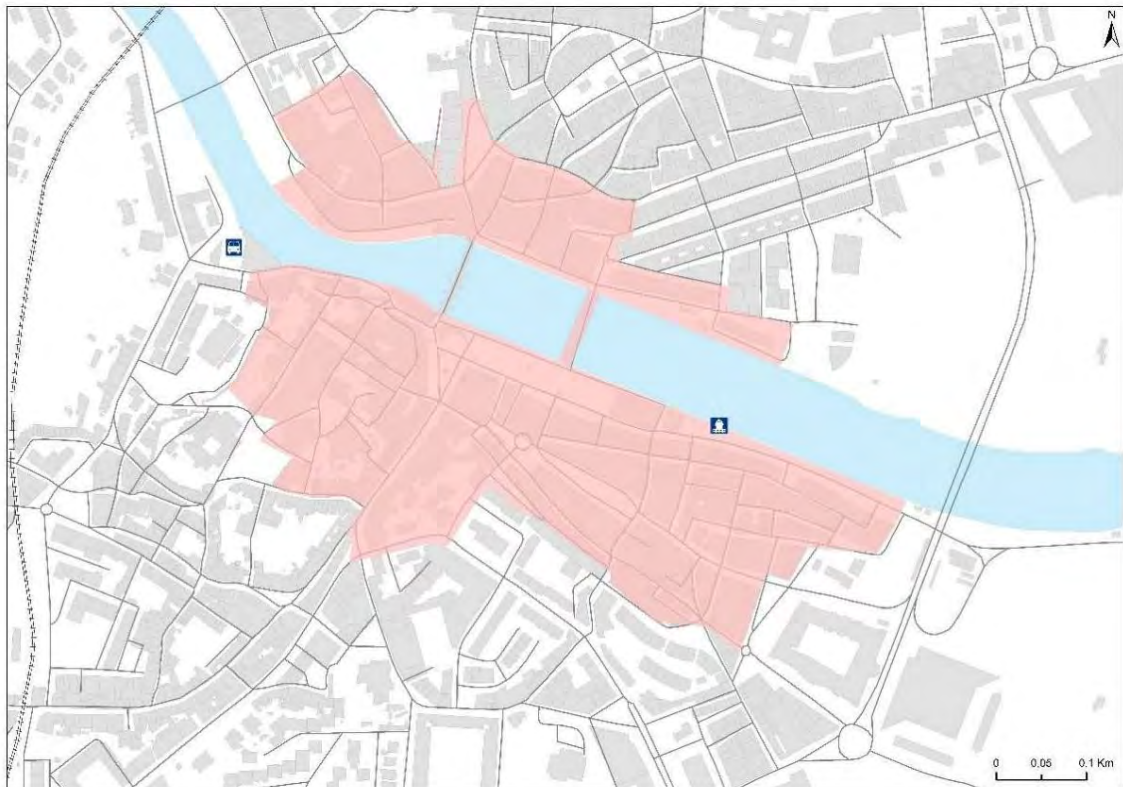
Recent years have seen the creation of low-emission zones in many of Europe's historic and consolidated city centers. These are defined areas in urban centers where access to high-emission vehicles is restricted or prevented, in order to contribute to air quality and the quality of life of residents and visitors, and to discourage the use of energy-efficient and/or fossil-fuel vehicles.

Most of these areas are pedestrianized areas that have recently been redeveloped or have redevelopment projects aimed at promoting soft mode travel. Roughly speaking, they correspond to historic centers, where the profile of the streets conditions car use, or to areas with high pedestrian flows, where the public space is beginning to be occupied by uses other than the car.

It is therefore proposed to create a low-emission zone in the center of Tavira, as shown in Figure 4.64, where the entry of vehicles from before the start of the year should be prohibited.

2005). (pre-Euro4), with supply vehicles (urban logistics) preferably being zero-emission and small (see point 4.7.2 of this report).

Figure 4.64 - Proposed low emission area to be created



4.9. OO8 - IMPLEMENT MOBILITY MANAGEMENT MEASURES

4.9.1. Framework and guidelines

Mobility management is a concept geared towards transport demand that aims to promote "environmentally sustainable" modes of transport by changing users' attitudes and behavior. This concept aims to intervene at the level of rationalizing journeys and modal choices, through small interventions, the application and development of communication strategies, the organization of services and the coordination of the activities of various partners.

Therefore, the mobility management measures to be proposed should include a range of strategies and techniques, structured according to the mobility needs of specific people and organizations, taking into account social and economic concerns and the promotion of sustainable mobility habits.

Figure 4.65 - Operational objective 8 and guidelines



4.9.2. LO 8.1 - Draw up the Mobility and Transport Plan for the Municipality of Tavira

As instruments that "establish the overall strategy for intervention in the organization of accessibility and mobility management, defining a set of actions and measures that contribute to the implementation and promotion of a more sustainable mobility model", municipal mobility and transport plans (MTPs) aim to identify sustainable mobility solutions to solve problems related to car traffic management, parking and public transport management, soft modes, parking and urban logistics.

Good practice recommends that these plans be carried out for municipalities with more than 50,000 inhabitants, which is not the case in Tavira.

However, given its size and territorial heterogeneity, where highly populated areas coexist (eg Santa Luzia, Tavira town) with sparsely populated areas (eg Cachopo), with little in the way of commerce and services, where the majority of residents are over 65 years old and are dependent on the transport system to get around, a transport system which, given the potential demand, is not profitable and it is important to find alternative solutions to serve these populations, it is considered necessary to draw up a plan of this nature for the municipality.

It is therefore proposed to review the Tavira Mobility and Transport Plan drawn up in 2008, which should incorporate the results of this Plan as well as the measures and proposals for the municipality set out in the Algarve's PAMUS.

4.9.3. LO 8.2 - Draw up School Mobility Plans

Increasingly, the home-school journey is made by individual transport, with children being taken to and from schools in their parents' cars, which make this stop on their daily commute to work.

Children's dependence on the car is considered to have long-term consequences, since if they are not used to "walking" or taking public transport, their natural choice as adults will be to use the car, perpetuating their dependence on this mode.

School Mobility Plans (PME) have already been used in Portugal and in Tavira, with some success in promoting sustainable mobility behaviors:

- Increase students' autonomy and responsibility;
- Increasing student safety when traveling from home to school:

Tavira City Sustainable Mobility Plan
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- Reduce the pressure of road traffic around the school during entry and exit times;
- Make the school community aware of healthy and environmentally friendly options more sustainable than cars:
- Equipping students and staff (teaching and non-teaching) with walking/cycling skills;
- Equipping students and staff (teaching and non-teaching) with the skills to use public transport for their daily journeys.

It is proposed that the pilot project "SigaPé - Autocarro Humano", implemented in 2022 by APSI - Associação para a Promoção da Segurança Infantil (Association for the Promotion of Child Safety), with the support of the Rotinas Selvagens association, be expanded and integrated into the municipality of Tavira, allowing it to reach all students in the city's primary schools, with the allocation of resources from the municipality for its achievement.

This project provides two pedestrian routes (Mato de Santo Espírito and Miramar) between residential areas and primary schools in the city of Tavira, which are usually carried out by individual transport. These journeys are accompanied by monitors and often by parents and carers, with physical stops and predefined timetables. They do, however, depend on volunteering and the goodwill of parents and carers.

Figure 4.66 - SigaPé Human Bus Project



Source: Mariana Carriço, Sul Informação

The implementation of new "Human Bus" routes or potential "Cycle Bus" circuits for pupils in the 2nd and 3rd cycles of basic education and even secondary education should be preceded by surveys of families and pupils, in order to understand pupils' mobility patterns and thus devise innovative actions to promote the use of soft modes and public transport among this section of the population.

School mobility plans should also include measures such as:

- Advertising existing walking and cycling routes in schools, whether they are organized (Human and Cycle Buses) or not;
- Advertising the public transport services that serve the school in schools and to parents;
- The organization of training courses on road cycling for 2nd and 3rd cycle students.

These measures should be accompanied, where necessary, by the construction of footpaths and the upgrading of pavements, the construction of pedestrian crossings, the implementation of speed reduction measures around schools, guaranteeing road safety for pupils.

4.9.4. LO 8.3 - Implement a mobility shop

As mentioned above, in addition to its residential character, the city of Tavira has a high level of tourist attraction, characteristics that are directly reflected in the public transport system, requiring that public information be made available in an appropriate manner and adapted to the needs of both residents and visitors, so that they can have access to a comprehensive knowledge of the existing transport alternatives and how they can be used.

It is therefore considered necessary to set up a mobility shop to promote and provide a range of useful services:

- Information and advice, with a view to providing users with all kinds of information on the most appropriate use of the different modes and transport services, information on the various products on offer (eg timetables, fares) and advice on the best route, taking into account the customer's origin-destination;
- Provision of information on pedestrian routes both in the city of Tavira and in the other urban centers of the municipality, as well as leisure routes;
- Provision of information on cycle routes and bike-sharing systems, as well as micromobility systems;
- Information on points of interest to visit and how to get there;
- Purchase and reservation of mobility-related products (transport tickets, maps, etc.);
- Promotion of new products (combined tickets, special fares, etc.) to encourage the use of more sustainable modes of transport;
- Presentation of complaints and suggestions, which involves registering complaints and forwarding them to the relevant organizations.

The mobility shop concept can take many different forms, from an internet s/re (ie virtual mobility shop concept), with a telephone support service for users, to kiosks that allow the purchase and recharging of tickets, to the creation of a physical space where users of the transport system can enjoy a personalized service to help them with the above points.

An important and relevant aspect for the smooth running of this service is the need to involve all the transport operators present in the city and municipality of Tavira, and it is suggested that cooperation protocols be established with them, consisting of agreements to provide information on timetables, fares, network maps and other information that may be considered relevant, as well as the possibility of purchasing transport tickets.

Given the type of services to be provided and the fact that this is expected to be an important service for both residents and tourists, it is considered necessary to set up a physical mobility shop, to be located in the current Tavira tourist office in the town centre, which will minimize the costs of implementing and operating this service.

4.9.5. LO 8.5 - Implement awareness-raising campaigns for sustainable mobility

4.9.5.1. Campaigns to promote the use of public transport

Point 4.3.2 proposes the restructuring of Tavira's urban public passenger transport network, which should be publicized to the population when it comes into operation.

In this context, it proposes not only the preparation and distribution of information leaflets to publicize the new urban public transport network, but also a campaign to promote the advantages of public transport, referring to its environmental and economic benefits over IT, and to publicize Tavira's public transport network, namely the new urban services to be implemented, as well as the peripheral car parks and alternatives to IT.

These campaigns should be publicized through the following means: local media, distribution of leaflets in places frequented by users of Individual Transport (i.e. car parks, service stations, commercial areas), posters/mugs to be placed in car parks and service stations and also at the main business and commercial centers in the municipality.

4.9.5.2. Awareness-raising and training on cycling in public spaces

These actions should be aimed not only at the general population but also at schoolchildren, who have a greater appetite for using this mode of transport. We suggest targeting the younger age groups (primary and secondary school) in order to increase skills in cycling and knowledge about road safety when traveling by bike. As well as training these age groups and ingraining new commuting habits, parents will be made aware of the use of cycling for home-school journeys.

The actions to be developed could be promoted in conjunction with the municipality's security forces and physical education teachers, and/or with the teachers responsible for the curricular enrichment activities (AEC's):

- Theoretical component, in which the basic safety rules for cycling in public spaces should be taught, including good practices for using cycling on segregated and shared roads and emphasizing safety rules when crossing junctions and priority rules. This component should also raise awareness of the importance of using personal protective equipment and basic issues related to the maintenance and proper functioning of the vehicles for which they are responsible.
- Practical component, in which the students will have to cycle routes simulating journeys in an urban environment.

The following are examples of leaflets and materials that can be developed by the municipality as part of these campaigns to hand out to participants, while at the same time serving as tools to raise awareness of the issue among parents and carers (see Figure 4.67).

In order to ensure the effectiveness of these campaigns, it is suggested that the municipality draw up an awareness-raising and training campaign for the security forces and those in charge of school groups, and promote the preparation and distribution of materials so that they can be used by those responsible for implementing them.

campaigns. A team should also be set up in the municipality to monitor the implementation of the action on an annual basis.

Figure 4.67 - Example of an information leaflet to be used in training sessions on cycling in urban environments



Source: Wfigueii adesousa