Project co-financed by the European Regional Development Fund

CAMP-sUmp

CAMPus sustainable University mobility plans in MED areas

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Deliverable D3.5.1: Roadmap for decision makers

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Review and approval by	

Refer to this deliverable as follows:	Deliverable D3. 5. 1 Roadmap for decision makers.

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Executive summary

CAMP-sUmp (CAMPus sustainable University mobility plans in MED areas) is a European research project co-financed by the European Regional Development Fund aiming to improve sustainable urban mobility planning instruments as SUMP (Sustainable Urban Mobility Plan), through innovative mobility strategies for student flows inside the MED Area University Campus and their integration with the urban areas.

The **objectives** of the present report are:

- Elaboration and sharing of a road map for the implementation of the action plan to ensure commitment of decision makers (social, economic and environmental sustainability).
- The Road Map will take into account different environmental and socio-economic contexts and local institutional settings, to ensure camp-sUmp transferability in MED area.
- Ready to use guide for the implementation of the Action Plan in Univerity Campus with different settings, characteristics and in MED countries.

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1. Introduction

Mobility is an activity mainly derived from the social needs of different social groups that are in a territorial, cultural, political and economic framework, and that have specific demands for displacement. Today, there is a consensus on the negative impact of mobility in cities, affecting CO_2´and NO_x emissions, air quality, congestion, noise, accidents ... and as a result impacts the quality of life. The study of mobility aims to understand the different ways of traveling, the need of displacements and the different human behavior related to it, taking into account the institutional, economic and cultural framework in which they are located, as well as the environmental, social and economic consequences of such displacements. This perspective on mobility differs from the classic perspective of traffic research, whose main purpose was to understand and measure traffic flows, shifting the focus from the existing ideology: measures to be taken mainly on the drivers of the vehicles to one which takes into consideration all users.

A Sustainable Urban Mobility Plan (SUMP) is an integrated, transversal and participatory Strategic Planning tool that requires consensus among its main actors and whose main objective is to improve urban mobility from an environmental, social and economic perspective. More specifically, among other relevant aspects, it aims to reduce atmospheric pollution, greenhouse gas emissions and energy consumption, to improve safety, to reduce congestion, noise and heat and fragmentation of the territory —as well as to prevent deterioration of health caused by pollution, noise, sedentarization, anxiety, lack of communication, and decreased autonomy. Another important aspect that SUMPs pursue is to ensure accessibility to the workplace, services and different spaces, to make the urban environment more attractive and improve its quality, as well as reducing the economic costs and increasing the efficiency and effectiveness of transport costs of passengers and goods. In this sense, as indicated in the 2011 White Paper on Transport, political action is needed to ensure that these objectives are met so that the goal of halving the use of vehicles with conventional fuels in cities by 2030 can be achieved. This process involves the participation of different actors, good intra-departmental coordination between administrations and the development of different lines of work.

The future of urban mobility depends on numerous factors ranging from policies that are established at the urban level, technological development of vehicle fleets, availability of renewable energy, political actions at National and European Level (European Urban Transport Roadmaps 2030).

Universities can define and implement specific measures to improve sustainable mobility, since they have an important weight in their host cities and they consequently play an important role in meeting the aforementioned objectives of the Transport White Paper on mobility.

Due to their characteristics, universities have the opportunity to become leaders in sustainable mobility, due to their central position, defined population and young community with a flexible mentality, willing to adapt and change traditional behavioural habits, which is a good context in which to try new solutions in mobility material. In addition, the University is a hub of knowledge, which makes it the ideal place for the yield of innovative urban mobility solutions. On the other hand, University Campuses are like small cities so they are an excellent test bed for applying and evaluating innovative mobility policies and tools. In this sense it is the ideal context to propose strategies in relation to public transport, experiences and ICT solutions, shared use, intermodal nodes ... In addition, what is developed in the universities, in principle, can be extended to other contexts. It is important to keep in mind that in order to develop a SUMP, the universities can't do it on their own, instead they must have other parties that are involved in sustainable and secure mobility, as an efficient coordination among the competent departments and administrations is necessary in order to obtain a political and social consensus regarding the proposed mobility model. Among other agents it is important to remark the importance of having a Mobility Manager of the Universities, Public Authorities, Transport Infrastructure Authorities, urbanism and territorial planning, environment and energy, economy, industry, employment, education and health, students, employees and Public Transport Companies, social agents and citizen groups. Each of them can contribute with their points of view and experience in order to acomplish the objective by helping in decision making, definition of objectives, design of the actions and follow-up of the plan. So, for example, the universities could not operate independently to carry out an intervention on the prices of public transport tickets or ticket issuance, but should establish a cooperation with the municipality and transport operators in order to implement measures of this type. Therefore, tight integration of both entities should be required in order to attain the success of this measure.

The development of roadmaps is specified in the 2011 Transport Book of the EU as one of the instruments available to help meet these objectives and is part of a strategy to develop cost-effective interventions. This report focuses on the design of a roadmap that aims to be a support tool to improve the capacities of decision makers in the planning of sustainable mobility in the University Campus of the Mediterranean, and that is useful for all universities in the MED area regardless of context, characteristics and country, ensuring *transferability* among them. This

Roadmap is an important tool with which to reinforce the Action Plan as well as the cooperation and dialogue between those involved in the development of sustainable mobility plans in the Universities of the Mediterranean.

The information at this deliverable is related to the one contained in other documents of this project, namely:

- The deliverable 3.4.1 Action Plan of sUmp in Urban Area and deliverable 3.4.2 Action Plan of sUmp outside Urban Area. The Action Plan is a strategic guide with a sequence of steps that mobility planners of universities (MPUs) are encouraged to follow in order to create a sustainable *university* mobility plan (SUMP). This plan takes into consideration universities situated within the urban fabric (Urban), and campuses located outside the city centre (Suburban), providing specific suggestions for these two contexts.

- The deliverable 3.5.2 ICT Tools model and requirements for communication between different actors and planning instruments. This deliverable aims to obtain a new communication model for university campus mobility, its management and monitoring.

1.1 Objectives and RoadMap definition

The CAMPsUmp Project aims to promote the development of SUMPs in the MED area for universities. The objective is to improve the instruments for planning sustainable urban mobility through innovative strategies managing the flow of mobility of university campus users and their integration with urban areas. In order to that, the starting point has been the exchange of good practices and knowledge regarding university mobility.

In CAMPsUmp, an Action Plan is developed in which all the steps to carry out a SUMP in the University are specified. This report, on the other hand, shall serve as a Road Map that facilitates the implementation of said Action Plan each university self-defines, based on their objectives the measures they consider most appropriate to achieve each objective, the steps necessary to achieve it, and the time required for the fulfilment of said objectives.

The result of this report is a ready-to-use guide for decision makers who intend to implement a plan for sustainable urban mobility in the University and to apply the appropriate measures. For this goal, a roadmap model has been designed that can be used as a reference for the application of future sustainable mobility action plans in Mediterranean Universities. The road map takes into account the steps

and tools required, guarantees the commitment of those responsible and the viability of the model taking into account social, economic and environmental sustainability. In this way, the aim is to transform the existing university mobility model, for which it will be necessary to establish a strategic vision that encompasses different lines of lasting work and implement measures that are developed in the short, medium and long term.

The roadmaps define how each objective can be achieved, that is, the specific steps that need to be taken and the time required in a hypothetical context, including the problems that could arise and the actors that should be involved in each case.

Before establishing a Roadmap, the first point to take into account is to define the objectives to be achieved, which must be established from the Action Plan (CAMPsUmp), the scenario in which the University is framed, the starting situation and from the specific goals set in each case. In the context of Universities, this scenario can be diverse, depending on different elements, namely: characteristics of the city, characteristics of the University (number of students, number of employees, resources, actors involved ..) governance, transportation networks, infrastructures, TIC platforms ... This variability implies that each University needs to establish its own customized objectives, as well as choose the specific measures to be used, and the time and resources to transform it into reality.
In this sense, the particular conditions of each university are very important when defining a roadmap. So, we consider that is not possible to define a detailed road map for each and every combination of these conditions, i.e. the ones that define each specific university context, since their number is very large—. For this reason, it is rather difficult that a complete, inclusive, account of all the aspects required for a RoadMap appropriate for every context could be ever produced, as there would be specific details that would require the adaptation to the existing deciding factors in universities.

The tools discussed in this deliverable allow a first visualization of the global strategy to be undertaken. Using them, the universities should be able to design their own tailor-made work plans aimed at improving the sustainability of mobility within participating universities.

The development of a roadmap within this project has these main objectives:

- To establish a standard guideline with the steps to develop a SUMP in the University following the Action Plan.
- To define the characteristics of the Roadmap and to establish a list of appropriate sustainable mobility measures in the Universities from which

the university can choose which ones to use, rope in the actors involved, calculate the costs, anticipate possible threats, estimate their impact and plan their timing.

- To provide a blank template in which each University can determine according to their circumstances and needs, the objectives they intend to achieve, measures, stakeholders, calendar and budget from the different alternatives. This tool will allow them to have a clear vision of the whole process which will be of great help to the decision makers.

- To present a completed standard roadmap as a practical example. These examples will emerge from the selection of different policies, implementation plans, measures and instruments that have worked.

This Roadmap seeks to disseminate good practices with the aim of reaching the different sustainable mobility objectives set out in the Action Plan in a structured manner. In this sense, this Roadmap has been prepared taking into account a review of good practices in sustainable mobility, in Universities and also the experience of the CAMP-sUmp partners.

The Roadmap described in this document provides a standard tool with valid measures for all the universities of the Mediterranean and it allows each University to choose the ones that they considers most appropriate. This is based on the fact that the needs of each University can be different and therefore it is necessary to offer a range of possibilities to cover the needs that might have been previously diagnosed.

1.2 Structure and contents of the reports

For the preparation of this roadmap we have taken into account the main objective, which is to create a planning tool for the development of sustainable mobility strategies that are efficient and effective in the context of the University. The document will help decision makers to decide possible actions and steps for a successful implementation of the Action Plan. The development of this roadmap aims to be useful to establish measures that are appropriate for different types of universities in the Mediterranean area. The establishment of this roadmap will also assist in the diagnostic of the impact of the measures in the long term.

Using the above as a starting point, we have outlined a Roadmap that is composed of several complementary sections which go from the most general to the most specific.

The **structure** of this deliverable is as follows:

Section 1. The sustainable mobility and objectives, methodology, structure and contents of the report will be introduced.

Section 2. A summary outline will be presented that recalls the steps to follow to develop a CampSUMP Action Plan. It contains the points to be taken into account in order to develop the CampSump Action Plan. It provides decision-makers with a comprehensive vision of all the steps to undertake in order to develop and implement the Action Plan.

Section 3. The Roadmap is presented. This section is split into two subsections:

> **3.1. Tactical roadmap:** that provides a global and sequential vision of the objectives and measures to be developed in the SUMP. This is a tool through which each University can establish, based on its initial situation, the objectives and general measures that it intends to accomplish, them being either short, medium or at long term, the impact, and the costs and threats to the implementation of the measures. It includes the instructions for filling in and it also includes a series of instructions to support the selection of the most appropriate measures.
>
> **3.2. Operative and Detailed roadmap**: in which the specific measures and other aspects to be considered for each strategic line of sustainable mobility are indicated, namely, cross cutting objectives, walking, cycling and other soft and clean modes, public transport and transport private, and

parking. It also includes the way in which universities will be able to specify in detail the type of measures to be used in a specific time interval, differentiating between each strategic line of sustainable mobility: cross cutting objectives, pedestrians, bicycles and other soft and clean modes, public transport, private transportation. Following the steps indicated there, the universities will find a method to indicate their most specific objectives, the measures that intend to carry out (either social, infrastructure, vehicle, environment, or ICT), and the budget, time, comittment, degree of achievement, and so forth, for each pillar of mobility.

Section 4. An example / case study of a standard completed roadmap is presented.

Section 5. A set of measures for Dissemination and Social Media.

Section 6. A listing of effective sustainable mobility objectives, indicators and measures at the University that can help Universities to set up their own personalized roadmap that best suits their needs is presented. This information is valid for completing the Tactical and Operative Roadmaps.

Section 7. This section includes links to a series of support or help tools that can be used to improve the roadmap created.

Section 8. Finally the document provides an annex with the pdf templates to complete the roadmaps.

2. Summary outline Action Plan CAMPsUmp

2.1 Points of the Action plan

A first objective that a Roadmap must first attain is to provide an overview of the entire SUMP process (Figure 1).

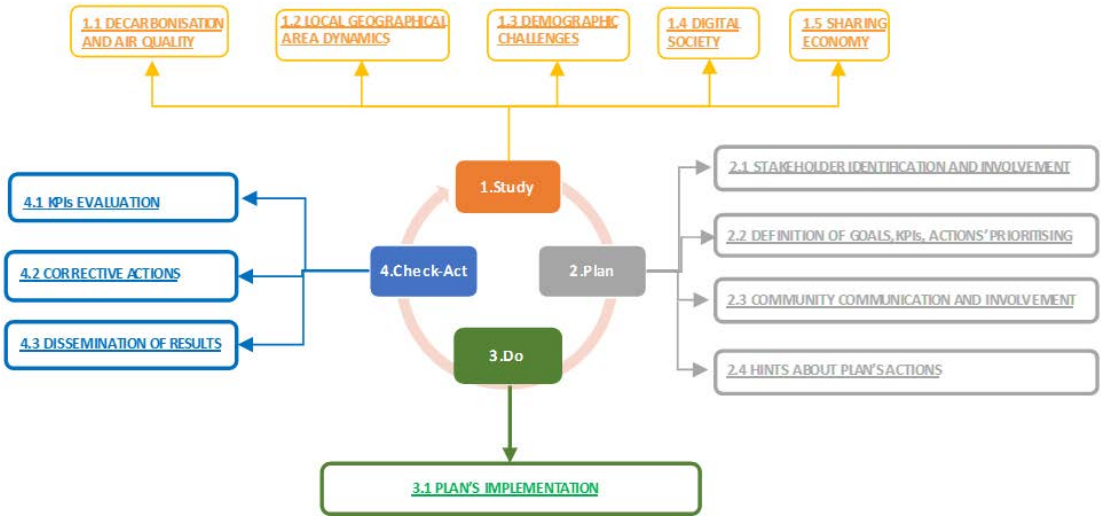


Figure 1. Outline of the Action Plan of sUmp. Extract from the CAMP-sUmp Project - Deliverable 3.4.1 & 3.4.2 Action Plan.

The figure displayed at the next page presents the CampSUMP planning cycle, which brings together all the steps to carry out the development and implementation of the Sustainable Mobility Action Plan in universities. This figure allows to obtain a global and complete vision of the process of developing a SUMP.

The style of the figure follows a similar one from ELTIS (European Local Transport Information Service) project, which is a reference for the development of SUMPs of importance, and another from CAMPsUmp's own Action Plan. We have developed the CampSUMP planning cycle shown in Figure 2 mixing these two sources.

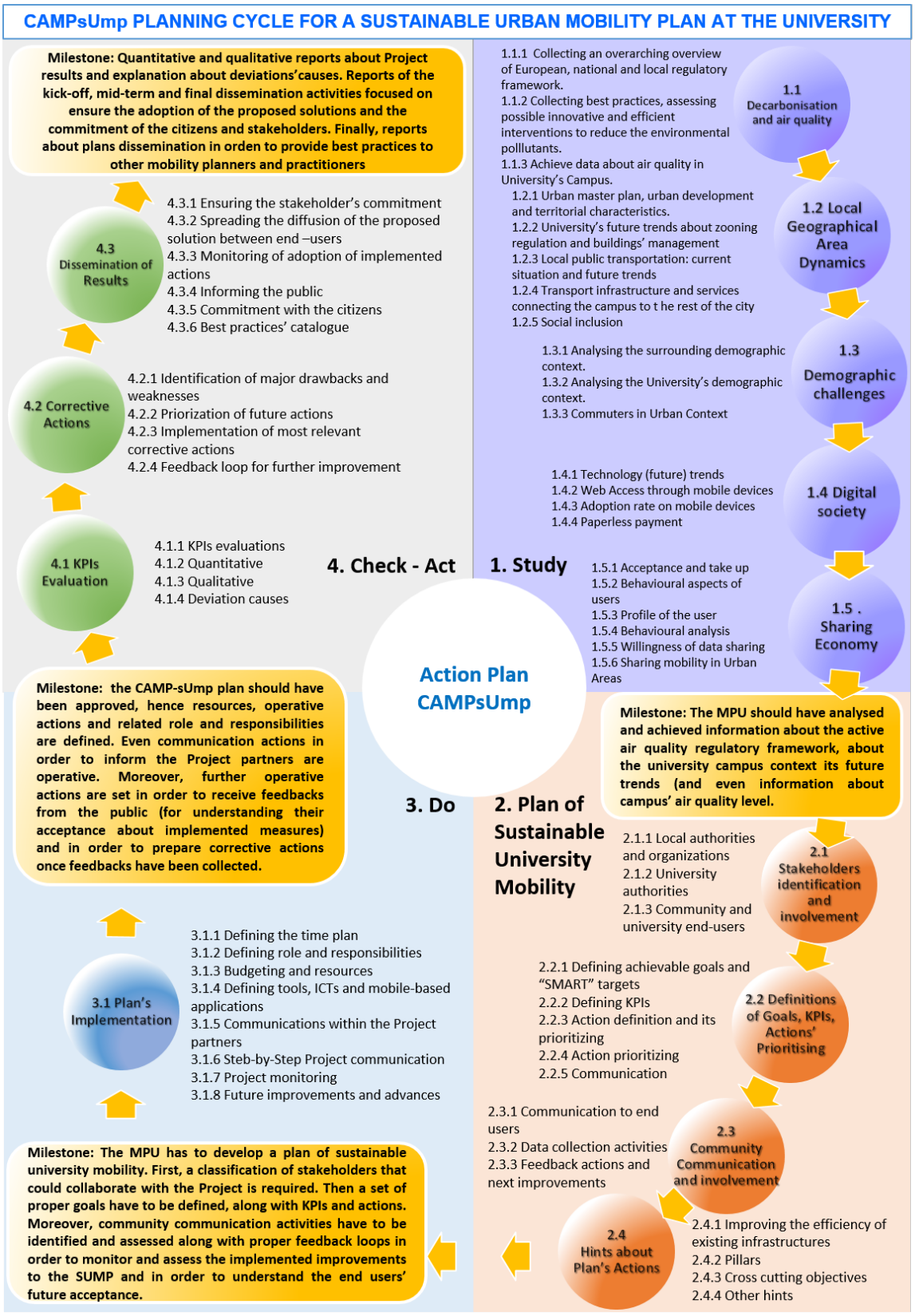


Figure 2. Map created from the CAMPsUmp Action Plan and Cycle SUMP extract to Developing and Implementing a Sustainable Urban Mobility plan, ELTISplus. European Union, 2013.

Summarising the diagram above, the main objectives of this section of the roadmap, as stated in the Description of Work (DoW) of the project, can be listed as follows:

• It is a powerful tool to describe all the steps of the Action Plan;

• It is expected to guarantee the commitment of decision makers, coherence and viability, as well as to improve the capacities of public administration in enhancing sustainable mobility on the University campus;

At this point, once the universities have checked the CAMPsUmp Planning Cycle, they should refer to CAMPsUmp's Action Plan (Deliverable 3.4.1 and 3.4.2), then review the steps to be undertaken, and finally select those that are the most appropriate for their own objectives.

The following elements should be taken into account for each step:

- Objective of the action;
- Responsible stakeholder;
- Other involved stakeholders;
- Way of proceeding;
- Target(s);
- Duration of the activity;
- Key elements of the activity;

A template listing the points of the Action Plan to be carried out in each case has been designed to facilitate this process (See Annex 1).

3 RoadMap

This document is a roadmap for implementation of the action plan to ensure commitment of decision makers (social, economic and environmental sustainability). The RoadMap takes into account different environmental and socio-economic contexts and local institutional settings, to ensure camp-sUmp transferability in MED area. This document is a ready to use guide for the implementation of the Action Plan in University Campus with different settings, characteristics and in MED countries.

CAMPsUmp RoadMap is a tool through which each University can from its starting situation decide upon, the objectives and general measures that it intends to attain at short, medium and long term, as well as the actors involved, the costs and the threats to the implementation of the measures. It also defines how sustainable mobility can be improved in each mode of transport and the cross-cutting aspects as well as the time required to fulfill each step in a setting. It gives us information about how the Camp sUmp project is likely to expand and provides us with the sequence of activities that will take us to a future state with a view of temporality.

The Roadmap is made up of two parts:

a) Tactical

The Tactical Roadmap comprises the entire Plan in a single document. To do so, it allows the objectives and milestones that are intended to be developed throughout the Plan to be differentiated in the short, medium and long term, the general actions for each type of transport, the type, etc. It also makes it possible to indicate an estimate of the cost and impact of the proposed measures.

This document provides a general and complete overview of the entire proposed plan, which may be modified if necessary.

The information is introduced in an electronic template available at this link.

It is also convenient to create a document in which to write down the details of the process.

b) Operative Roadmap

The Operative Roadmap is specific to each mode of mobility and allows you to list the actions and measures that are wished to be implemented in a specific period of time (for example: along a year). For each time period, the relevant Roadmaps can be prepared. The document organizes the measures and actions according to their type: social and management, infrastructure, vehicle-related and ICTs, time needed to implement them, available budget, monitoring and evaluating the actual achievements. It includes the start and end dates, the expected quantitative objective and the one obtained throughout the period. Also, it is a reminder of the steps to be considered for the preparation of the Mobility Plan.

There are five separate Operative Roadmaps (The information is introduced in an electronic template available at each links):

- Cross Cutting (involving more than one mode of transportation)
- Walking
- Cycling
- Public Transport
- Private Motorized transport and parking management.

At CampsUmp Project we provide a template to gather the necessary information, which is very useful to decision makers as an overview of what should be done in each moment.

In addition to the template, it is also convenient to create a document in which to write down the details of the process.

In point 6 of the report, a catalogue of goals, indicators and applicable measures are presented to help create a personalized roadmap adjusted to each University.

3.1 Tactical Roadmap

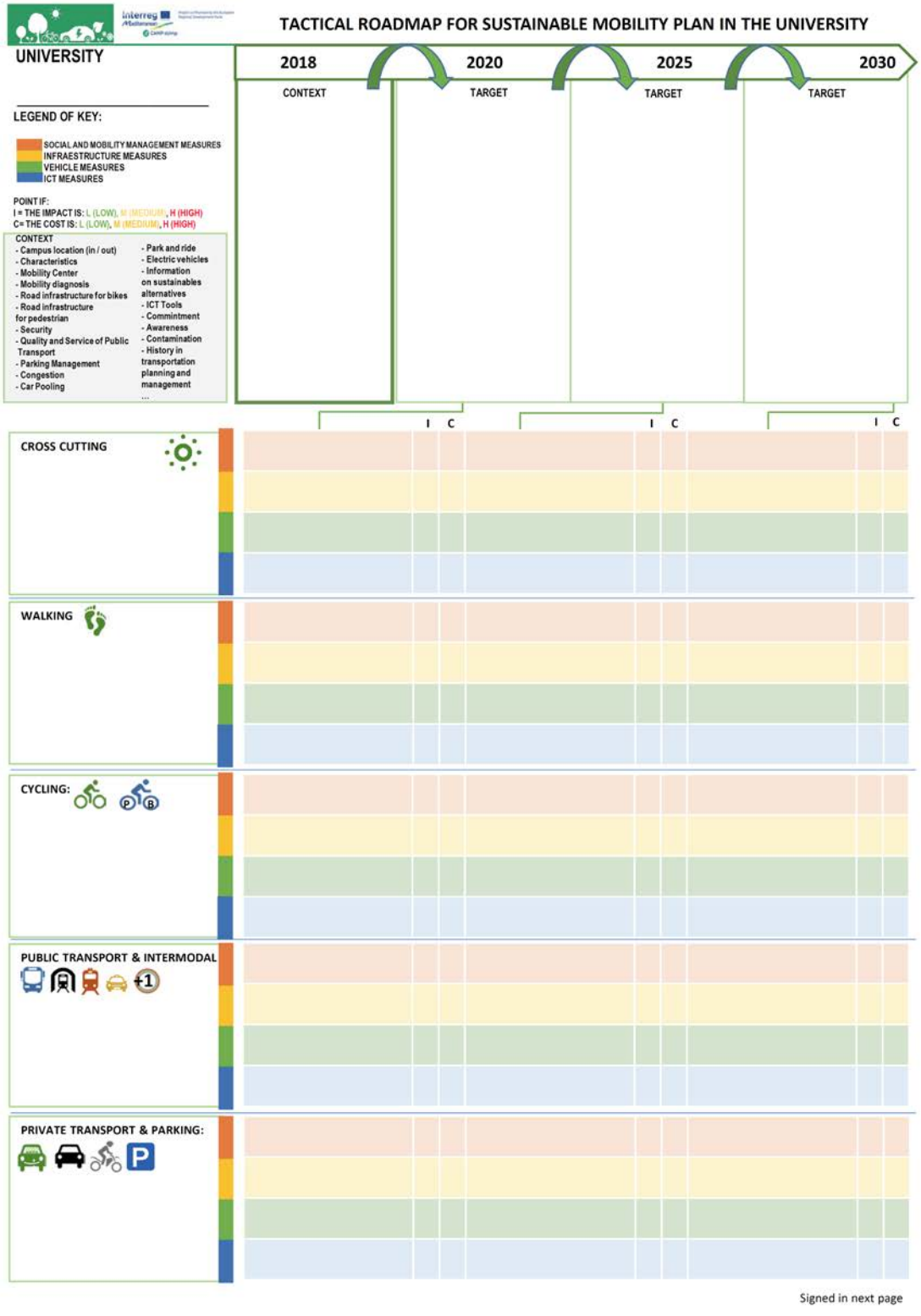


Figure 3. Tactical Roadmap Template. CAMPsUmp Project.

The Roadmap comprises the following elements:

3.1.1 University and Legend of Key

First, a section is presented to indicate the name of the University that is going to complete the Sustainable Mobility Roadmap.

Next, we find a series of legends to take into account in order to complete the template:

- **The type of measure:** The colors indicate the type of measure to be established. Thus, the measures can be social and mobility management, infrastructure measures, vehicle and ICT.
    - The orange color precedes the row in which the social and mobility management measures will be established.
    - The yellow color precedes the row in which the infrastructure measures will be established.
    - The green color precedes the row in which the measurements of the vehicle will be established.
    - The blue color precedes the row in which ICT measures will be established.

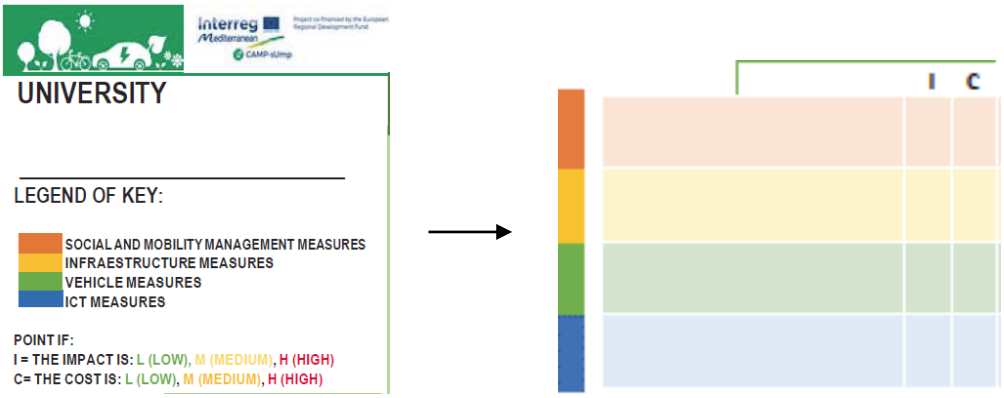


Figure 4. University, type of measure, impact and cost. Tactical Roadmap Template. CAMPsUmp Project.

- **Cell I (Impact):** The cells with the letter I will be used to indicate if it the impact of the measure is expected to be Low(L), Medium(M) or High(H).

- **Cell C (Cost):** The cells with the letter C can be used for introducing an estimation of the cost of the measure. Again, levels Low(L), Medium(M) or High(H) can be used.

3.1.2 Initial conditions or Context

The process for starting to plan a Roadmap starts with an analysis of the situation at the University. This analysis will shape the short, medium and long-term objectives defining the horizon of the Plan and that will be the strategic lines of it. As already aforementioned, there are so many similarities between the Universities that it is recommendable to establish a standard Roadmap. However, in order to be truly useful, it is necessary for each University to adjust it to their needs.

The description of the initial conditions of each University in which the roadmap will be applied to is made so it can include a number of aspects, namely: type of University, location, characteristics, economy, population size, existing mobility problems, congestion, percentage of car use and public transport and the objectives that are intended to be achieved and so forth. At this point, the University that is going to apply the roadmap must identify the mobility problems it faces and the objectives that it would like to achieve by taking into account the specifications of the Action Plan.

The evaluation of the initial conditions can be based on different approaches: survey methodology, interviews, SWOT and GAP analysis, review of different sources, consultation with University experts and previous knowledge are very useful elements to determine the starting situation and the main objectives. Another useful tool that could be used for this purpose is the Urban Transport Roadmaps tool of the European Commission, which provides a complementary perspective to define the objectives to prioritize (http://urban-transport-roadmaps.eu/).

Some of the elements to consider in this section are:

a. Type of University
b. Population
c. Income
d. Economy
e. Traffic congestion
f. Air quality: pollution.
g. Public transport service
h. Use of private vehicle
i. Infrastructure and Safety in pedestrians and cyclists
j. Reserved lanes (bike, public transport ...)

k. Car pooling
l. Park and ride
m. Electric vehicles
n. Parking fees
o. Parking regulation
p. Full network
q. Information on sustainable mobility alternatives
r. ICT tolos
s. History in transportation planning and management
t. Commitment
u. Awareness
v. Facilities to improve sustainability
w. Motorization rate
x. …

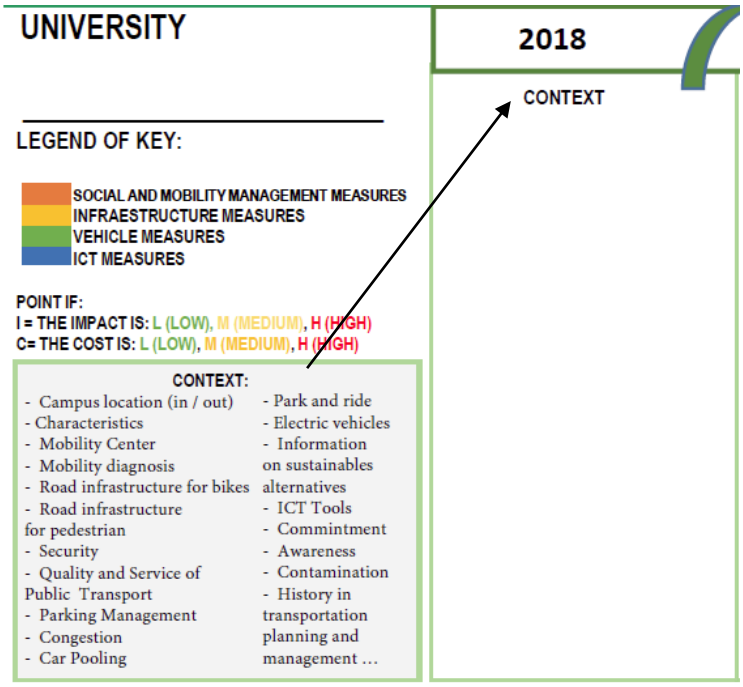


Figure 5. Initial conditions (context). Tactical Roadmap Template. CAMPsUmp Project.

Standard conditions with similar problems arise from a review and the results of the Campsump project. This information will guide the universities to get in contact with the most common problems.

In the results of the reports developed within the CAMPSUMP project, which are based on surveys and interviews with users of the University and experts in mobility, together with a SWOT and GAP analysis, a distinction has been made between campuses situated inside or outside urban ares, since its location may

determine different types of interventions. In this section, we will discuss the real need of setting a roadmap given the evidence collected from the project regarding if it would be posible to define a common roadmap that fits all related to these two different cases using minor adjustements.

In campuses located inside the urban area, the percentage of users moving on foot and by bicycle is larger than in the campuses situated outside the city. Therefore, the safety of pedestrians at intersections is the most critical need, followed by public transport measures in terms of increasing frequencies and density and extension of the public transport network. Parking management is also a key problem to consider in these cases. Thus, in summary the most important actions to be taken are:

- safety at the crossings
- the need to increase measures in public transport in terms of increasing frequencies and increasing the density and extension of the public transport network.
- Parking management, for parking problems

Other necessary actions in these campuses are:

- Road infrastructure (lack of safety in access by bike and on foot)
- Mobility management
- The use of ICT tools

The strength of these campuses, according to the SWOT analysis with respect to the campuses that are out of the city, is the easy access by using the Public Transportation System of the city. The costs of public transport services are lower than with the Universities situated within the outskirts, distances to the University from the place of residence are usually short, which means there is a greater variety of other non-motorized means of transport to access the Campus. There is a greater awareness amongst the university population for the need for a SUMP and the staff and students live relatively close.

The fundamental problems of campuses located inside the city are traffic congestion, narrow, there is a lack of space for parking, as well as lack of use of active modes of transport, the perimeter of the campus is not very accessible in soft ways and it is complicated or impossible to modify arterial roads, the location of university buildings is more dispersed and there are limitations in space.

In the campuses located outside urban areas, the results indicate that the main measures should set the focus on public transport and road infrastructure for

accessibility to the campus by bicycle and on foot. Other necessary actions in these campuses are mobility management and parking management. On these campuses, automobiles are the preferred mode of transportation regardless of the duration of the trip. The biggest problem is the duration of the trip in public transport, which can be up to four times higher than by private transport. Thus, the fundamental measures in these campuses should be directed at public transport and adequeate infrastructure for using soft ways to access the campus. The residence of the students is usually at a greater distance from the University and there are numerous students who come from different parts of the territory every day.

The main strength of these campuses compared to the previous ones, according to the SWOT analysis, is the existence of many free and unrestricted parking spaces, which can pose a threat to sustainable mobility. The fundamental problem is accessibility due to the lack of competitive modes of transport that are an alternative to private transportation.

Other strengths that stand out in this type of Campuses with respect to the Campus that are located within the city, are that they are usually Campuses in areas of great development, with important flows of people interested in going to the area, there is a large and accessible space , plenty of space to go on foot and by bike, multiple entrances by car, they have a pedestrian network and bicycles to circulate inside the campus and a high availability of parking spaces. They are usually relatively new campuses and have a high quality road infrastructure.

With regard to the weaknesses within these Campuses, there is a majority use of private vehicles with low occupancy. There is a demand for public transport but the low level of service, and the lack of good intermodality leads to a low utilization, which in turn produces a reduction in public transport service provision due to the low demand. In addition, the distance from the stations to the University is usually long. This mainly happens for budgetary reasons. Thus, it is necessary to respond to transport demands according to the needs of the students and staff and to improve existing mobility services. For this, it is necessary to increase investment in sustainable transport connections between the urban area and the campus. On the other hand, in these campuses there is a low demand for walking and cycling, and the traffic is usually high to access the University. Moreover, the infrastructure is inadequate for walking or cycling. Therefore, in these campuses the priority measures must be directed to the improvement of the quality of the public transport service at the infrastructure, vehicles and services level, as well as the awareness on alternative transportation options alternative to the automobile that include transportation. public, carpool, bike and on foot.

Mobility management is also an element to improve for which ICT tools would be of great help. ICT tools for mobility are more expensive due to the great distances they have to cover.

In general, the strength of universities is the level of knowledge and their weaknesses are the lack of funds to invest in soft modes, the lack of political planning, programming and communication, the lack of coordination between the University and local actors and of the necessary investments, the difficulties in coordinating so many people, the lack of information and awareness on sustainable mobility, the consideration of owning a private vehicle as a symbol of social status, the limitations in the governance of public transport, the lack of management policies for the campus and ignorance about the use of soft modes in travel. In terms of opportunities, the reduction of car use and traffic congestion are the main aspects to consider. The threats to all of this is the slowness in the bureaucracy that lengthens both the planning and implementation time.

On the other hand, the size of the University is an important aspect to take into account in the implementation of a SUMP. Thus, a small center can be easier to manage, but however in this case the capacity of the University may be insufficient due to its size or the lack of specialized personnel. Similarly, if a University has only one single Campus, planning is much simpler.

The planning phase requires the participation of users and stakeholders to ensure that the benefits of the restrictions and regulations are understood. Thus, a first meeting should be held to discuss the joint priorities that will be used to establish the starting budgets, financing and pact of a Road Map. Later on, different meetings should be held to monitor the process, conduct quarterly follow-up meetings, consult stakeholders and partners, and carry out information sessions on the progress of the Plan.

3.1.3 Targets/Milestones

Each University will present the targets or milestones that it intends to achieve in the short, medium and long term in this section.

This report provides a list of objectives, indicators and measures that the universities may check to find which one are the most adequate according to their requirements.

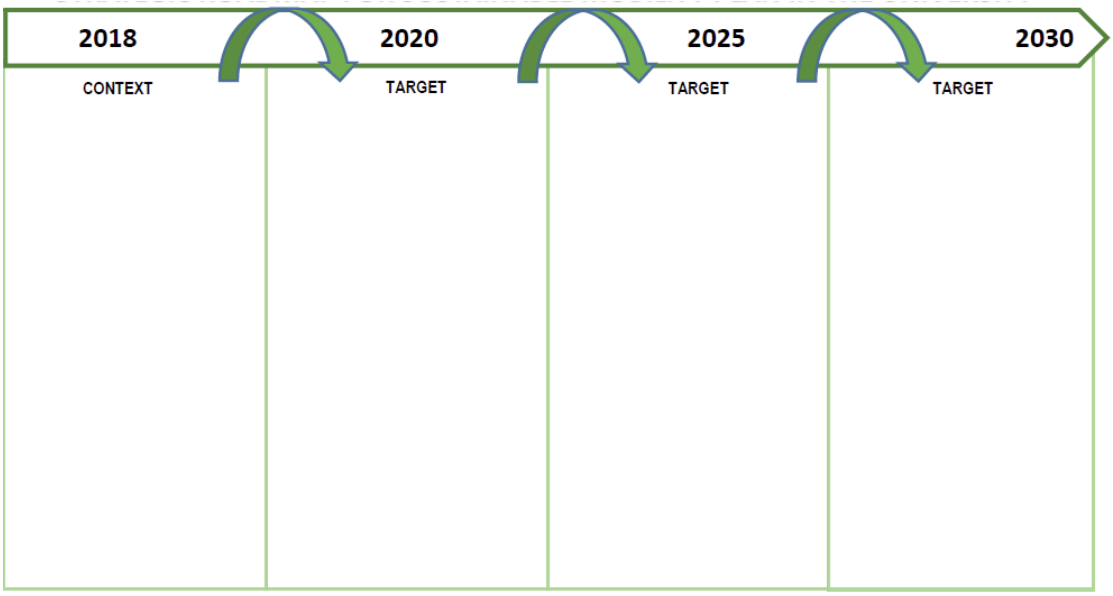


Figure 6. Targets and milestones. Tactical Roadmap Template. CAMPsUmp Project.

3.1.4 Selection of applicable measures at short, medium and long term

This section contains a matrix so that each university may specify the actions or measures that it wishes to carry out at the short, medium and long term scales. The measures can be social and mobility management, measures on infrastructure, on the vehicles and ICT measures, and can be directed to a mode of transport or to different types of mobility. Each one of the actions will be designated taking into account the colors mentioned in the legend. As mentioned earlier, this report provides a comprehensive list of measures that may be used as a guide from which the specific measures can be chosen.

Measures can be classified according to the strategic line or mode of transport to which the measure is directed, either directly or indirectly, or the type of policy or approach used. It must be kept in mind that the same measure may affect different modes of transport, and may even overlap between two approaches.The strategic lines of work cover the modes of transport on which the measures will be applied, which could be defined as the pillars of sustainable mobility. These are:

- **Cross Cutting aspects**
- **Walking**
- **Cycling, Soft and clean vehicles**
- **Public transport**
- **Private transportation**

The work approaches or policies to develop these strategic lines are as follow:

- **Social Approach and Management of Mobility.** It is based on changing the behavior of users, through information and promotion actions and it includes Mobility Management, regulation and incentives. This approach uses a series of measures aimed at provoking a more sustainable behavior in the mobility of the members of the University. The social measures include information programs, awareness raising, promotion of sustainable displacement and dissemination. They have an effect on all modes of transport, reducing congestion, improving safety and having a positive impact on air quality. Its cost is low and many measures are relatively quick to implement, both in the short and medium term. Mobility Management refers to political actions, bureaucratic, economic and social procedures, creation of figures, commissions, committees, management of parking through the use of economic incentives such as road pricing, car sharing, etc ....

- **Infrastructure.** This aspect includes investments in the planning and building of infrastructure and transport facilities, as well as land use planning. It implies changing the urban environment. These strategies should improve accessibility, reduce congestion, and emissions. Infrastructural applications require an important economic effort and need time to be implemented, which is why they are included as long-term strategies.

- **Vehicle.** In this category we group the measures that refer to investments in technology and specific characteristics of the vehicle.

- **ICT.** In this section some ICT measures are exposed. We recommend reviewing **the ICT Report of the Campsump project (Deliverable 3.5.2 ICT Model)**, which provides a very complete review of the most important measures and provides a comprehensive ICT model for the University.

The roadmap should consider all these aspects and be planned out in an integrated manner, even if the measures are presented separately in order to appreciate or manage them better. Each strategy can be implemented through different actions and intervention programs. The implementation of a proposal for action can achieve the objectives directly in some cases, and indirectly in others.

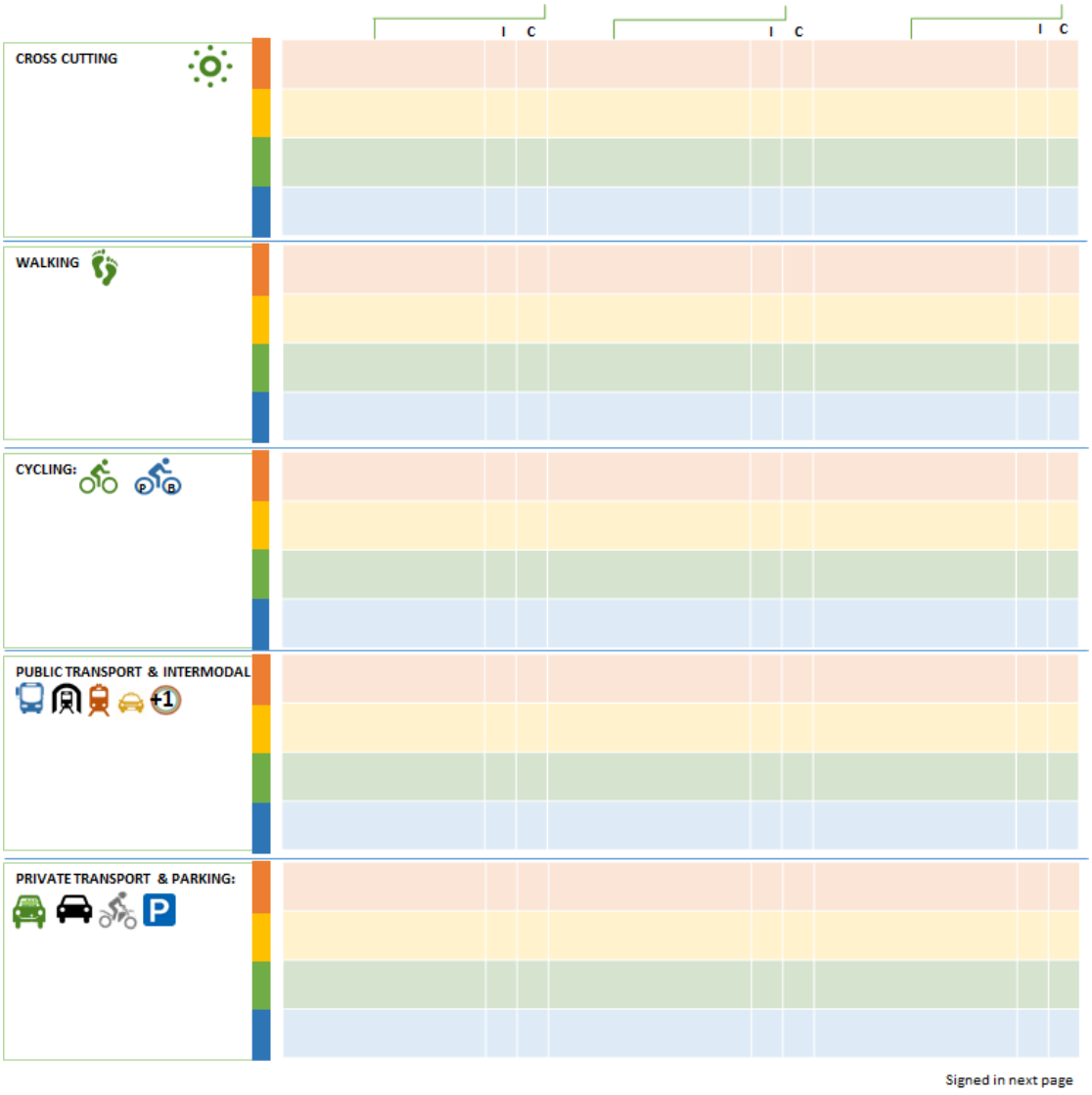


Figure 7. Selection of applicable measures at short, medium and long term. Tactical Roadmap Template. CAMPsUmp Project.

Among all the catalog of measures described in the previous section, there are a number of key issues to be emphasized, considering those aspects that have been more strongly pointed out by the Universities, namely:

- **Creation of a Mobility Management Unit at the University.** The objective is:

- Providing the University with a department that manages the mobility generated by the University in a comprehensive and stable manner.
- Analyzing and diagnosing mobility permanently.
- Promoting and being a key element in the Development of the University Mobility and Accessibility Plan.
- Adjusting the Plan and the lines of action depending on the diagnosis
- Establishing mechanisms to implement the policies of the Plan and search for financing funds.
- Advising the government team to approve and consolidate mobility and accessibility policies of the University and in the application of the necessary measures.
- Sorting out the campus space to facilitate access and internal displacements.
- Promoting the participation of students and campus staff.
- Serving as an interlocutor with administrations.
- Guaranteeing the participation of all the agents involved.
- Getting representation in the Mobility Board of the University.

An area to which this unit could belong is the Logistics and Administration Services Area or the Area of Sustainability and Environment, Environment and Occupational Risk Prevention. It is convenient to have at least two people: a Manager, a Supporting Officer and specific collaborators (both internal and external to the University). The University must have a budget to develop these functions.

- Carry out a mobility study. The objective is to know the mobility profile of the university community, the needs and wishes in relation to mobility. The most common way is to conduct a survey among students and workers. This allows knowing the reality of the campuses, in relation to the mobility demand for each group, of the different modes of displacement that exist. The University can use technical personnel and scholarship holders to

prepare the mobility study and to design and distribute the information brochures.

- **Public transport intervention**. Increase in service, frequency, density and extension of the public transport network, as well as intermodal coordination. Within these actions the main objective is to reduce the duration of trips by public transport. It is essential to get users to use public transport to carry out a significant reduction of time spent on the journey to and from the University, as well as to increase the frequency of passage at peak hours and service punctuality. Safety, cost, reliability and cleanliness are also highly valued in the use of public transport.

- **Improvement of the pedestrian and cyclist network. To** increase security at intersections, to improve signage and pavements and to improve access for people with reduced mobility.

- **Use of Car pooling.** The promotion of shared vehicles and the availability of a vehicle sharing platform among members of the University is one of the measures that can alleviate traffic congestion, reduce CO2 and the need for parking spaces.

- **Reduce bicycle theft.** This issue affects the use of the bicycles very strongly. The establishment of security and surveillance measures for bicycles on the Campus is a fundamental measure to increase the use of bicycles.

- **Management of bicycle stations in rush hour.** At peak times, proper management of bicycle stations is necessary, so that users can have a bicycle to move around and a space to park.

- **Promotion of electric vehicles.** The University can establish programs to encourage the use of electric vehicles. It could have different units of electric bicycles and electric vehicles so that the resident staff may temporarily test them out. There are private companies with which you can make rental agreements for this type of vehicles for a reasonable price. In the same way it has to invest in charging stations of these vehicles. The development of programs that encourage the use of clean vehicle technologies is also an action to be taken into consideration.

- **ICT tools for mobility.** A noteworthy element is also the improvement of the information systems of travel and bread-making of routes, which must be carried out through the use of ICT, which is the ideal tool at the moment.

We propose the Smartphone as a support for this tool. Consult the ICT report of the campsump project.

- **Commitment of the University to public administrations and transport operators.** It is essential that all the parties involved are involved in the development and implementation of the SUMP and that each one is committed to the aspects that concern him or her. This type of relationship allows establishing the ideal framework to know the needs of each one and open a range of intervention possibilities. Some of these include the integrated rate, the bonuses for members of the University, the increase in frequency of public transport in certain locations and key times ...

- **Parking management and Parkings**. As already mentioned, the limitation of parking is common in universities that are located within the city. In those that are on the outskirts the opposite happens, they usually have a lot of free space and are without restrictions. In this case the parking spaces can be used as an incentive for the use of car sharing, and as a punishment for individual use. The parking could be paid and the benefits obtained used for investing in sustainable transport, such as discounts or gift vouchers in public transport. This measure allows discouraging the use of private vehicles. Although there is usually a waiver to implement parking management and there may be problems with legislation, this measure has been effective in the universities where it has been implemented, so it is convenient to make an effort to know how the law allows to apply it. . This measure is adopted to manage the use of the automobile, improve the urban environment and to raise funds to additionally invest in transport facilities.

- **Awareness in sustainable mobility.** It is necessary to promote sustainable awareness within the university community and change the scale of values regarding the use of cars. This measure must go hand in hand with other measures, such as those discussed above. For this purpose, an incentive program that provides benefits to members who perform sustainable mobility, such as free parking or discounts on certain services of the University, may be useful. It is necessary to inform about the different modes of transport available to access the University and raise awareness about the environmental impact and promote sustainable mobility, to make the University Community aware of the need to use these means of transport and to encourage the rational use of private transport. Carry out the programming of informative events to promote modal change on foot,

by bike and public transport. Another aspect to take into account is to encourage community participation, which allows knowing the diverse needs of different groups, to be able to give the best solutions. It would be convenient to have an initial phase of about three months to find volunteers, analyze the current mobility, involve the agents, organize meetings, interviews and discussion groups, and define the strategy. It is necessary to include awareness and participation campaigns of the university community that will be completed in the following years.

- **Apply and disseminate a road safety program.** A change in mobility requires information on safety to avoid an increase in accidents and injuries. For example, if the use of bicycles is encouraged, it is important that it is accompanied by a program with information about the rules on city driving, the importance of helmets as well as tips for safe driving and other relevant aspects.

3.1.5 Impact and Costs

As indicated previously in the description of the legends:

- In cell "I", indicate L, M or H to indicate if the expected impact of the measurement is low, medium or high.

- In cell "C" L, M or H indicate if the expected cost of the measurement is low, medium or high.

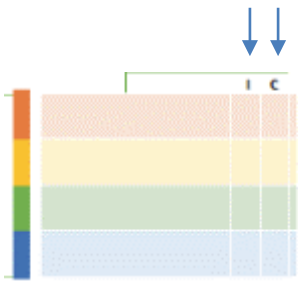


Figure 8. Impact and cost. Tactical Roadmap Template. CAMPsUmp Project.

As a first approach to the costs of the measures, let us say that the social and mobility management measures are those that tend to have lower economic costs, the measures on the rolling stock and the infrastructure being the ones which usually involve more investment , in this order. From the information provided by the "Study on European Urban Transport Roadmaps 2030, Urban Transport Policy Roadmaps, Ref. MOVE/C1/2013-188-2. European Commission, 2016" we have

prepared a summary table that provides an approach to policies, the impact on the modes and costs of implementation. This information can be useful to the Universities when deciding upon the type of measures to be used.

key policy measures classified according to impact by policy outcome, impact by mode, implementation costs

Policy type	Measure	Policy outcome				Impact by mode				Implementation costs				Policy approach		
		GHF/AQ emissions	Congestion	Accessibility/Social Inclusion	Safety	Public Transport	Walking /cycling	Car	Freight	Citizens	Businesses	City	Government	Promote and regulate	Plan and build	Charge and Provide
Demand management	Sustainable travel information and promotion	M	L/M	L		✔	✔	✔				L				
	Bike sharing scheme	L	L/M	L		✔	✔			L	L	L				
	Car shating (Car Clubs)	L/M	L	L/M		✔	✔	✔		L(b)		L(a)				
	Delivery and servicing plans	M	L		L				✔		L(b)	L				
	Lans use planning - density and transport infrastructure	M	L/M	H/M	L/M	✔	✔	✔	✔	L(b)	L	L/M				
Green fleets	Green energy refuelling infrastructures	M/H (b)				✔		✔	✔			M	M			
	Green Public fleets	L/M			L	✔					M/H	M				
Infrastructure investment	Bus, trolley and tram network and facilities	M	M	M	L	✔					M	M/H	M			
	Walking and cycling network and facilities	L	L/M	M/H	L		✔					L/M	L/M			
	Park and ride	L	L/M	L/M	L	✔		✔		L	M	M/H				
	Metro network and facilities	M	M/H	M	M	✔						H	H			
	Urban Delivery Centres and city logistincs facilities	L/M	L/M		L				✔		L	M				
Pricing and financial incentives	Congestion and pollution charging	M	M	L(d)	L	✔		✔	✔	M/H	M	M©				
	Parking prcing	M	M	L(d)				✔		M/H	M	L				
	Public transport integrated ticketing and tariff schemes	L	L	L/M		✔						M/H (d)				
Traffic management and control	Legal and regulatory framework of urban freight transport	L	L/M	L(d)	L				✔		M					
	Prioritising public transport	L/M	L		L	✔						M/H				
	Access regulations and road and parking space reallocation	L	L/M	L/M	L	✔	✔	✔				L/M				
	Traffic calming measures	L	L		L/M			✔	✔			L				

L= low M=Medium H=High		
(a) Air Quality could be medium if electric vehicles are used		Enabling measure
(b) Depends on fuel and use in vehicles		Ancillary measure
(c) For air quality only		
(d) Potentially adverse effect		
(a) Costs depend on the scheme chosen		
(b) In principle cost savings could be achieved		
(c) Revenues are in principle larger than costs at least in medium-longer term		
(d) Costs are significant if this measure include the implementation of an integrated ticketing system		

Figure 9. Key policy measures classified according to impact by policy outcome, impact by mode and implementation cost. Extracted from Study on European Urban Transport Roadmaps 2030, Urban Transport Policy Roadmaps. Ref. MOVE/C1/2013-188-2. European Commission, 2016.

This analysis provides guidance and information on the costs and benefits at different strategies, which serves as a support tool in making decisions about the policies to be implemented.

The plans aimed at the promotion of sustainable modes of transport and the regulation of the use of private vehicles and the transport of goods have lower costs than those aimed at modifying infrastructures. However, the political and social costs in the early and intermediate phases can be very high, so that information, awareness and participation of users in the plan is a fundamental aspect. For example, parking regulation and pricing are very politically sensitive measures, since parking is usually free and this habit is often perceived as a right. Thus, any attempt at modification can result in strong opposition.

A decision must be made in which interventions are to be implemented, since there may be great variability in terms of investment and impact. The interventions that we propose in the road map that imply mobility management, —such as restricting the access of private cars, regulating parking and calming traffic— could be described as soft if we compare it with the investments made in infrastructures. However, they can have a high impact with a low cost.

As an example, according to the CIVITAS initiative project, it is possible to influence mobility behavior through information and promotion campaigns aimed at developing a sustainable mobility behavior among citizens without additional investments in infrastructure. In order to achieve this result, however, these campaigns should be addressed to the recipients using affective/emotional messages but they should also provide them with information/knowledge.

Each measure or intervention program to carry out requires estimating the cost of implementation and making a temporary schedule for its realization.

3.1.6 Issues to be taken into account in the application of the measures

In this section the possible difficulties and threats in the implementation of the measures and application questions are indicated.

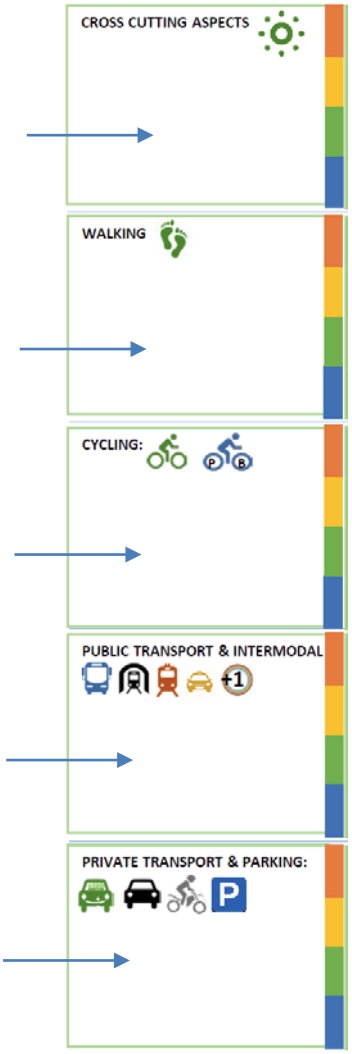


Figure 10. Issues to be taken into account in the application of the measures. Tactical Roadmap Template. CAMPsUmp Project.

There are a number of threats to consider in the application of these measures.

- Regarding **social aspects**, there is a significant gap in the awareness of sustainable mobility, social commitment and participation in activities of this kind and resistance to change, as well as an overvaluation of the automobile as a tool for social status, which has to be taken into account

when designing information and awareness programs and promoting sustainable mobility as a way of life. Sometimes there is an inability to get the message across when stating that a more efficient mode of travel can be attained thanks to the use of ICT and agreements with the organs of the University.

- In relation to the **design and execution of the action plan**, deficiencies in the coordination and communication between the interested parties are an important aspect to consider, since it can hinder the implementation of the plan of action, as well as cause delays. There must be an agreement between the different organs of the University and a multidisciplinary collaboration, a cooperation between the different interest groups and participation of all the interested parties, which is key to addressing mobility from all fronts. It must be kept in mind that at this moment there may still be a low level of awareness among decision makers regarding the need to implement a SUMP. In the design of the Plan we have to take into account the growth of the number of students and how it can affect congestion and their interest in living in the center.

- The **bureaucracy** can be ineffective and increase the delays, which is an element to be taken into account as a major threat to a SUMP.

- **Governance** is an aspect by which the mobility plan can be refrained from implementing. It is important to plan the relation between the University and Public Administrations well, defining what is the role of each of them. It is necessary to take into account the existing legislation and foster coordination with the parties that have responsibilities over this issue, since in many cases the legislation hinders the implementation of the measures, as well as knowing how the the Public Authorities will support the measures that the University intends to carry out.

- **Financial limitations** are an element against the implementation of the action plan, so it is critical to establish the strategies to raise funds.

- In relation to the **development of the infrastructure**, it must be kept in mind that these measures are usually carried out in the long term and involve high costs, so assesment of the availability of the necessary economic resources to carry out an investment of this type must be performed in advance. You have to know the costs that each action requires and whether you have the necessary financial resources. You also have to be especially careful with administrative times to carry out the design and execution of work as they tend to suffer delays. The financial uncertainty to

carry out the measures is an issue that may affect the implementation of the plan, so it is necessary to know exactly what is available. In the case of deciding to carry out some modification in the infrastructure, the importance of establishing a communication between the private owners living nearby the campus and/or the universities must be taken into account.

- We must be aware of the **financial limitations** and seek resources in European funds, private companies, state aid, the Community ...
- The prioritization of public transport can reduce space for cars, which at an early stage can cause more traffic congestion.
- In the integration of different transport services, the role of public institutions is critical, in terms of establishing rules that all the parties must abide by.
- According to the Roadmap 2030 study, **car sharing services** are commercially viable in cities with more than 50,000 inhabitants
- Strategies to increase **renting or exchanging of bicycles** may need to be subsidized by the municipality, as this operations may have low profitability. To increase revenues, advertising messages could be placed on bicycles. Similarly, the efficiency of bicycle exchange depends on several conditions such as: the existence of bicycle stations in good condition, understandable system, combination with public transport, effective bicycle redistribution system, strategies to promote their use for short travels.
- **The integration of different transport services** is very attractive for the user but it can be very difficult because each provider can perceive others as competitors. It is very good from a social point of view, but the intervention of the Public sector is necessary to order to make it happen.
- Pedestrian and bicycle facilities should be designed as a network and not as independent interventions and should coincide over time.
- In relation to **advanced mobility ICT tools**, they require personnel and resources for their development and maintenance. It is important to achieve an appropriate efficient technological platform so that the tool is useful over time, if not, even if the objective is appropriate, it may be unusable. The information on mobility must be integrated within the same space in the University. They may turn out to be more expensive on Campus

than they are outside of the city due to the great distances that have to be covered, so it requires more economic resources and more actors, which implies a greater complexity in order to carry out the coordination.

3.2 Operative Roadmap

This section includes a .pdf template for each of the lines of sustainable mobility. The title indicates the type of roadmap it refers to:

1-**Cross cutting**
2-**Walking**
3-**Cycling and other soft and clean modes**
4-**Public Transportation**
5-**Private transportation and parking management**

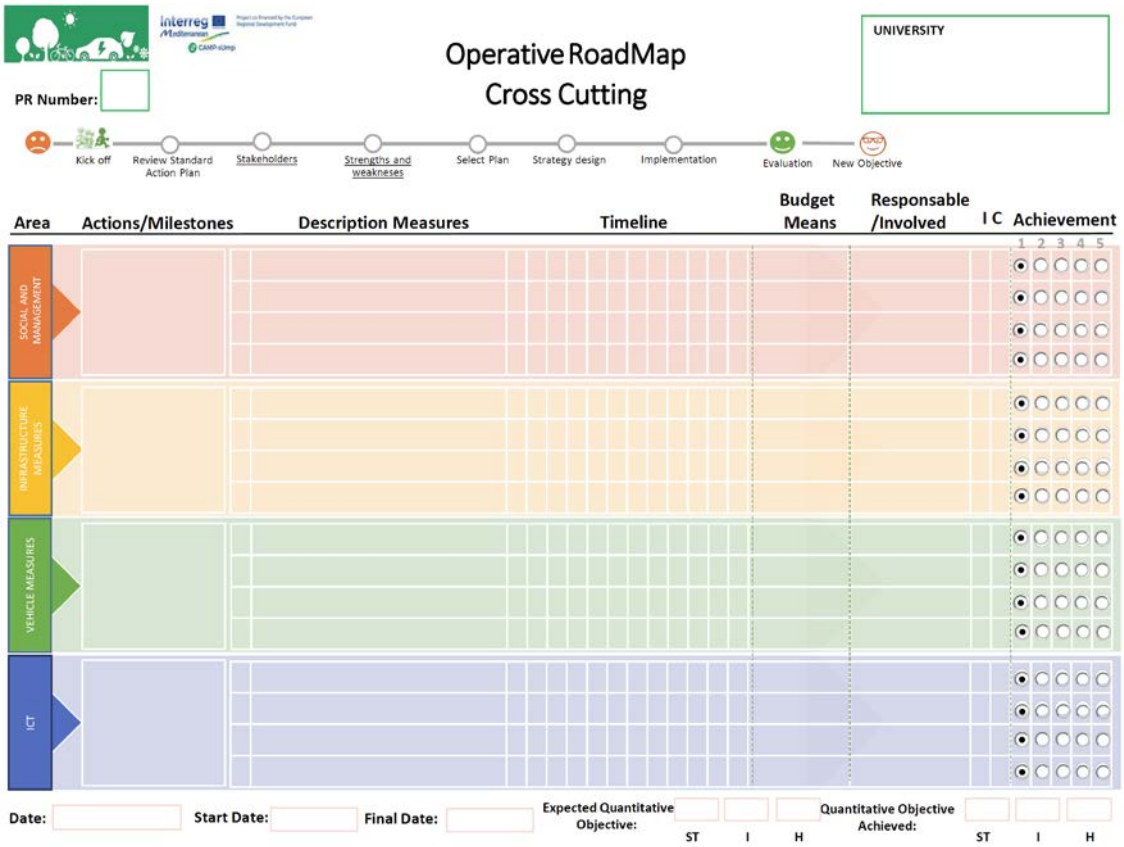


Figure 11. Operative Roadmap Cross Cutting Template. CAMPsUmp Project.

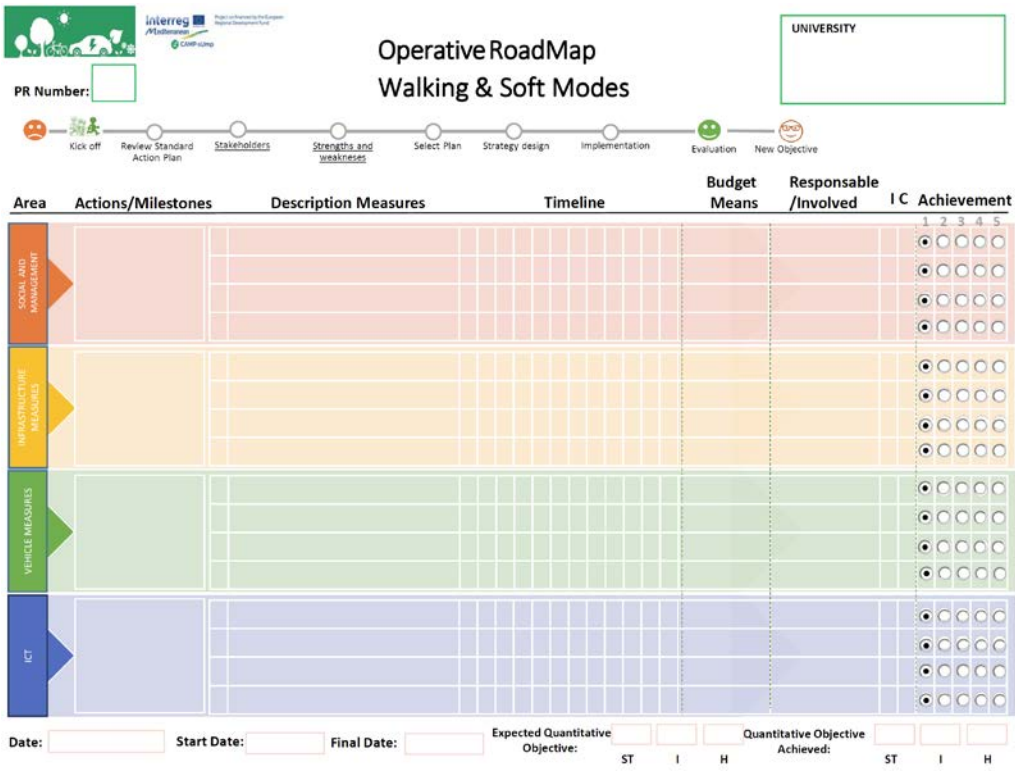


Figure 12. Operative Roadmap Walking and Softmodes Template. CAMPsUmp Project.

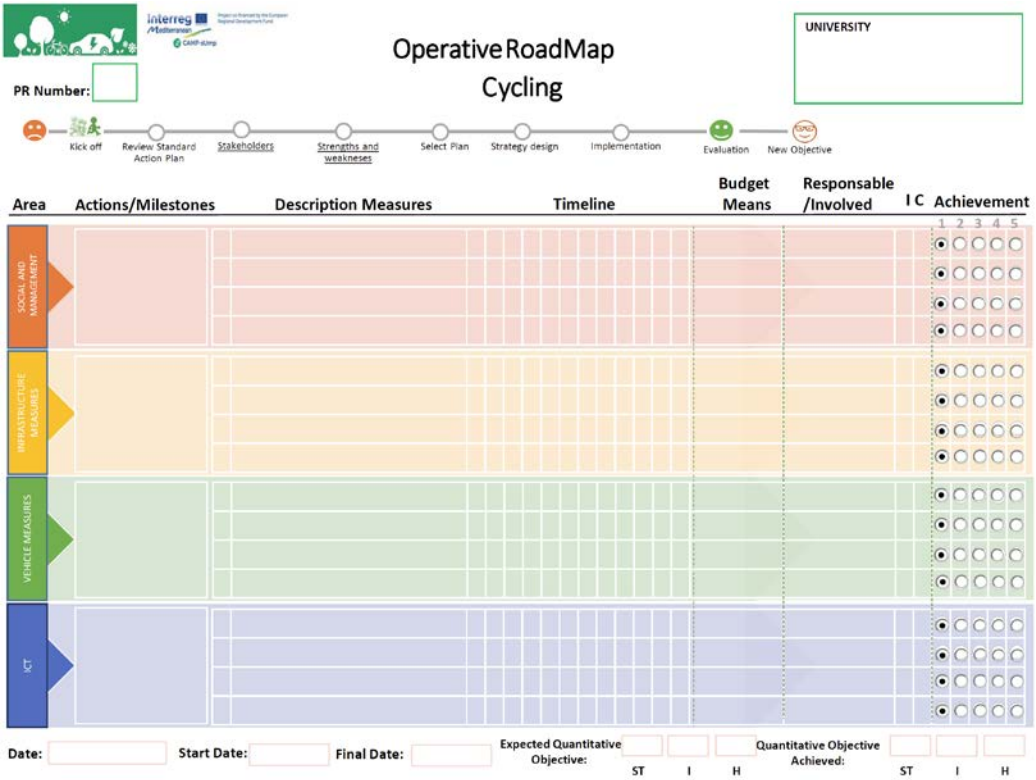


Figure 13. Operative Roadmap Cycling Template. CAMPsUmp Project.

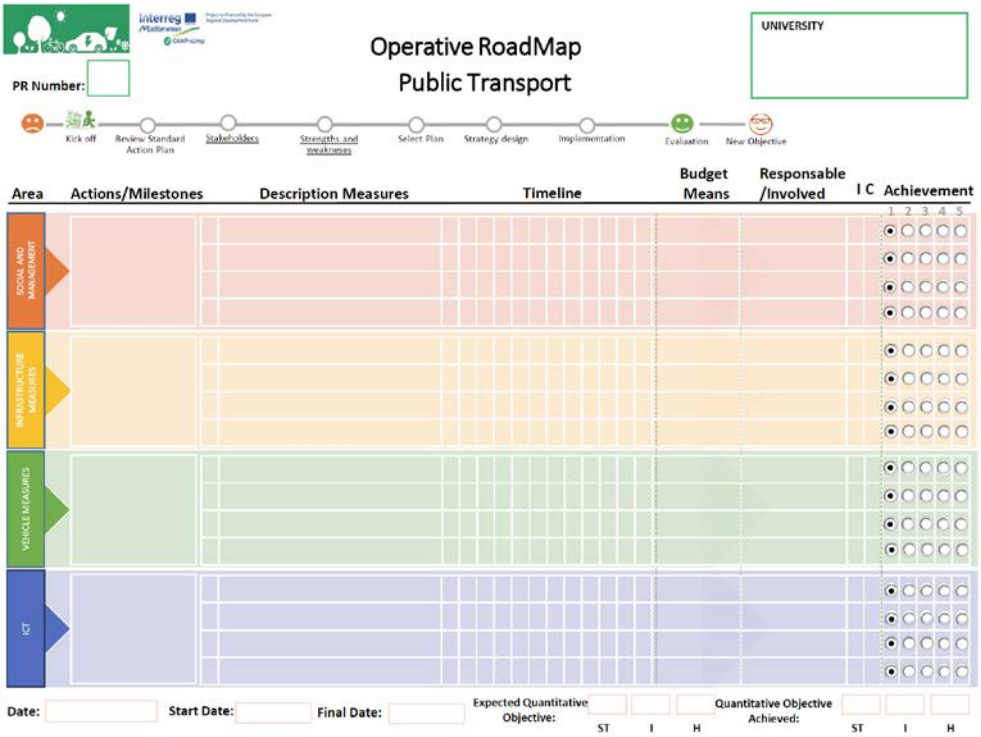


Figure 14. Operative Roadmap Public Transport Template. CAMPsUmp Project.

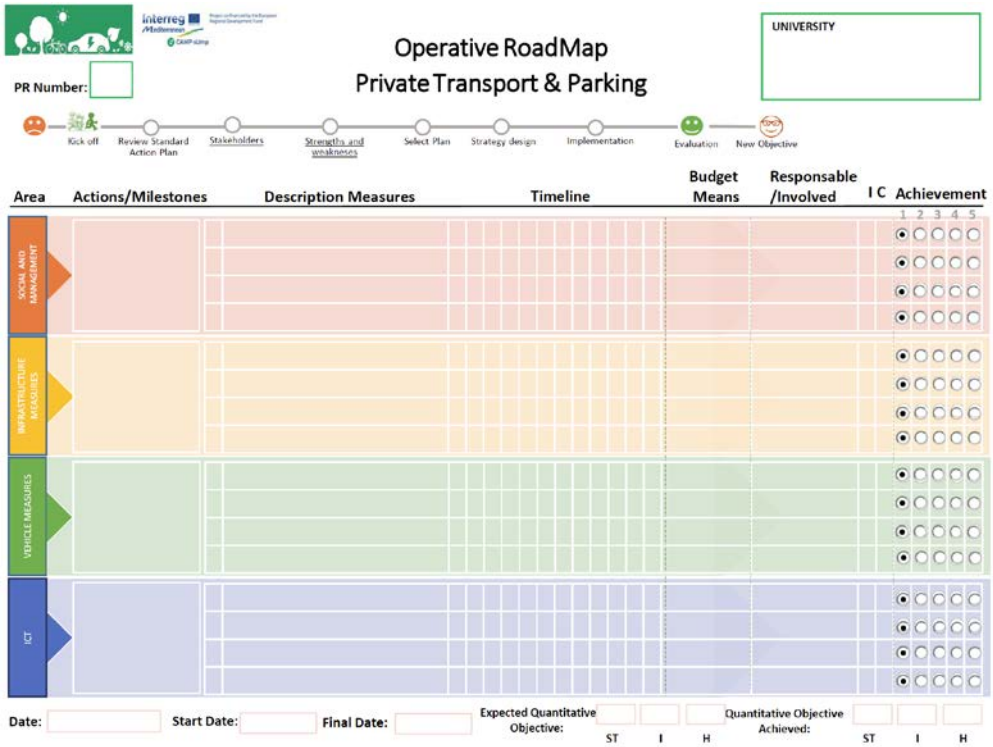


Figure 15. Operative Roadmap Private Transport and Parking. CAMPsUmp Project.

On each sheet you enter the following information:

3.2.1 University

First of all, you write down the name and data of the University that is going to carry out the Roadmap.

Figure 16. University. Operative Roadmap Template. CAMPsUmp Project.

3.2.2 Guideline

Figure 17. Guideline. Operative Roadmap Template. CAMPsUmp Project.

At the beginning of the roadmaps there is a guideline that reminds all the steps to be taken in order to face a sustainable mobility goal, achieve it, and proceed to the next goal.

3.2.3 PR Number

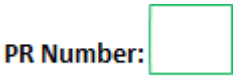


Figure 18. PR Number. Operative Roadmap Template. CAMPsUmp Project.

This section permits inserting the operative roadmap number. It will start with 1 for the first roadmap and will go up. It will refer to each mobility line.

For example:

- **PR1** Walking (for the period 2018 - 2020) is the first of the operative roadmaps for walking.
- **PR1** The same for cycling (for the period 2018-2020)

- **PR2** Walking (for the period 2020-2025) is the second operative roadmap for walking
- **PR3** Walking (for the period 2020-2025) is the third operative roadmap for walking.

3.2.4 Area or Action Line and Actions / Milestones

Each objective can be approached from different perspectives that are specified in the roadmap. In this section you will identify the actions that you want to carry out, differentiating them according to the area to which they belong:

- **Social and Mobility Management**
- **Infrastructure**
- **The vehicle**
- **ICT**

This section will indicate the action that the University is to implement registered in the Tactical Roadmap. Each of the actions will be listed.

Figure 19. Area or action line, Actions and Milestones. Operative Roadmap Template. CAMPsUmp Project.

3.2.5 Description Measures

This section will indicate in a line what a measure consists of, defined from the Catalogue of Measures that we we will see it in the next section, the Action Plan or other sources selected by the University. The number of the action to which it refers can be specified in the small cell.

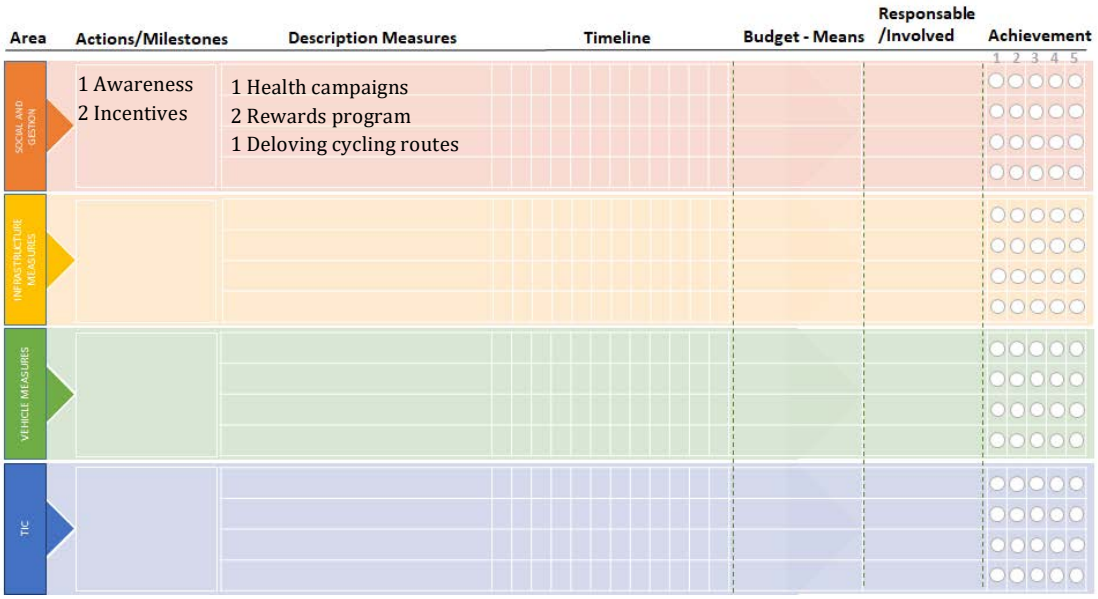


Figure 20. Description Measures. Operative Roadmap Template. CAMPsUmp Project.

3.2.6 Timeline

The roadmap has a section which includes the expected duration of each action. It is subdivided into twelve boxes. For example: If the University intends to carry out a Plan in a year, you can use a box per month. If you want to do it in three years, you can use a box per quarter.

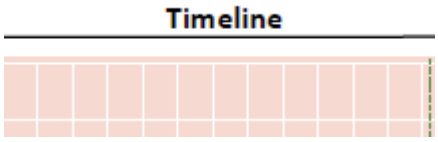


Figure 21. Timeline. Operative Roadmap Template. CAMPsUmp Project.

3.2.7 Budget - Means

In this section, the estimated budget in the Action Plan for the development of the action (if any) can be recorded as well as the budget available to the University.

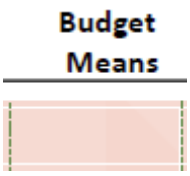


Figure 22. Budget/Means. Operative Roadmap Template. CAMPsUmp Project.

3.2.8 Responsable / Involved

In this section, the University must state who is responsible for the implementation of the action and who are the key actors involved, stakeholders and/or key players.

This section includes the key actors that should participate in the application and execution of the process. The results of the interviews carried out in the CAMPSUMP project have shown that both local and regional authorities are often involved in Campus Mobility Plans, as well as transport authorities.

In the SUMPs generally, the City Authorities are the main actors to achieve the achievement of Sustainability. In this case, as a SUMP is proposed for the University, we must focus on it as the main actor.

For a successful implementation of the roadmap, it is advisable that different interest groups participate from the design phase. Mainly these actors are:

The decision makers, experts in sustainable mobility, employees and students of the University, city authorities, local and regional transport operators, associations of local companies, urban transport operators in other cities, neighbors, Banking System, Service Authorities Public, electricity providers, private companies, associations, and so on.

One of the challenges is to ensure that users are strategic partners in the promotion of sustainable mobility at the University. The role of experts in mobility due to their expertise and experience, is very helpful in order to avoid making mistakes. It is convenient to invite specialists to make an analysis or debate and have an exchange of impressions to strengthen the knowledge, as well as to review different published studies and establish discussion meetings with those involved.

Depending on whether the measure is the management of mobility, information and awareness, about the infrastructure, the vehicles, the environment or ICT, some actors or others may be necessary. However, since the SUMP usually integrates measures at all these levels, it is appropriate to have those that are possible from the beginning. Even so, it is logical to know that measures that include modifications in the infrastructure require a greater number of those involved than information and awareness measures.

Figure 23. Responsible/Involved. Operative Roadmap Template. CAMPsUmp Project.

3.2.9 Impact – Cost

- In cell "I", indicate L, M or H to indicate if the expected impact of the measurement is low, medium or high.

- In cell "C" L, M or H will be indicated to indicate if the expected cost of the measurement is low, medium or high.

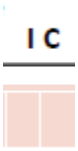


Figure 24. Impact and Cost. Operative Roadmap Template. CAMPsUmp Project.

3.2.10 Achievement

Once the timing for each action is finished, in this section you can indicate the degree of achievement of the implementation of the action on a Likert-type scale from 1 to 5, namely,

- 1 Your plans have been carried out to 0% degree,
- 2 Your plans have been carried out to 25% degree
- 3 Your plans have been carried out to 50% degree
- 4 Your plans have been carried out to 75% degree
- 5 Your plans have been carried out to 100% degree

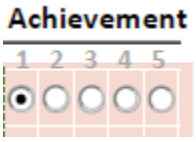


Figure 25. Achievement. Operative Roadmap Template. CAMPsUmp Project.

3.2.11 Date – Start Date – Final Date

At this point the University will indicate the date on which it is agreed to develop a plan to achieve any of the goals mentioned above.

- Start Date. At this point the University will indicate the date on which it is intended to initiate the first action to achieve the objective.
- Final Date. At this point, the University will indicate the date on which the last action is intended to reach the objective.

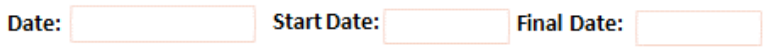


Figure 26. Date, Start Date and Final Date. Operative Roadmap Template. CAMPsUmp Project.

3.2.12 Expected Quantitative Objetive

This section allows us to indicate from 0 to 100% the expected degree of achievement of the objective. If the objective is to increase the use of the bicycle, here we will indicate the percentage increase that is expected with respect to the initial phase. It allows several estimates to be made over time, so it has three fields:

- **ST (Short term)**
- **IT (Intermediate term)**
- **LT (Long term)**

3.2.13 Quantitative Objetive Achieved

Like the previous one, this section allows us to indicate from 0 to 100% the degree of real achievement of the objective. If the objective is to increase the use of the bicycle, here the percentage increase that has occurred with respect to the initial phase will be indicated. It allows several evaluations of the action over time, so it also has three fields.

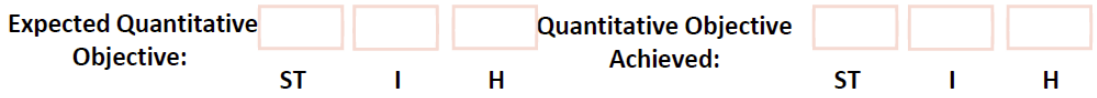
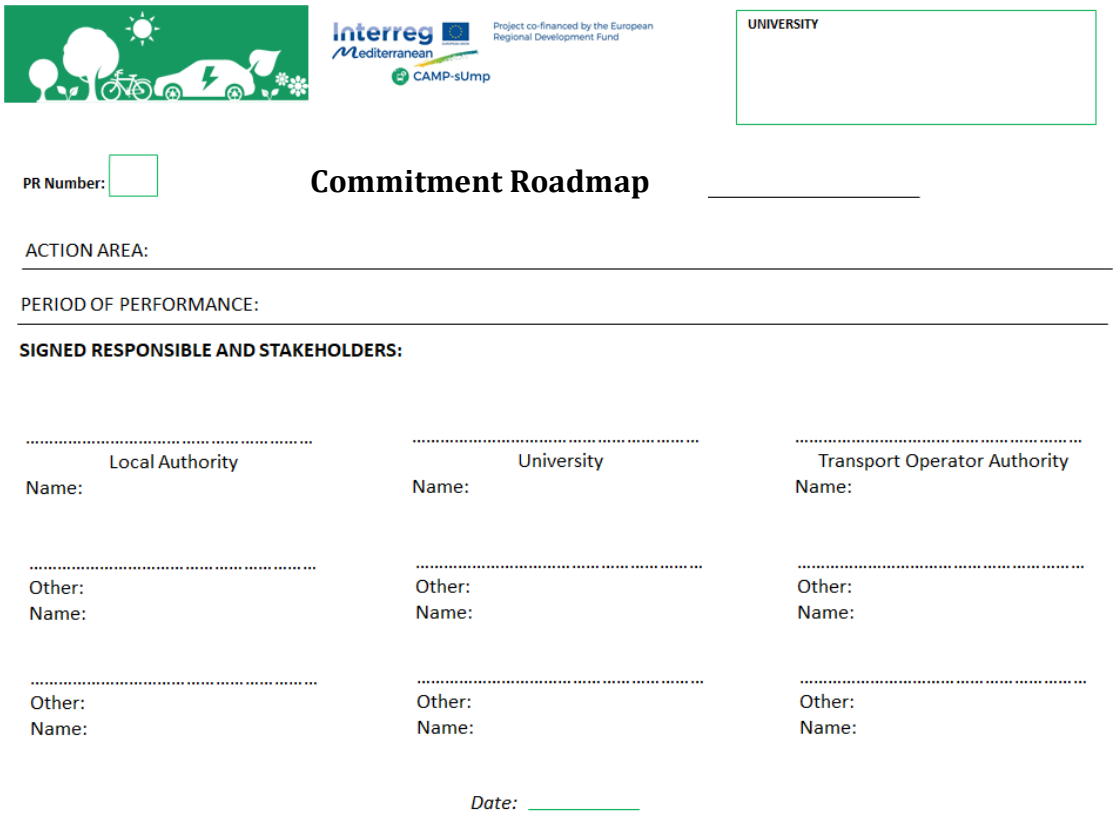


Figure 27. Expected Quantitative Objective and Quantitative Objective Achieved. Operative Roadmap Template. CAMPsUmp Project.

3.2.14 Formal commitments

It is important that those responsible and collaborators sign the established roadmap, as a sign of commitment.

Below we present an example of how this document could be, although each University can do it as it decides.



UNIVERSITY

PR Number:

Commitment Roadmap

ACTION AREA:

PERIOD OF PERFORMANCE:

SIGNED RESPONSIBLE AND STAKEHOLDERS:

Local Authority	University	Transport Operator Authority
Name:	Name:	Name:
Other: Name:	Other: Name:	Other: Name:
Other: Name:	Other: Name:	Other: Name:

Date:

Figure 28. Formal Commitments Example.

4 Example of RoadMap

As mention before, the similarities shared by the campuses located within the Urban Zone and outside of the Urban Zone, it with regard to the needs and objectives of sustainable mobility are far superior to their differences. More so, with regard to the opportunities and threats, they are identical in the two types of campus, which means that when implementing a SUMP for a Campus of the

University, although there are aspects that differ between them according to their location, many characteristics are shared so that mobility issues should be addressed in a similar way. The difference may lie in the priority of the measures to be implemented but the catalog of measures is the same in both cases. Taking into account the existence of these common points and the fact that the universities increasingly follow the trend of having campuses both within the city and outside, it is most appropriate to develop an example of a common Roadmap for all Campuses.

Based on the reviews carried out and on the experience of the project partners, a Roadmap—designed as an example for every decision maker to carry out their own—will be introduced. It must be emphasized that this Roadmap has an illustrative purpose, as a support tool and that it is recommended that each University design its Detailed Roadmap based on its context, needs and defined objectives.

To this end, a case study is presented as an example for:

- A tactical roadmap with planning until 2030.

- Five operative roadmaps related to cross cutting, walking, cycling, public transport, private transport and parking, covering the first period of the plan (2018-2020).

4.1Example of Tactical Roadmap

Click here to access the template link in pdf or see an image on the next page.

Figure 29. Example of Tactical Roadmap 2018-2030. CAMPsUmp Project.

4.2 Example of Operative Roadmap

Click here to access the template link in pdf or see the images on the next page.

- Example of cross cutting
- Example of walking
- Example of Cycling
- Example of Public Transport
- Example of Private Transport and parking management

Operative RoadMap
Cross Cutting

PR Number: 1

UNIVERSITY

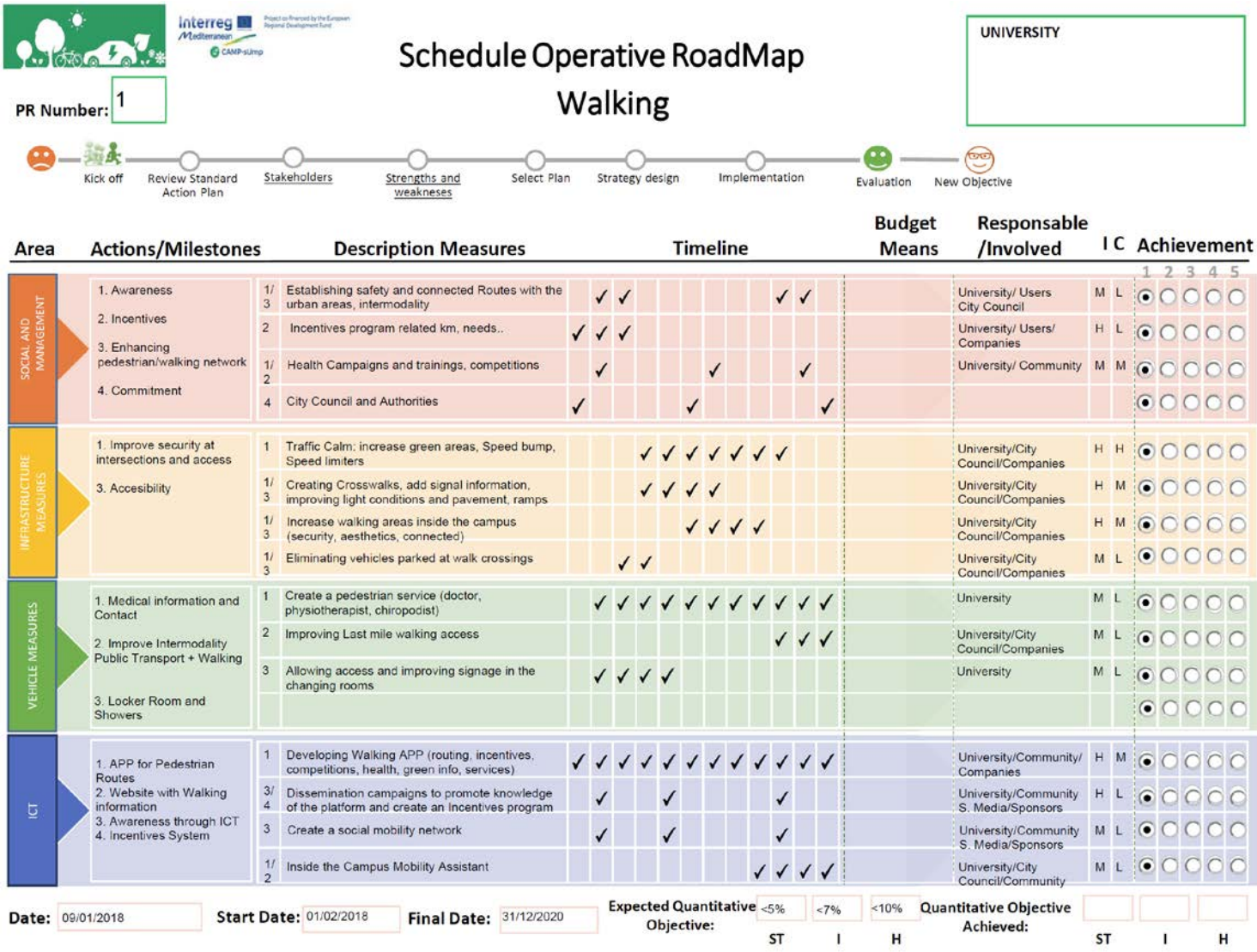
Kick off → Review Standard Action Plan → Stakeholders → Strengths and weakneses → Select Plan → Strategy design → Implementation → Evaluation → New Objective

Area	Actions/Milestones		Description Measures	Timeline										Budget Means	Responsable /Involved	I	C	Achievement 1 2 3 4 5
SOCIAL AND MANAGEMENT	1. Defining a Sustainable Mobility Team 2. Diagnosis 3. Commitment with Authorities and Stakeholders 4. Looking for Budget 5. Involving Community and Awareness	1	Gender equity team: 1 manager,1 technician and university and external stakeholders	✓	✓								✓		University/Community/ City Council/Others	H	L	● ○ ○ ○ ○
		2	Habits mobility survey and its dissemination, ecological footprint and CO2 emissions analysis	✓	✓								✓		University/Community/ Stakeholders	H	L	● ○ ○ ○ ○
		3/5	Meetings to make agreements and monitoring the plan. Dissemination and awareness	✓				✓					✓		University/Community/ City Council/Others	H	M	● ○ ○ ○ ○
		4/5	Looking for projects, grants, university sources and students,developing a Sust.Mobility Guide	✓	✓			✓	✓			✓	✓		University/Community/ Stakeholders	H	L	● ○ ○ ○ ○
INFRASTRUCTURE MEASURES	1.Traffic Calm	1	Limited speed areas and reducing private car lanes. Public space without CO2 emissions						✓	✓	✓	✓	✓		University/Community/ City Council	H	H	● ○ ○ ○ ○
	2. Increase Green and Soft Infrastructure	1	Improvement and safety at crosswalks, signage, pavement and access conditions			✓	✓	✓	✓	✓	✓				University/Users/City Council/ Companies	H	M	● ○ ○ ○ ○
	3.Universal Accessibility	2	Well connected and green lanes inside the Campus						✓	✓	✓	✓	✓	✓	University/Community/ City Council	H	H	● ○ ○ ○ ○
		3	Answering Universal accesibility and safety needs		✓	✓	✓	✓							University/Population with special need/NGO	M	L	● ○ ○ ○ ○
VEHICLE MEASURES	1. Sustainable and clean University Fleet	1	Enhancing and buying or renting clean vehicles							✓	✓	✓	✓		University/Community/ Companies	M	H	● ○ ○ ○ ○
																		● ○ ○ ○ ○
																		● ○ ○ ○ ○
																		● ○ ○ ○ ○
ICT	1. Sustainable Mobility e-Agreement 2. Social Media 3 Sustainable Mobility APP and Website 4. Increasing real time Information systems	1	Virtual agreement to share and sign for the sustainable Mobility		✓	✓							✓	✓	University/Community/ Stakeholders/NGO	H	L	● ○ ○ ○ ○
		2	Developing Keywords and alerts to disseminate and making awarenes through the community		✓		✓		✓		✓		✓		University/Community/ Sponsors	H	M	● ○ ○ ○ ○
		3	Integrated platform to improve sustainable mobility (involving computer science students)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	University/Students/ Transport O./Others	H	M	● ○ ○ ○ ○
		4	ICT systems around the campus, connected with the Open data and transport operators						✓	✓	✓	✓	✓	✓	University/Students/ Transport O./Others	H	M	● ○ ○ ○ ○

Date: 09/01/2018 Start Date: 01/02/2018 Final Date: 31/12/2020

Expected Quantitative Objective: ST | I | H

Quantitative Objective Achieved: ST | I | H



Schedule Operative RoadMap
Walking

PR Number: 1

UNIVERSITY

Kick off — Review Standard Action Plan — Stakeholders — Strengths and weakneses — Select Plan — Strategy design — Implementation — Evaluation — New Objective

Area	Actions/Milestones		Description Measures	Timeline	Budget Means	Responsable /Involved	I	C	Achievement 1 2 3 4 5
SOCIAL AND MANAGEMENT	1. Awareness 2. Incentives 3. Enhancing pedestrian/walking network 4. Commitment	1/3	Establishing safety and connected Routes with the urban areas, intermodality	✓ ✓ ✓ ✓		University/ Users City Council	M	L	● ○ ○ ○ ○
		2	Incentives program related km, needs..	✓ ✓ ✓		University/ Users/ Companies	H	L	● ○ ○ ○ ○
		1/2	Health Campaigns and trainings, competitions	✓ ✓ ✓		University/ Community	M	M	● ○ ○ ○ ○
		4	City Council and Authorities	✓ ✓ ✓					● ○ ○ ○ ○
INFRASTRUCTURE MEASURES	1. Improve security at intersections and access 3. Accesibility	1	Traffic Calm: increase green areas, Speed bump, Speed limiters	✓ ✓ ✓ ✓ ✓ ✓ ✓		University/City Council/Companies	H	H	● ○ ○ ○ ○
		1/3	Creating Crosswalks, add signal information, improving light conditions and pavement, ramps	✓ ✓ ✓ ✓		University/City Council/Companies	H	M	● ○ ○ ○ ○
		1/3	Increase walking areas inside the campus (security, aesthetics, connected)	✓ ✓ ✓ ✓		University/City Council/Companies	H	M	● ○ ○ ○ ○
		1/3	Eliminating vehicles parked at walk crossings	✓ ✓		University/City Council/Companies	M	L	● ○ ○ ○ ○
VEHICLE MEASURES	1. Medical information and Contact 2. Improve Intermodality Public Transport + Walking 3. Locker Room and Showers	1	Create a pedestrian service (doctor, physiotherapist, chiropodist)	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓		University	M	L	● ○ ○ ○ ○
		2	Improving Last mile walking access	✓ ✓ ✓		University/City Council/Companies	M	L	● ○ ○ ○ ○
		3	Allowing access and improving signage in the changing rooms	✓ ✓ ✓ ✓		University	M	L	● ○ ○ ○ ○
									● ○ ○ ○ ○
ICT	1. APP for Pedestrian Routes 2. Website with Walking information 3. Awareness through ICT 4. Incentives System	1	Developing Walking APP (routing, incentives, competitions, health, green info, services)	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓		University/Community/ Companies	H	M	● ○ ○ ○ ○
		3/4	Dissemination campaigns to promote knowledge of the platform and create an Incentives program	✓ ✓ ✓		University/Community S. Media/Sponsors	H	L	● ○ ○ ○ ○
		3	Create a social mobility network	✓ ✓ ✓		University/Community S. Media/Sponsors	M	L	● ○ ○ ○ ○
		1/2	Inside the Campus Mobility Assistant	✓ ✓ ✓ ✓		University/City Council/Community	M	L	● ○ ○ ○ ○

Date:	09/01/2018	Start Date:	01/02/2018	Final Date:	31/12/2020	Expected Quantitative Objective:	<5% ST	<7% I	<10% H	Quantitative Objective Achieved:	ST	I	H

Operative RoadMap Cycling

PR Number: 1

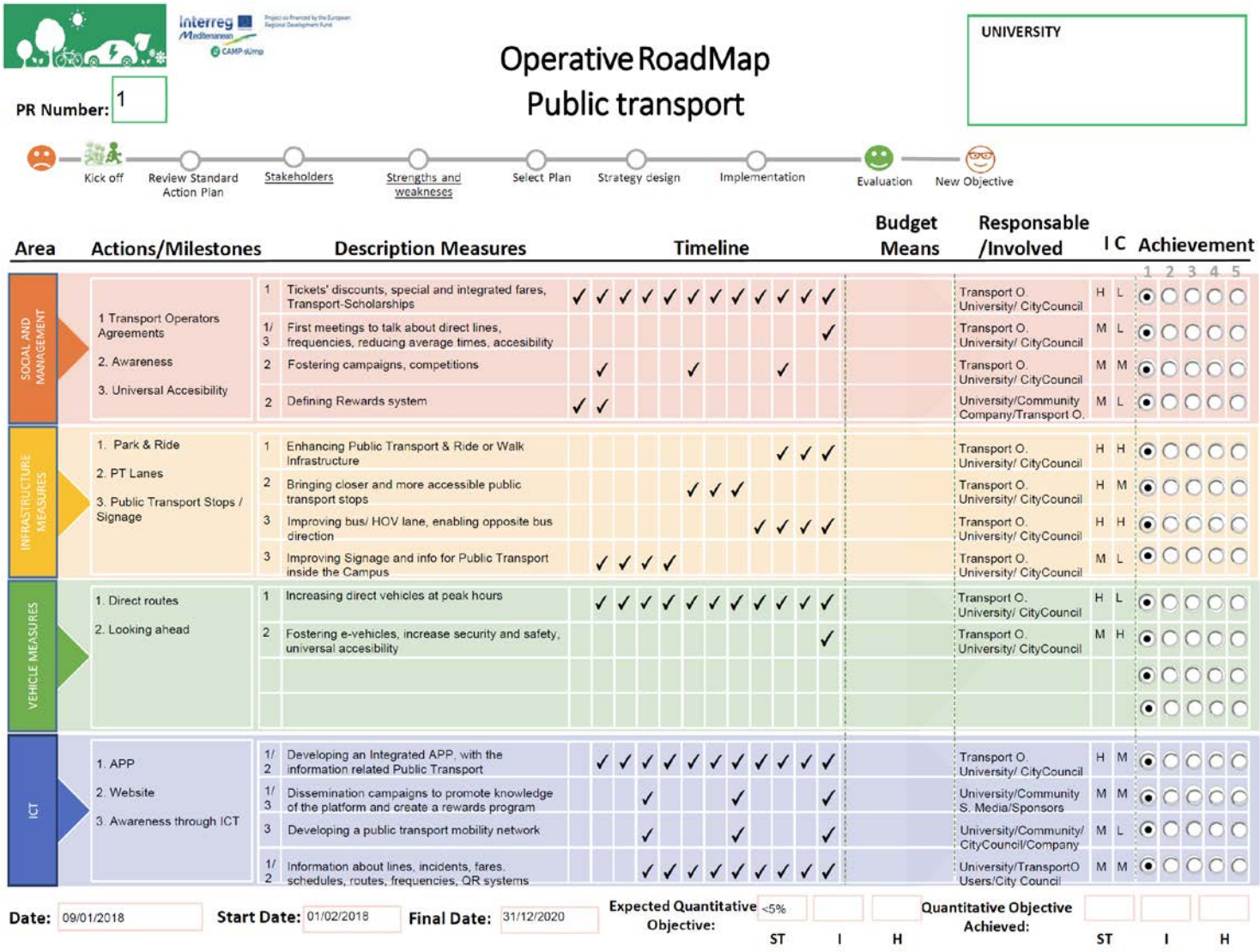
UNIVERSITY

Kick off → Review Standard Action Plan → Stakeholders → Strengths and weakneses → Select Plan → Strategy design → Implementation → Evaluation → New Objective

Area	Actions/Milestones		Description Measures	Timeline	Budget Means	Responsable /Involved	I	C	Achievement 1 2 3 4 5
SOCIAL AND MANAGEMENT	1. Awareness 2. Incentives & Discounts 3. Enhancing security within cycling network 4. Cycling attitudes	3	Informing about Security and Connected Cycling Routes	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓		University/ Users City Council/Bike O.	M	L	● ○ ○ ○ ○
		2	Incentives and rewards program for using the bike. Bike day, Library Bike Repository	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓		University/ Users/ Companies	H	L	● ○ ○ ○ ○
		1/2	Health Campaigns and trainings, courses for avoid thefts, maintenance, security and safety ride	✓ ✓ ✓		University/Community/ Companies	H	M	● ○ ○ ○ ○
		4	Analysis of the attitudes, uses, modal split and the predisposal of Cycling	✓ ✓		University/Users	M	L	● ○ ○ ○ ○
INFRASTRUCTURE MEASURES	1. Improve security at intersections and Access 2. Improve Parking Security 3. Locker and Shower services 4. Bike Space/Point	1	Creating Crosswalks, add signal information, improving light conditions and pavement	✓ ✓		University/City Council/Companies	H	H	● ○ ○ ○ ○
		2/3	Allowing Parking inside Buildings and access, increase surveillance, cameras, lighting system	✓ ✓ ✓ ✓		University/Users / Companies	H	M	● ○ ○ ○ ○
		1/3	Increasing cycling areas inside the campus (access,security, well connected) Park & Ride	✓ ✓ ✓ ✓		University/City Council/Companies	H	M	● ○ ○ ○ ○
		4/3	Developing an integrated Bike service (renting, parking, maintenance, workshops, discounts)	✓ ✓ ✓ ✓		University/CityCouncil Companies/Users	H	M	● ○ ○ ○ ○
VEHICLE MEASURES	1. Medical Contact & Reppair Kit 2. Improving Intermodality Public Transport + Cycling 3. Registers to avoid theft 4. Renting University Fleet	1	Creating a cyclists service (doctor, physiotherapist, trainners, campuses' reppair kit)	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓		University/Users/ Companies	M	L	● ○ ○ ○ ○
		2	Allowing to take the bike in the Public Transport	✓ ✓ ✓ ✓ ✓ ✓		University/City Council/Transport O.	M	L	● ○ ○ ○ ○
		3	ID Register to prevent thef	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓		University/ Companies/ Users	M	L	● ○ ○ ○ ○
		4	Adcquire fleet of renting bikes + Safety Kit (lockers, helmet, reflective jacket, ring, ligth)	✓ ✓ ✓		University/Users/ Companies	H	H	● ○ ○ ○ ○
ICT	1. APP and Website 2. Register system 3. Awareness and Green Information 4. Incentives System	1/4	Developing Cycling APP (routing, incentives, competitions, health, green info, services)	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓		University/Community/ Companies	H	M	● ○ ○ ○ ○
		3/4	Dissemination campaigns & developing a social cycling network	✓ ✓ ✓		University/Community S. Media/Sponsors	H	L	● ○ ○ ○ ○
		2	Informing & Fostering APP register for bike property	✓ ✓		University/Users /Companies	M	L	● ○ ○ ○ ○
		3	Sensoring bikes to monitor and register about behaviours, CO2 emissions	✓ ✓ ✓ ✓		University/CityCouncil Users/Companies	M	L	● ○ ○ ○ ○

Date: 9/12/018 Start Date: 1/2/2018 Final Date: 31/12/2020

Expected Quantitative Objective:	<5%			Quantitative Objective Achieved:			
	ST	I	H		ST	I	H



Operative RoadMap Public transport

PR Number: 1

UNIVERSITY

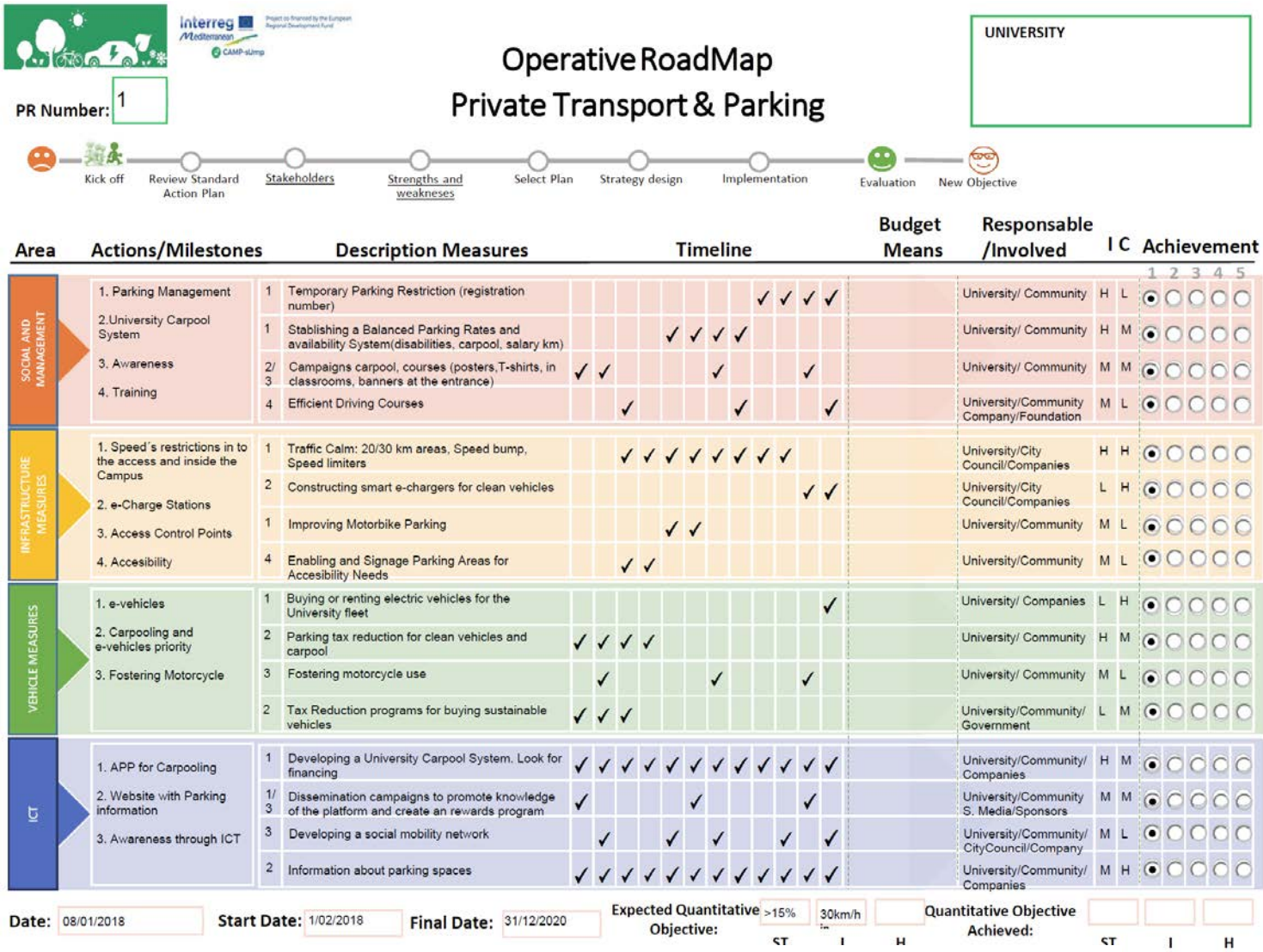
Kick off → Review Standard Action Plan → Stakeholders → Strengths and weakneses → Select Plan → Strategy design → Implementation → Evaluation → New Objective

Area	Actions/Milestones		Description Measures	Timeline	Budget Means	Responsable /Involved	I	C	Achievement 1 2 3 4 5
SOCIAL AND MANAGEMENT	1 Transport Operators Agreements	1	Tickets' discounts, special and integrated fares, Transport-Scholarships	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓		Transport O. University/ CityCouncil	H	L	● ○ ○ ○ ○
		1/3	First meetings to talk about direct lines, frequencies, reducing average times, accesibility	✓		Transport O. University/ CityCouncil	M	L	● ○ ○ ○ ○
	2. Awareness	2	Fostering campaigns, competitions	✓ ✓ ✓		Transport O. University/ CityCouncil	M	M	● ○ ○ ○ ○
	3. Universal Accesibility	2	Defining Rewards system	✓ ✓		University/Community Company/Transport O.	M	L	● ○ ○ ○ ○
INFRASTRUCTURE MEASURES	1. Park & Ride	1	Enhancing Public Transport & Ride or Walk Infrastructure	✓ ✓ ✓		Transport O. University/ CityCouncil	H	H	● ○ ○ ○ ○
	2. PT Lanes	2	Bringing closer and more accessible public transport stops	✓ ✓ ✓		Transport O. University/ CityCouncil	H	M	● ○ ○ ○ ○
	3. Public Transport Stops / Signage	3	Improving bus/ HOV lane, enabling opposite bus direction	✓ ✓ ✓ ✓		Transport O. University/ CityCouncil	H	H	● ○ ○ ○ ○
		3	Improving Signage and info for Public Transport inside the Campus	✓ ✓ ✓ ✓		Transport O. University/ CityCouncil	M	L	● ○ ○ ○ ○
VEHICLE MEASURES	1. Direct routes	1	Increasing direct vehicles at peak hours	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓		Transport O. University/ CityCouncil	H	L	● ○ ○ ○ ○
	2. Looking ahead	2	Fostering e-vehicles, increase security and safety, universal accesibility	✓		Transport O. University/ CityCouncil	M	H	● ○ ○ ○ ○
									● ○ ○ ○ ○
									● ○ ○ ○ ○
ICT	1. APP	1/2	Developing an Integrated APP, with the information related Public Transport	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓		Transport O. University/ CityCouncil	H	M	● ○ ○ ○ ○
	2. Website	1/3	Dissemination campaigns to promote knowledge of the platform and create a rewards program	✓ ✓ ✓		University/Community S. Media/Sponsors	M	M	● ○ ○ ○ ○
	3. Awareness through ICT	3	Developing a public transport mobility network	✓ ✓ ✓		University/Community/ CityCouncil/Company	M	L	● ○ ○ ○ ○
		1/2	Information about lines, incidents, fares, schedules, routes, frequencies, QR systems	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓		University/TransportO Users/City Council	M	M	● ○ ○ ○ ○

Date: 09/01/2018 Start Date: 01/02/2018 Final Date: 31/12/2020

Expected Quantitative Objective: <5% (ST) | (I) | (H)

Quantitative Objective Achieved: (ST) | (I) | (H)



UNIVERSITY

Operative RoadMap
Private Transport & Parking

PR Number: 1

Kick off | Review Standard Action Plan | Stakeholders | Strengths and weakneses | Select Plan | Strategy design | Implementation | Evaluation | New Objective

Area	Actions/Milestones		Description Measures	Timeline	Budget Means	Responsable /Involved	I	C	Achievement 1 2 3 4 5
SOCIAL AND MANAGEMENT	1. Parking Management	1	Temporary Parking Restriction (registration number)	✓ ✓ ✓ ✓		University/ Community	H	L	
	2.University Carpool System	1	Stablishing a Balanced Parking Rates and availability System(disabilities, carpool, salary km)	✓ ✓ ✓ ✓		University/ Community	H	M	
	3. Awareness	2/3	Campaigns carpool, courses (posters,T-shirts, in classrooms, banners at the entrance)	✓ ✓ ✓ ✓		University/ Community	M	M	
	4. Training	4	Efficient Driving Courses	✓ ✓		University/Community Company/Foundation	M	L	
INFRASTRUCTURE MEASURES	1. Speed´s restrictions in to the access and inside the Campus	1	Traffic Calm: 20/30 km areas, Speed bump, Speed limiters	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓		University/City Council/Companies	H	H	
	2. e-Charge Stations	2	Constructing smart e-chargers for clean vehicles	✓ ✓		University/City Council/Companies	L	H	
	3. Access Control Points	1	Improving Motorbike Parking	✓ ✓		University/Community	M	L	
	4. Accesibility	4	Enabling and Signage Parking Areas for Accesibility Needs	✓ ✓		University/Community	M	L	
VEHICLE MEASURES	1. e-vehicles	1	Buying or renting electric vehicles for the University fleet	✓		University/ Companies	L	H	
	2. Carpooling and e-vehicles priority	2	Parking tax reduction for clean vehicles and carpool	✓ ✓ ✓ ✓		University/ Community	H	M	
	3. Fostering Motorcycle	3	Fostering motorcycle use	✓ ✓ ✓		University/ Community	M	L	
		2	Tax Reduction programs for buying sustainable vehicles	✓ ✓ ✓		University/Community/ Government	L	M	
ICT	1. APP for Carpooling	1	Developing a University Carpool System. Look for financing	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓		University/Community/ Companies	H	M	
	2. Website with Parking information	1/3	Dissemination campaigns to promote knowledge of the platform and create an rewards program	✓ ✓ ✓		University/Community S. Media/Sponsors	M	M	
	3. Awareness through ICT	3	Developing a social mobility network	✓ ✓ ✓ ✓		University/Community/ CityCouncil/Company	M	L	
		2	Information about parking spaces	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓		University/Community/ Companies	M	H	

Date: 08/01/2018 Start Date: 1/02/2018 Final Date: 31/12/2020

Expected Quantitative Objective: >15% (ST) 30km/h (I) (H)

Quantitative Objective Achieved: (ST) (I) (H)

Figure 30. Example 1 Operative Roadmap . CAMPsUmp Project.

5 Proposal for Roadmap Dissemination and Social Media

The objectives of the communication plan are to inform of the implementation of the action plan and to achieve a positive attitude towards the changes that are intended to be carried out in mobility, prioritizing sustainable mobility. To develop the communication plan, it is necessary to draw up some main objectives, a strategy, and have people who are willing to get involved in the task. The communication plan must be designed in several phases, taking into account the means that will be used in each of the phases. An important aspect to consider is ICT, mainly social media, social networks, alerts and messages. Finally, it is important to carry out a follow-up to assess its impact.

Some aspects that can help the University to achieve good communication are the following:

- When presenting a communication campaign to promote sustainable mobility, it is important to present the advantages of using sustainable mobility compared to other alternatives. For example, it is worth highlighting: saving money, improving public space, universal accessibility, reducing accidents and injuries, improving health and study conditions, reducing emissions ...

- It is important to establish communication channels: create a space for social debate (meetings, interviews, discussion groups, round tables, events, blogs, suggestions mailbox, web page, social networks, press, radio, TV, bulletin of the University , Informative posts ...).

- Recruitment is necessary to achieve adequate dissemination. One has to find people who really want to participate in the process of spreading the information. For this, it may be necessary to establish a series of rewards such as academic credits, free trips or gifts such as t-shirts, caps, etc. It is advisable to perform training courses in sustainable mobility, awareness and communication for those people specially involved in these tasks.

- The participation process can start with emails, calls to participation casted by the Chancellor of the University or another authority in charge of these topics.

- The use of informative meetings, student focus groups and volunteer campaigns are strategies to increase participation. It may be relevant to invite ONGs to meetings.

- The use of different methods increases participation. Thus, it is convenient to use printed material (brochures, posters), as well as online material (website, blogs and social networks).

- A strategy to disseminate information is to hold meetings at the University, create a Forum or a Sustainable Mobility workgroup, and create synergies with other scheduled events.

- The creation of messages and slogans aimed at each type of mobility: Walking, Use of the Bike, Use of Public Transport, Use of private transport and Carpooling, which have an impact on users are important elements for good communication.

- For the plan to work properly, once the collaborators, messages, media and strategies have been established, it is important to carry out a broad communication campaign to inform the entire University Community of the Mobility Plan, incorporating both offline and online media. Among the offline media we suggest the realization of informative sessions at the University, information booths and promotions, development of a mobility plan guide, advertising on the panels of the university centers, buses, subway, train, press conferences, radio and Local TV, promotional video by the volunteers or by students of the university. Establishment of synergies with NGOs and local associations. Within online communication, the creation of an application or integral platform of mobility that gathers all the information of the plan, as well as a blog in which comments can be made and combined with the social networks of Facebook and twitter. The use of email to the University members to distribute information and encourage the use of the application, as well as the use of the blog, social networks, messages and alerts are fundamental tools to be taken into account. Depending on the available resources, offline or online activities can be programmed. In case of scarce resources it is advisable to focus on the online communication channel since it has a very low cost and can reach all users.

- It is also important to carry out an evaluation, feedback and follow-up of the plan to adjust it to the results obtained. The monitoring can be done from the contributions to blogs and social networks. On the other hand, the accounting of visits to the web or of the downloads of the integral application can be a good indicator of the effectiveness of the Communication Plan.

Below, a Roadmap Dissemination Proposal is shown, which is an example of what could be a sequential planning of actions of communication.

Roadmap Dissemination Proposal

ACTION	GOALS	PROGRAMMING	RESPONSABLE	STAKEHOLDERS
Kick off meeting	• Explaining state of the situation • Clarifying goals of the plan • Reaching volunteers- making community • Agreements with NGOs, third sector cooperation…) • Designing an email where to explain the advantages/ incentives of being a volunteer	First meeting	University Sustainable Mobility Center (USMB)	• USMB • Chancellor or Vice-chancellor of Mobility • Students Representative • Work-force Union • City Council • Transport Operators • NGO´s and Third Sector • Others
Massive mailing to students and to University community	• To Inform about Mobility Plan and achieving volunteers for communication issues • To determine and to create a Focus Group	Online Activity	Chancellor or Vice-chancellor of Mobility	• Sustainable Mobility Department • Chancellor or Vice-chancellor of Mobility • Students • Workers • NG0 and Third Sector
Focus Groups	• Explaining state of the situation • Clarifying the Sustainable Mobility Plan • To descript the integrated mobility system (APP) • Volunteers' Welcome • Defining slogans to: walk, cycling, enhancing Public Transport use, reducing private transport, enhancing carpooling • Designing the training course for volunteers	Different focus groups can be developed to achieve those objectives	University Sustainable Mobility Center	• USMB • Chancellor or Vice-chancellor of Mobility • Volunteers (students, workforce, NGO´s, Transport Operators, City Council)
Planning Actions	• From the Focus Group results • Posters design, leaflets, website, videos, blog, social media, promotional actions • Agreements with the benefits and reward systems	Different sessions can be developed to achieve these objectives	University Sustainable Mobility Center	• USMB • Trying to imply target students: communication, audiovisual sciences, marketing, psychology • Volunteers
Making Visible Sustainable Mobility	• Mailing with the information of the events (European Week of Mobility/ The day Without Car, Round Tables,…) • Posters and leaflets around the University • Presenting Sustainable Mobility Plan with its advantages • Presenting the website, blog, social media • Enhancing the use of the APP of Sustainable Mobility • Promoting Cycling (bike points within University) Enhancing the use of public transport • Lotteries, competitions (free trips on public transport and others rewards) • Getting feedback and public opinions	It can be organized different events related to different sustainable modes of transports	University Sustainable Mobility Center	• USMB • Volunteers • Students • Work force • Communication (TV, Radio, University news, University Website)
Assessment Meeting	• Feedback • Rating • Impact assessment	One session	University Sustainable Mobility Center	• USMB • Students Representative • Work-force Union • City Council • Volunteers • Transport Operators • NGO´s and Third Sector • Others
CAMP-sUmp Spot	• To create an Information Sustainable Mobility Spot; informing about the actions of the Plan • Making Community	Regular/ transversal	University Sustainable Mobility Center	• USMB • University • Volunteers
Displaying	• Bus posters, metro, tram, train • Leaflets distribution, Mobility guide and Integrated APP • Posters around University Area • Newsletter, mailing, website, blog, social media and integrated APP • Welcome Meeting for new students with all this information	At the beginning of each course there should be a Sustainable Mobility Meeting with the students of the university and exchange students.	University Sustainable Mobility Center	• USMB • Volunteers • Students • Work force • Citizens • Communication ((TV, Radio, University news, University Website)
Assessment Meeting	• Feedback • Rating • Official Certificates and acts of gratitude to the volunteers • Impact assessment • Updating results on the website and APP • Monitoring: Review and Adjust of the Dissemination Plan and Mobility	Annual	University Sustainable Mobility Center	• USMB • Students Representative • Work-force Union • City Council • Volunteers • Transport Operators • NGO´s and Third Sector • Others
Monitoring of the Plan	• Designing a survey to know if the objectives of the Mobility Plan and the Communication Plan proposed have been achieved	An assessment survey 6 months after the Plan. Then, do it annually.	University Sustainable Mobility Center	• USMB • Volunteers • Students • Workers
RESTARTING THE PROCESS. LOOKING AHEAD: NEW ACTIONS AND UPDATING				

Figure 31. Roadmap Dissemination Proposal CAMPsUmp Project.

Roadmap Social Media Proposal

Sustainable Mobility & Social Media Displaying	• BLOG (relevant info, articles, users interdisciplinary, community participation, sponsors collaboration, Free & Online Resources) • Being update with the main and influential Social Networks: Youtube/ Twitter/ Facebook/ Instagram/ Pinterest (suiting the campaigns to each of the social networks formats, their target audience and actively involve them with post contests, photos, tweets, videos) • Sharing content from the community and other Universities/ Sustainable Initiatives Online/ Social Media Contests and Competitions • Updating results on the website and APP • Monitoring: Review and Adjust of the Mobility Plan and Communication Plan • Newsletter and volunteers platform • Rewards' platform linked with the social Media. • Looking ahead: New incentives and actions	3-4 posts weekly Each 3 months Social Media review & analysis Each month thematic Campaigns (posts, videos, tweets, photos) Being Updated	University Sustainable Mobility Center Marketing, Environmental and Computers Science Students	• USMB • Volunteers • Students/ Community • Workers • Sponsors

Figure 32. Roadmap Social Media Proposal CAMPsUmp Project.

6 Catalog of goals, indicators and applicable measures to create your Roadmap

The list of measures applicable to create a roadmap was drawn from several sources. So, for instance, one of the instruments consulted was the "Roadmap support tool in the Study On European Urban Transport Roadmap 2030", which the information on sustainable mobility was obtained in the Conferences of chancelors of the Universities and Congresses of Sustainable Mobility in the Universities. We have also consulted different SUMPs and actions established by Universities in relation to Sustainable Mobility. However, the main source for making up the Catalog was the experience and good practices of the CampSump project partners, as well as the SWOT and GAP analysis carried out in the project. So, the SWOT analysis (report 3.3.1) has provided a list of the most appropriate solutions by means of an analysis of their strengths, weaknesses, opportunities and threats, which help to establish a realistic implementation design of the SUMP. The GAP analysis (report 3.3.2) has provided information about the deficiencies found in order to achieve the objectives and develop an effective list of sustainable mobility instruments and policies. From these sources, we have tried to identify the most promising measures of sustainable mobility at the universities, always taking into account the implementation costs and the efficiency of the measures. These efforts should support the decision makers in the participating universities to carry out the implementation of the Action Plan of the SUMP. The ultimate

objectives are to achieve more sustainable, competitive and secure mobility allowing for greater accessibility and a greater shared space withsoft modes.

The strategic lines are mainly aimed at a lower use of cars and a greater use of public transport, cycling and walking. These measures will have a positive impact on the quality of life of students, staff, and the environment through the improvement of the mobility system. An appropriate aspect to consider on sustainable mobility, as a cross-cutting matter is the Gender equity on mobility and the safety for women while commute to/from and inside the MED campuses. So that, this catalog includes some measures with the aim to improve safety conditions of girls and women. Besides this, another goal is promoting and increasing their active mobility reducing their specific gender risks.

In this section, a narrative description of the content of the measures and a definition of the expected outcomes is made.

The set of measures proposed make up a toolbox available in each case . Each university can select some of tools in it and combine them in order to create a realistic plan adjusted to its objectives, effectiveness, effectiveness of the measures and the costs that it is ready to assume. A key element when establishing the roadmap is the available budget, since depending on this aspect, it may be necessary to undertake the measures in a different way in order to achieve the desired outcome.

Further, in this section, we will discuss a number of goals and indicators that may by of help to universities. These indicators can be used to draw the baseline for calculating the impact of the measures undertaken.

6.1 Strategic line: Cross Cutting aspects

Goals

- Obtaining a mobility diagnosis from the different campuses of the University. To know the reality of the campuses, in relation to the mobility demand of the different groups and the different modes of displacement that exist
- Knowing the disposition and reasons to change habits
- Defining measures, indicators and periods for the evaluation and monitoring of the plan
- Betting on a secure and accessible campus, less noisy and less polluting
- Promoting a new culture of mobility in the University

- Collaborating in achieving a calm and safe mobility that allows a more pleasant city and enjoying walking and cycling complemented by public transport
- To achieve healthy and sustainable habits among the members of the university community
- Getting higher use of the bicycles, decreased use of private vehicles and facilitate public transport
- Achieving that non-motorized modes of transportations become the most used means of transport
- Getting a real transport alternative to the car
    - Improving non-motorized mobility (walking and cycling).
    - Improving public transport.
    - Improving universal accessibility.
    - Facilitating movement, accessibility and parking for people with disabilities on campus
- Encouraging and fostering the use of public transport and discouraging the use of private vehicles
- Raising awareness about the problems of road accidents at the university community
- Finding solutions to mobility that does not increase the use of land
- Ensuring coexistence between different ways of getting around the campus
- Reducing traffic congestion, fostering safety paths and preventing negative environmental impacts of mobility.
- Strengthening the capacity of the university to be an engine of sustainable mobility with innovative initiatives
- Promoting the use of cleaner energy transportation
- Fostering rational use of private motorized vehicles by car sharing models.
- Establishing strategies for managing mobility.
- Developing a section of good practices in sustainable mobility that will support other universities.
- Educating and informing the university's community about the different modes of mobility
- Taking measures for integrating information, communication, awareness and participation for promoting sustainable mobility and road safety.
- Encouraging the participation of the university community on issues of mobility and accessibility.
- Improving the information on mobility and transport

Example of specific objectives

- CO2 emissions. For example: 20% reduction in greenhouse gas emissions by 2030.
- Noise reduction. For example: Any stree with higher noise than 65 decibels per traffic.
- Reduction of traffic congestion: Reducing vehicle traffic in internal rounds. For example, less than 1000 vehicles per day. Max number of users of the University who use the car per day will be of 25%.
- Reducing road accident victims
- Improving the perception of the University Community regarding safety in their movements.

Examples of indicators

Modal Indicators

- Testing what modes of transport are faster, more efficient and more sustainable for the university
- Increasing/decreasing number of people of the university using the various modes of transport.
    - % Of public transport users
    - % Of car users share
    - % Of users walking and cycling

- Indicator for transportation of freights

Accessibility Indicators

- Number of parking spaces reserved for the disabled
- Actual usage of car parks reserved for the disabled
- Number of disabled people enrolled at the University

Transport Indicators

- Percentage of mode of transport by user type (student / worker) (Public / Tourism)
- Modal distribution of the type of transport normally used
- Average journey time
- Average distance per route
- Alternative vehicles
- Use of the Bicycle
- Passengers-km
- Private-public transport combination
- Taxi fares
- Indicators of supply, demand and impacts

Environmental indicators (emissions)

- Emissions of CO2 and others (PM, CO, NOx, VOCs)
- Air Pollution Indicators
- Indicators of noise pollution
- Time wasted due to traffic congestion
- Vehicle speed
- Frequency of vehicles
- Journey time (by car, public transport, cycling and walking)
- Carbon footprint (amount of emissions due to mobility)
- Ecological footprint
- Evolution of carbon footprint or associated with the mobility of the university community in their home-university trips

Economic indicators

- Monthly travel expenses per person
- Expenditure on public transport of the administration
- Income of the public transport for the administration.
- Parking income
- Expenses for the University
- Investment costs in administration measures
- Calculation of energy consumption
- Cost of the trip (by car, public transport, cycling and walking)

Personal indicators

- Satisfaction with mobility
- Health condition
- Satisfaction with helping the environment

Safety indicators

- Traffic safety
- Incidentality index
- Accident rate
- Slight injuries rate due to crashes
- Serious / fatal injury rate due to crashes

Social and mobility management measures

- Study of mobility: To analyze the mobility study methods, mechanisms and needs to improve sustainable mobility and encourage the use of public transport. Suggest appropriate measures from these results
    - Survey mobility habits of the university community. It may be biannual online, e-mailed with questions to characterize the modal spatial distribution, temporal and commuting to the university, the desired mobility and mobility issues in each mode, reasons for choice of transport mode, travel to other centers, assessment of measures implemented, mobility reasons to change habits of mobility, willingness to participate in planned activities of the mobility plan, major barriers and strengths, satisfaction, differentiated by user type, age, sex and regular campus. Aimed at students and staff. Maintain online survey format available for at least three months, voluntary and anonymous. It is important to disseminate the results and perform diagnostics mobility in all centers. On the other hand, an analysis of emissions and the calculation of the ecological footprint each year (Example: University of Vigo) must be made and a monetary, environmental and social cost of using each mode of transport established
    - One way to obtain information on mobility of the entire community of students is the inclusion of questions on mobility when they register. (Family home, address during the course, length of trips, estimated cost of displacements)

- Development of monitoring and evaluation tools (indicators) for the introduction of sustainable mobility at the University
- Research capacity of the University to support initiatives that contribute to a more sustainable mobility
- Designing, advertising and distribution of a guide to sustainable mobility for the campus. It can be delivered during the registration process to all groups of the university community. The guide should include a campus map with the location of buildings and services, the supply of transport available and rates comparasive of the cost and time of the different modes of transport and information about the benefits of using sustainable mobility information on mobility and transport web and mobile application, if available, as well as platforms and services offered by the University. (Example: University of Barcelona Cost of 44,000 leaflets is 8,580 euros). It is important to seek funding and local collaboration with transport operators

- Using an information point on campus to disseminate information on sustainable mobility
- Implementing courses for women focused on the importance of active mobility for health and prevention of diseases in women
- Setting up a University Mobility Workgroup in order to establish a participatory body to stimulate discussion and reflection regarding the problems of mobility at the University and monitoring plan. Another function of the Mobility Workgroup is to reach a consensus on proposals for action. Mobility responsibles have to work with the relevant authorities to promote sustainable mobility and report the need for improved on infrastructures and services to the Administrations. This board must be made of university departments involved in mobility, workers' representatives, student representatives, transport operators involved, user associations, the Local Authority, etc. It may involve different universities if they are in contiguous locations. This board might arrange meetings every two or three months. Announcements can be made by email
- Creating an office, center, or Mobility Observatory at the University in order to formally monitor mobility needs and the strategic plan as well as managing mobility on campus. One mobility department might be created at each campus
- Creation of a Chair of mobility with the objective of fostering research in this area
- Have a subject or training module for sustainable mobility and universal accessibility
- Creating the role of a Mobility Agent which will would be in charge of launching campaigns, management and control of the distribution of promotional materials, surveys and monitoring, information visits, participating in development, monitoring, evaluating improvement plan, organization exhibitions and competitions, updating events on the website and social media, public relations, and so forth (Example: European Project BENEFIT (www.eu-benefit.eu)
- Appointing a mobility coordinator and conducting training courses
- Actions in the field of information, awareness and promotion of sustainable mobility:
    - Entering the aspect of sustainable mobility in the initial meeting welcome the new students
    - Presenting results of mobility study
    - Distributing of Sustainable Living transport guides

- Publishing mobility data periodically in the magazine of the University
- Carrying out campaigns to encourage the use and prioritization of more sustainable modes of transport, leading to a reflection on the indiscriminate use of private vehicles, the negative effects of private motor traffic and the positive effects of riding a bicycle, walking and public transport, including the effects on the environment and health
- Raising awareness of the value of public space and promoting interest in the environment
- Incrementing the knowledge of options for sustainable transport at the university
- Giving out poster, brochures and leaflets of information campaigns, awareness and marketing sustainable mobility and road safety including mobility advice
- Developing manuals of best sustainable practices aimed at the university community
- Implementing activities to strengthen the image of public transport (eg celebrating the anniversary of the public transport company bus, gifts, etc.)
- Involving students in developing advertising designs logos, posters, magazine to promote walking, cycling, carpooling and using public transport
- Involving students in developing communication video, video-clip for promoting sustainable mobility
- Involving students in the developing of a communication videos, video-clips and dissemination campaigns regarding sustainable mobility awareness
- Offer a title of a mobility specialist
- Producing short television adverts, radio clips, and newspaper articles for fostering sustainable urban transport
- Realization of a Photography's Sustainable Mobility Contest
- Making a contest of slogans for promoting the use of sustainable transport modes
- Improving competition among students for sustainable mobility. The goal is learning different ways of carrying out mobility and making proposals for action. It is advisable to seek sponsors for the contest. It is preferable to use social networks for spreading the word about the contest, website of the University, Media ... The prize

can be a bike, electric bike, voucher to use in bicycle parts stores, public transportation bonds ....

- Organizing a Car-free Day
- Young road safety plan
- Event for sustainable mobility
- Creating a Green Travel (PGT) Plan with awareness activities related to sustainable mobility, use of public transport, cycling, walking, creating a community of sustainable mobility, creating pedestrian route maps from different points of the city ...
- Celebration of European Sustainable and Safe Mobility Week: Event held annually to sensitize the university community of the benefits of using alternative means of transport to private vehicles and sustainable mobility. It includes:
  - Day Bike, which carried out promotional activities, information on training services, loans, maintenance and repair measures against theft, parking, exhibitions and tests of electric bikes, exhibition on the need for changing mobility, organizations, companies and associations
  - Cycling route along the University
  - Modes of transport Race: In this activity, several "runners" make a race using different modes of transport. This activity provides proof of the advantages of using sustainable means of transportation for accessing the campus. The participation of the university community that provides information about your daily commute is necessary. Charting different routes (10 to 20) from different parts of the city to the university and comparing the time duration, cost and CO2 emissions in public transport, cycling, walking and car. The prize could be public transport cards for participants. As an example the University of Barcelona has organized events like this.
  - Promoting carpooling at the University
  - Showing electric vehicles
  - Holding lectures and presentations on urban mobility, electric bikes, etc.
  - Stands and Tents with information, guides and brochures
  - Ecodriving Courses

It is very important to give out the material to broadcast a week before the event, the use of banners at the Campus entrances, posters with planning activities, as well as information on the website of the University, brochures/flyers put on (parked) campus cars, sending emails to the university community. Involve teachers to announce it in class. (As an example the event at Autonomous University of Barcelona did cost 2860 euros). It is desirable to have the collaboration of associations, foundations, professional electrical vehicles, industry expert speakers, etc

- Involving students of the university in computer science to create a comprehensive application for mobility at the university. Establishment of the prize (eg 3.000 euros)
- Creating a Club Membership for Sustainable Mobility that has incentives for sustainable behavior
- Creating a point of information to find the best alternative for accessing the various University buildings by public transport
- Establishing a system of incentives for behavior change. Creating a system of earning points that can be redeemed at university services (cafeteria, photocopies, University shop, parking) and other services (discounts in sports shops, movie tickets and theater), use of a virtual currency (gasoline, shops ...), free parking. In summary, establishing a system of rewards for participating in sustainable mobility programs, contests and awards
- Flexibility and posibility of teleworking in specific cases and in certain circumstances for the administrative, technical and support staff
- Establishing good institutional relations with other universities with similar location. Creating joint programs between different Universities. Sharing best practices. Creating a network of Universities for mobility for synergies. Creating a development consortium of the University Area if there are several universities that share a space or are very close
- Exploring funding solutions and technology. Applying for state funding to invest in sustainable mobility in exchange for reducing pollution. Gathering European funding for projects and establishing sustainable mobility measures. Gaining knowledge on availability of resources to invest. Seeking funding through programs, European funds ... to run and investigate actions of sustainable mobility workshops on financial management of projects and procedures
- Participating in European projects and programs for sustainable mobility
- Participating in programs of excellence in sustainability

- Adjusting the policies of the University to National and EU policies
- Involving the University in sustainable mobility plans of the city, region, province or state and in the planning land-use of the city. Developing a system of local mobility integrated with university mobility. Promoting coordination between the university administration and local and regional stakeholders on measures to improve mobility on campus. Involving politicians and users in the planning. Achieve agreements on the management of mobility between the city and the University
- Reaching agreements between different bodies of the University on coordination regarding sustainable mobility
- Fostering dialogue among stakeholders to carry out a policy planning in the unified mobility
- Expanding institutional relations with other administrations
- Getting acquinted with the reforms promoted by the government, political processes and programming, and so on
- Developing new mobility policies
- Promoting the realization of agreements with large companies and centers for the promotion of sustainable mobility
- Strengthening strategic agreements
- Promoting collaborations with other professionals
- Implementing projects promoting the generation of sustainable mobility tools that encourage user participation.
- Designing and implementing a Plan of Sustainable Mobility "University Campus".
- Periodic reviewing of the plan
- Limiting traffic in the center
- Taking into account the periods of increased traffic or peak demand for the development of university activities
- Managing parking for discouraging non-essential mobility by car
- Setting speed limits on roads
- Establishing the regulatory system of parking
- Implementation of a parking fees system
- Park and ride: offer free parking at subway stations and bus outside the urban areas.
- Managing and organizing the distribution of goods
- Reducing free parking space
- Disclosing information to the public for more efficient participation

- Carrying out campaigns for communication, awareness and the promotion of sustainable mobility

Infrastructure measures

- Traffic calming measures
  - Establishing limited speed zones (zones 30)
  - reducing the number of lanes, in order to increase safety
- Improving infrastructure at crossings
- Increasing network connectivity between buildings
- Green corridors inside the campus
- Definition of service roads one-way public transport
- Establishment of a new road system that restricts car use on campus
- Freeing up public space that is currently reserved for car use. Create new shared public space quality (gardens, hallways, cafeteria ...), no noise, no pollution, safe, attractive, which promotes contact and coexistence
- At the main entrances of the differents campus buildings have jurisdiction in parking areas reserved for disabled guests, they have to be well marked and under police control
- Guide urban development and design according to the criteria of sustainable mobility
- Promoting the design of the city serving the criteria of sustainable mobility
- Take into account sustainable mobility for regional planning
- Establishment of guidelines and criteria for urban design

Vehicle measures

ICT Measures

We recommend reviewing the ICT Report of the Campsump project (Deliverable 3.5.2 ICT Tools model and requirements for communication between different actors and planning instruments), which provides a very complete review of the most important measures and provides a comprehensive ICT model for the University.

- In order to disseminate information and raise awareness:
  - Creating a Pact for Sustainable Mobility. Creating a document as an electronic survey in which the user agrees on improving their sustainable mobility habits and to disseminate such an agreement by counting the number of participants, and allowing its dissemination by social networks and other means.

  - Internet and RSS boost, use Alerts and Keywords to distribute information about sustainable mobility and sensitize the university community.

- Designing of an integrated platform. This action requires a technical and institutional coordination between the different administrations with competencies in mobility. The platform must include: (check Deliverable 3.5.2 ICT Tools):
  - A comprehensive map of the entire transport network, including all modes.
  - A multimodal map with fast connections to the University.
  - Information on the different modes of public transport, routes, bike lanes, bike rentals, car sharing, and so on.
  - Information and advice about the various travel options on how to get to the University
  - Explore legislative aspects of mobility at the University
  - Information on incidents and conditions in real time that may affect the displacement (street, traffic intensity, information on public transport, public bike) Nearby (car parks, bus stops and subway stations bicycles bicycles and free terminals, public car parks with available seats, subway stations, bus stops, GPS alerts about heavy traffic etc, using technologies Smart city applied to mobility "SmartMobility." This information helps users make a better choice regarding transport modes, and it allows you to raise issues related to the application
  - Data Dissemination and campaigns on sustainable mobility, competitions, and so on
  - Allowing locating centers and services on campus, as well as encouraging sustainable ways of mobility inside the university
  - Gathering different applications related to mobility. For example:
    - An application for sharing information on mobility, parking tips, tips for car sharing, and so on.
    - Designing "Healthy Routes" to the University. Also, finding nice routes for going to the university and giving information about iconic buildings and tourist itineraries. The application would inform about calories burned, difficulty of the route, distance, heart rate and other health variables. (Example: Application of the University of Granada)

  - Application with ICT information and travel planning. Intelligent and integrated application for pedestrians, cyclists and public transport users.
  - Implementation of a system for mobility monitoring

- To increase security of women's while commuting, there are gender and transport applications. (See Deliverable 3.5.2 ICT Tools)
- Creating or improving the web of mobility and transport of the University, which must have the same information as the integrated platform
- Integrated transport card: Designing an integrated card that allows access to metro, bus, public bicycles, train. With a single payment it would allow access to all sustainable transport modes. The university can agree with the City and transportation partners on the way to carry out this card and the benefits it could have for the participants
- Involving research teams from the University and students in developing web platform and applications. Also involving the private sector and seek external funding
- Creating a mobile application that allows collecting information daily about the mobility of users of the University in order to meet the needs of movement of people. The Vjagg application is an example that can be mentioned (https://www.um.edu.mt/iccsd/projects/demandresponsivetransport/vjagg) (https://play.google.com/store/apps/details?id=mt.edu.um.vjagg&hl=es)
- Establishing a common fund for campus infrastructure maintenance
- Establishing technological management mechanisms for special events and emergencies
- Writing pieces of news. Film short videos
- Creating free resources
- Installing electronic panels with information at bus stops and subway with the most relevant incidents, information and news of general interest

6.2 Strategic line: Walking

Specific objectives

- Guaranteeing, facilitating and improving pedestrian access to the University
- Increasing the comfort, safety and attraction of the environment foreveryday walking
- Increasing the accessibility for the disabled

- Increasing the visibility of pedestrians for drivers
- Reducing the speed of vehicles on campus
- Promoting traveling on foot to the campus

Example of specific objective

- Increasing trips on foot to the University for users who live less than 3 km from the Campus by a 33%

Examples of indicators

- Number of pedestrian accidents at the entry ways and inside the campus
- Average speed of vehicles at the entry ways and inside the campus
- Number of users who go on foot to the campus

Social and mobility management measures

- Educating people about sustainables modes of mobility
- Raising awareness. Campaigns, information in a guide about sustainable mobility. Mobility week. See the above horizontal measures
- Agreeing with the City Council on the implementation of a "Safe Route to the University"
- Improving connectivity with public transport
- Creating main pedestrian routes interconnecting different parts of the University area on foot, taking into account the dimensional, functional connectivity and demand aspects. For example: 1) Residential Distribution of students and workers who are less than 3km from the University (about 30-45 minutes walk) or 2 km from the University (about 20-30 minutes). 2) Residential distribution of people living between 3 and 10 km from the University with interconnectivity to the starting point of the planned route on foot. 3) Users living outside town and reaching the city by train

Infrastructure measures

- Regulating pedestrian access to the University taking into account the habits of the university community for accessing buildings (through green areas for example)
- Signaling improved horizontal and vertical signs
- Improving junctions by:
    - Implementing crosswalks if needed
    - Improving horizontal and vertical signals
    - Optimizing the duration of green lights on crosswalks
    - Traffic lights adjustment to cater for pedestrians
    - Minimizing waiting time for pedestrians to cross

    - Modifying traffic lights to prevent pedestrians from being retained on traffic islands
    - Increasing the visibility of crosswalks by removing vehicles parked at corners
    - Improving highlighting
    - Improving the state of the pavement
    - Installing ramps for facilitating universal accessibility
- Augment pedestrian areas inside the campus
- Reordering parking lots
- Widening the sidewalks
- Pedestrian rest areas
- Improving accessibility and aesthetic appeal to encourage people to go on foot: improvements in gardening and urban furniture
- Enhancing infrastructure to improve accessibility for people with disabilities
- Applying measures for traffic calming
- Reducing the speed limit on certain streets
- Enabling a basic network of pedestrian routes
- Improving the pedestrian connection with the University area
- Transforming internal roads to streets, creating friendly spaces for mobility
- Restricting private vehicle traffic
- Enhancing the continuity to existing routes
- Establishing liaisons with other attractive itineraries
- Converting the Campus into a pedestrian priority zone
- Implementing intelligent management of pedestrian areas

Vehicle measurements

ICT Measures

- Creating a web application and platform with options for reaching the University on foot

To obtain further information look through the Deliverable 3.5.2 ICT Tools model and requirements for communication between different actors and planning instruments.

6.3 Strategic Line: Cycling

Specific objectives

- Diagnosing the level of bicycle use
- Facilitating the use of bicycles

- Communicating and promoting bicycle mobility and fostering its use
- Increasing the number of trips towards the University by bicycle
- Reducing bicycles thefts
- Improving the infrastructure for cycling
- Reducing abicycle ccidents and injuries
- Providing knowledge and skills for use bicycles with safety and comfort
- Promoting cycling as a mean of transport
- Promoting healthy habits in the university community
- Reducing air and noise pollution
- Promoting the participation of the university community in improving the environment
- Promoting the autonomy of the university community on the move

Example particular objective

- Increasing bicycle trips of users who live between 2 and 5 km from the University by 20%.

Examples of indicators

- Number of users that use a bicycle to go to the University per day
- Number of users who would like to go to the University by bike
- Number of bicycle thefts at the University per year
- Number of bike parks built
- Number of bike parks monitored / inside buildings
- Percentage of road network and bicycle lanes (km cycle sections x 100 / km of total road network)
- km of bike lane network (km bike lane)
- Public bicycle rental offer
- Number of trips by bike per user per day
- Percentage of trips by bicycle with respect to total of trips
- Percentage of accidents involving cyclists
- Number of cyclists injured and killed due to crashes
- Using access to private or reserved parking
- Number of km made by electric bike inside the campus
- Amount of CO2 and fuel saved
- Number of bicycle hires
- Number of bikes accessing the campus
- Number of users registered
- Number of participants in activities
- Number of seats occupied parking inside buildings

Social and mobility management measures

- Bicycle rental service for the university community
- Creating an office " Bicicampus " to manage a rental system, bicycle parking, storage area and periodic maintenance of bicycles. A cooperation with NGO´s and third sector may be requested. Staff for repairing and bicycles could belong to these associations, allowing also and promoting social and work inclussion related to people with disabilities
- Searching for co-financing for the purchase of bicycles and bicycle making deposits. (Financed by the University, Banks, ...)
- Bicycle transfer students
- Workshop "Hone your bike"
- Free workshops:
    - "Cycling University":
        - Learning to ride a bike (basic - intermediate level - advanced level)
        - Cycling Safety tutoring
        - Mechanical and basic bike repairs
    - Do not get your bike stolen. Tips to prevent bicycle theft
- Performing a poster contest, contest logo app for a bicycle. The award may be material for bicycles, or vouchers for bike loans. You can search for sponsors
- Creating a landmark of the Bicycle in the library with bibliographic and audiovisual collections related to the bicycle
- Conference: "Cycling University" which includes lectures, exhibitions, prizes and a bike path to college, tracing the safest route
- Carrying out specific courses for women on technical and repairing issues-
- Dissemination and promoting cycling competitions, rides and cycling and active mobility events for women
- Daily cycle route to the University for prospective university students coming from schools
- Campaign the health benefits of cycling
- Making of cycling routes planes
- Metrobici. Calculation of the journey time from different points of the city to the University by bicycle
- Biciregister. Bicycle registration service, in order to deter theft of bicycles and their easy retrieval in case of theft. Through this system it is possible to find bikes which are stolen, receive information related to it, email and identify the bicycle with the owner by durable stickers that are handed at registering
- Contest for the design of bicycle parking

- Recycling Day for Bicycles
- Campaign against bicycle thefts
    - Campaigning for the proper use of bicycle parking and padlocks in order to inform and teach how to properly use bicycle anti-theft systems and increasing the sense of security among users and potential users of bicycles
- "Cycling to work" Weeks
- Campaign for promoting the use of the cycleway
- Involving the council in the Plan of the University as well as the transport operators, as they are very important players
- Accessing municipal public bicycles with the campus card and at a special rate for this group
- Specification of the places of public bikes
- Training in proper riding in urban environments and good practices for preventing thefts while parking
- Giving out information on cycling and health
- Promoting specific actions for the use of bicycles as ideal transport and increased visibility of the bicycle in the media.
- Renting bicycle purchases
- Program for purchasing bicycles per administrative, technical, support and academic staff
- Events for promoting bicycle use
- Creating incentives for workers and students who enter the university by bicycle
- Strengthening the conditions of use with road safety campaigns
- Nextbike: Bike sharing system to connect both the metro and buses to the campus
- Agreements between the University and bicycle rental companies facilitating access to this means of transport in a less expensive way
- Management of bicycle rental stations at peak times
- Evaluating and submiting the application to the City Council to allow circulation of electric bicycles on bus lanes
- Implementing bike and ride
- Supporting programs for enhancing the design and innovation in creating innovative bicycles
- Surveillance personnel to prevent bicycle theft
- Taking into account the topography of the city (uphill, downhill, mountains) which can difficult the use of cycling

- Educating people about smooth mobility. Need for awareness from all road users on traffic calming
- Increasing Facilities for bicycle users
- Improving intermodal public transport
- Integration among the various transport services
- Banning selling bicycles in second hand markets
- Increasing the quality of public bicycle service
- Analyzing travel distances, slopes or terrain, the current network, parking areas, the existence of services bicycle loan
- Developing a bicycle network accessible from all university buildings, connected among themselves and with the urban area, integrated with other means of transport, safe, segregated, appropriate to the type of slope or land, which can offers real possibilities of displacement
- A calculation-forecast of bicycle parking spaces per unit. The proposed provision of bicycle parking at each site taking into account the type of user, the number of users and forecasting center, if there is a study room or a library
- Nocturnal parking
- Expanded service for bicycle rental: daily, weekly, or per academic year. For example reach 1-2% of the university community
- Daily rental at the bus station or train
- Create a service point for cycling at each campus
    - Service maintenance shop or loan repair tools
    - Night parking service
    - Registration in the applications for bicycle hiring
    - User information service: bicycle parking, intermodality, access, sharing, services, facilities…
    - Organizing activities for promoting the use of bikes such as: training workshops, repairing and maintenance, cycling itineraries, recognition activities that regularly use the bike around campus.
    - Maintenance, infrastructure, signaling, pruning of trees near bicycle lanes, etc

- Workshops for active mobility. Urban cyclists teach the skills to travel independently and in a respectful way
- Competition for the design of modular safest parking for bikes. (Example: University of Granada . Prize: 600 euros and the construction of two bicycle parking)
- Create a favorable climate for bicycle

Infrastructure measures

- Improvement and maintenance of road and crossing conditions:
  - Improving access to soft modes at the University
  - Provision of access to university
  - Horizontal and vertical signage
  - Lighting conditions
  - Pavement
  - Universal accessibility improvements

- Improving bicycle route network
  - Layout and design of a basic network of cycle routes
  - Improving the network, connecting itineraries with bicycle from nearest urban areas to the campus
  - Creating and Expanding the internal network of bikeways
  - Extending the bicycle network
  - Increasing and improving facilities and bike paths for expaning and consolidating the cycling network of the city
  - Traffic calming measures
  - Reserving bicycle lanes
  - Speed limits
  - Installing elements that separate the cycling network of motorized transport within the campus
  - Improving the design of the cyclist infraestucture and decreasing the danger in sharing the bike-car space. Ensuring good cycling infrastructure
  - Allowing displacements in opposite directions in certain areas. Bicycle traffic in both directions on the streets of zone 30
  - Designing safe cycling routes and sustainable connections from different parts of the city (regional stations arrival) and the University
  - Improving the cycling connection with the city
  - Inter connecting infrastructures of the university with bicycle lanes

- Improved parking and bicycle safety
  - Increasing the number of bicycle parking spaces
  - Increasing security and safety for bicycles at the University
  - Installing security cameras
  - Improving lighting in car parks
  - Infrastructure measures to prevent bicycle theft at the University
  - Provision of bicycle parking that is safe and visible in traffic areas.
  - Installing bicycle stands at all entrances of schools and buildings on the campus of the University
  - Enabling parking spaces within buildings to prevent theft

  - Promoting the implementation of parking bicycles at major public transport stops in the city and stations to encourage modal shift to cycling
  - Enabling closed parking for bikes
  - Building a network of bicycle insurance to ensure the safety of personal belongings, bicycles and parking. Each park has a capacity for 20 bicycles (cages with automatic lockers for access through ICT). Access can be via a contactless card provided by the University to the user after signing a contract. Service and card should be for free. The construction can be carried out by the University staff. You can request funding for the construction of the lockers. The approximate cost of each parking is around 4000 euros (data from the Autonomous University of Barcelona). By an application you can reserve seats by time units
  - Creating bicycle parking points near the main accesses and well-connected areas
  - Developing costumes and infrastructure suitable for women cyclists

- Creating a Comprehensive Service Center Point cyclist or bike on each campus that includes:
  - Rental Bicycle Service
  - Nocturnal parking
  - Auto-repair area: a space and tools offered
  - Bicycle for Leisure Renting Service
  - Workshop and Store
  - Locker room, lockers, information about routes
  - Second Hand market
  - Information for the empowerment of this transport
  - Activities: workshops, mechanics, regulations, routes ...
    It requires a technician, volunteer, Third sector ...
    Applying for funding from the City Council, Social Works of banks and savings banks, foundations, private sponsors

- Involving students
- Possibility of access to showers and changing rooms if you go by bike to the University
- Permission to bring bicycles on the trains
- Improve the attractiveness of the environment
- Bicycle lift (Trampe). It allows saving slopes at speeds approximately 4 to 7 km / h. 1 cyclist every 10 seconds

Vehicle measurements

- Providing bicycle renting for the University Community

- Providing electric bicycles for the staff
- Increasing the quality of the public bicycle system
- Selling of ownerless bicycles recovered by the police to the University
- Availability of a bicycle repair kit in each campus, carrying tools, inflator, patch box, chain oil, degreasing padlock fine nozzle chamber, nozzle thick.
- Renting bicycle with two padlocks, one flexible and one rigid
- The application of a discount on the purchase of bicycles to members of the university community. Example: 25% discount on certain models at the University of Córdoba
- Facilitate occasional day-long bicycle hire
- Bicycle recovery deteriorated in municipal and police warehouses for subsequent rent service. It requires an agreement with local authorities.
- Bicycle renting special fees "At the University Bike Service"
- Buying second-hand electric bikes for the staff to travel inside the campus. The price is about 800 euros per bike (data from the Autonomous University of Barcelona)
- Increasing the number of bicycles for the university staff. Searching for financing. Requesting for a deposit that is returned at the end of the renting period if is delivered in good condition (80 euros)
- Renting bicycles with a backpack wearing a helmet, a reflective vest, several locks, lights and bells
- Bicycle renting for free for the University Community. Request for a deposit to be returned at the end of the year if the bike is delivered in good condition (e.g 10 euros students, 20 euros staff)

ICT Measures

- To carry out a monitoring and awareness program for the University Community. Sensors on bicycles to monitor CO2 emissions
- Updating and listing the recovered stolen bikes on the website
- Improving the mobility management with the help of ICT
- Measures aimed at preventing or discouraging bicycle theft: owner identification. "Register" the ownership of a bicycle to any of the existing records "biciregistro"

- Platform that provides information on:
  - Regulations, training and benefits of cycling
  - Bike routes, times and culture
  - Intermodality
  - Activities and workshops related cycling
  - Incentives cycling University
  - Bicycle rental service, availability of bicycles and parking spaces
  - Bicycle purchase discounts

- Road safety
- Location of spots on the bike itineraries.
- Forum, Blog, Social Media, Creating Bike Community

To obtain further information look through the Deliverable 3.5.2 ICT Tools model and requirements for communication between different actors and planning instruments

6.4 Strategic line: Public transport

Goals Specific objectives

- Fostering the use of public transport
- Making public transport a real competitive alternative to private car usage
- Enhancing intermodality, coordination and integration of urban and interurban public transport
- Improving the quality, security, integration and accessibility of public transport services at the infrastructure, rolling stock and services level
- Achieving a transport system that is comfortable, agile, efficient and trustworthy, answering to mobility and accessibility peoples´needs
- Decarbonising the public transport system

Examples of specific objectives

- Increasing 20% of public transport modal share (From users that live in the suburban areas)
- Greater coverage of public transport. In 2020 coverage of 70%. In 2025 of 80%. In 2030 of 100%.
- Increasing bus speed by 10%.
- Maintenance of the average bus speed
- Reduction of 20% in the duration of the trip in 2025, 30% in 2030

Examples of indicators

- Increasing/ decreasing of displacement of the university community in the different means of PT
- Supply of PT
- Indicator of demand for public transport
- Indicator of satisfaction with public transport
- Average travel time
- Frequencies
- Number of vehicles
- Number of electric vehicles
- Air pollution indicators, carbon footprint
- Monthly costs (money) on public transport
- Benefits from PT for the Public administration
- Cost of the trip
- Using public transport adapted or special services. e.g. 1 of each 3 students with disabilities uses this transport

Social and mobiity management measures

- Campaigns promoting public transport
- Offering and fostering integrated public transport information

- Meetings with transport operators, responsible for public transport and infrastructure to agree with the following possibilities:
- Discounts and free offers:
    - Reduction of ticket prices for University members
    - Discounts on subscriptions related to public transport for students and university community
    - Simplification and unification of the tax system
    - Creation of a working group in order to create an integrated transport card. Creating an integrated transport card or ticketing with integrated rate (metro / bus / train / bike / regional transport). Creating an integrated annual card. (In Vienna it has been established for a price of 365 euros per year. The card offers discounts on car rentals in using car sharing and allows the use of unlimited public transport all year)
    - Multitravel card for students during the academic year. It requires personalized magnetic cards, flyers and brochures for broadcast, web information, web form for the request. It is necessary to conduct agreements with local authorities. (e.g: University of Girona: 380 trips for 100 euros)
    - Flat rate of public transport and bicycle renting service for a year to move around the University
    - Flat rate: monthly public transport
    - Payment system integrated and linked with public and renting bicycles
    - Free students public transport
    - University can support with grants for the urban and metropolitan transport. Example from the University of A Coruña applies a grant for each student about 90 euros
    - Agreement to use the university card and travel card with discounts.
    - Offering public transport routes paid by the University
    - Free use of buses in internal displacement and between campus
    - Promoting train: Offering a free service that transports students from the station to the campuses

- More direct routes or creating an express line to the University at peak hours with high speed and frequency covering the most important mobility flows
- Increasing times and improving frequencies, especially at peak times.
- High occupancy lanes reserved for peak hours on certain streets
- Improving Intercampus connection

- Studying possible improvements of the current service
- Improving the timelines, efficiency, regularity, comfort and safety
- Remodeling the urban public transport (adaptation of lines, timing, frequency, territorial coverage and routes) to fit the functional realities of the University at all times
- Promoting a halt at the University as an intermodal station
- Bonus rate for the frequent users' fidelity
- Bike sharing system to connect metro and bus to the campus
- Reduction and travel times:
    - Reducing bus stops to reduce buses stopping during services
    - Optimizing the situation of the stops to reduce the transport time
    - Increasing the speed by public transport segregated ways, improving management, preferential traffic signals, prioritizing access sections in guardrail, shorter itineraries, preference systems, platforms allowing the circulation of buses two-way, improving downtime, network adaptation to the demand and more understandable, hierarchy of services, improving the routes
    - Trans-shipment efficiency
- Bus: Allowing women to stop between two official stops when there are an unsafety area or at nighttime-
- Private traffic segregation
- Convince the authorities with responsibility for public transport that they should make an effort to integrate and coordinate their systems
- Promote intermodal and coordination between transport public for a wide range of quality. Seek synergies between the different modes of public transport and reduce competitiveness
- Integrate transport public urban to suburban and regional
- Value the need for a coordinating body mobility considering the needs of the population or supra-municipal competition in transport
- Taxi service demand available to students and staff
- Service bus carrying foreign students from the university residences
- City planning to support the use of non-motorized activities
- Promotion of regional public transport routes
- Modernization of the fleet vehicles. Promoting the investment in public transport to support the advancement of low emissions vehicles
- Prioritizing buses compared to other private motor vehicles
- Park and ride
- Bike and ride
- Increasing the budget by public transport to meet demand

- Investment in sustainable transport connections between the urban area and the campus
- Implementation of legislation guaranteeing minimum services and links
- Incorporating new functions to transport of University and regulate the routes in the city center
- Information exchange centers
- Knowing the flows
- Overcoming problems of governance and skills in planning and operation
- Changing the name of the bus / metro to facilitate understanding
- Universal accessibility:
    - Request of transport consortium to conduct routes at specific times with adapted transport to facilitate access to different universities
    - Gender Crosscutting Issues (safety, special stops)
    - Transport aid for students with special mobility and accessibility needs
    - Adaptation of stops and vehicles

Infrastructure measures

- Improving route network connecting public transport, bicycle from nearest urban areas to the campus
- Unstaffed at the University as an intermodal station
- Establishing reserved lanes for public transport to reduce times.
- Busway bus, bus lane coexistence with private car and bicycle
- Fostering the clean vehicle technologies
- Improvement of local and regional public transport
- Reducing the distance of stops and stations to the University
- Creating stations near the Campus
- Improvement of displacement between cities
- Improving comfort
- Increasing reliability
- Improving security (installation of cameras)
- Improving stops and stations in connection with the accessibility and equipment (lifting sidewalks or platform)
- Improvement of the accessibility and equipment of the stops
- Creation of intermodal stations
- Smart and adaptive traffic lights regulation system. Public transport signaling prioritization system
- Planning of ticketing with the cooperation of regional and urban operators
- Dedicated roads and dynamic roads
- Improving lighting conditions (smart lighting) at bus stops

Vehicle measurements

- Own shuttle bus from the train station to the campus and inside the campus
- Actions to improve the service:
    - Increasing lines
    - Adaptation for different mobility needs
    - Incorporation of a new, more sustainable fleets

- New metropolitan rail connections
- Increasing the capacity of bus lines that may be insufficient at peaks hours.
- Improvement of existing mobility services
- Improving vehicles
- Increasing security
- Increasing cleanliness
- Promoting the decarbonisation of the transport system by renewing bus fleets with less polluting vehicles
- Promoting fleets of clean public transport: buses of hydrogen batteries, natural gas, biofuels or biodiesel, electric batteries

ICT Measures

- Integrated multimodal application or website:
    - Information about bus, metro and train lines, timetables, fares, access to reaching the various buildings of the University from anywhere in the territory in any mode of transport, walking and cycling
    - Route calculation: From the point of origin and destination. The application informs of different travel options along with a comparison of time and cost. It takes into account fees, fuel, maintenance, parking, accidents, pollution, noise, climate change , intermodality (Application Example POMO with a cost of 14,000 euros implementing http://www.uab.cat/web/home-1273127135994. html)
    - Frequencies and times, buses and metro, using GPS. Installation of QR codes at stops can get this information without any application installed on the mobile. Example: Autonomous University of Barcelona. Application cost of 3,000 euros
    - Real-time information and dynamic
    - Sending instant messages with passenger information
    - Integration with traffic control center, bicycle rental systems

  - Creating a dynamic information, historical public transport that allows an advanced recommendation of travel by public transport
  - E-ticketing and payment systems
  - The application should also integrate the management of car sharing, rental and renting of vehicles
  - Videos to promote sustainable mobility
  - Dissemination of mobility studies conducted, mobility news, links to other relevant websites and social networks
  - Forum participation and mobility group
  - To disseminate the activities for sustainable mobility at the University and achieving awareness
  - Universal accessibility Information. Example: "APP&TOWN" (https://www.appandtown.com/) application of the Autonomous University of Barcelona. Budget 2,000 euros. Developed by a spin off of the UAB that operates in several cities

- Improving information and knowledge about the public transport network or installing information panels at stops
- Improving information on smartphones through QR codes without installation. Creating an environment of NFC tags to provide information and make an intelligent city. (Information Services stops, downloadable maps, information service monuments, tourist routes ...)
- Integrating information panels at bus stops of different transport systems nearby
- Improvements in ticketing , payment integrated into smartphones, online transport card top-ups
- Implementation of intelligent transport systems
- Information on Cyber hubs, stations and stops: integrated services (ie, banking, post office, WI-FI access, pharmacies, entertainment, etc.)

To obtain further information look through the Deliverable 3.5.2 ICT Tools model and requirements for communication between different actors and planning instruments.

6.5 Strategic line: Private transport

Goals Specific objectives

- Reducing car use
- Establishing sustainable driving habits: to achieve efficient and sustainable driving
- Improving safety during movement

- Encouraging saving fuel
- Reducing emissions
- Raising awareness of the environmental and economic impact of car usage for a single traveler
- Promoting the use of car sharing
- Reducing the speed of vehicles inside the campus
- Reducing the number of road accidents
- Increasing pedestrian safety
- Preventing the invasion of vehicles on sidewalks
- Increasing frequency of buses running inside the campus
- Avoiding parking in areas not authorized to do so within the campus
- Fostering the purchase of clean vehicles
- Facilitating the mobility and the comfort of people

Examples of specific objectives

- Reduction of 20% of car users per day in the University Community
- Objective: White Paper on Transportation: Reduce the use of conventional private vehicles that circulate in the city in 2030 by half
- Increasing in the number of low carbon vehicles

Examples of indicators

- Number of users who use a car to go to university
- Consumption of petrol / diesel if available
- Number of accidents
- Average speed of vehicles on campus
- Number of registered Web users to share their vehicle
- Number of share vehicle advertisements
- Number of non-polluting cars at the university community
- Number of Parking available
- Number of Parking used

Social and mobiity management measures

- Parking management:
    - Temporary restriction of use of parking for vehicle registration.
    - Creating short parking zones
    - Seeking ways to eliminate free parking
    - Parking pricing
    - Regulating access and parking
    - Monetized by implementing a policy of paid parking. Increasing pricing to fund sustainable mobility actions. This measure can be achieved through creating parking for bikes, lockers, buying bikes,

giving discounts for public transport, improving service of public transport lines, and so on
    - Limited parking
    - Daily parking rates compensation rules based on salary, travel time, the km. If the cost is more than 1% of net pay you get your money back. The money generated is reinvested into paying for the alternatives
    - Managing parking depending on the length of the path on the University users' path lenght
    - Parking spaces reserved for people with disabilities/special needs
    - Parking reservation and reduced cost for carpooling
    - Enforcing parking regulations
    - Have reserved places for women near the main accesses for their security.

- Awareness campaign for the promotion of car sharing (leaflets, posters, T - shirts, web portal, broadcast in classrooms in the early going, banner at the entrance of the campus). The aim is to promote the exchange of journeys to the University, in order to have more than one person traveling in a car:
    - You can consider a student sharing service car and another for employees. Conditions apply:
        - Proximity between the origin and destination
        - Schedules overlap between passengers on the round trip
        - Daily trips
    - Minivan employee services
    - The carsharing can have a special parking area within the campus.
    - Enhancing collaborative mobility (carpool)

- Efficient Driving Courses. University community driving course for the maintenance personnel and drivers. It can be designed as follows:
    - First make a presentation of the programme
    - Then each student makes a round of scoring driving speed and consumption parameters
    - Below a theoretical class and a practice round show are given
    - The next point is that the student performs a second round of Ecodriving
    - The initial parameters and the last have to be measured and a final discussion should be made

    - You may agree to apply for funding and hire specialized ecodriving driving schools, providing teachers and vehicles. They can collaborate with vehicles brands, sponsors, public or private- organisations, foundations ... (Example: University of Valladolid)
- Tax reduction programs for buying a bike, sustainable cars, pedelecs
- Staking on private transport free carbon . Promoting the purchase of hybrid vehicles and electric vehicle development
- Circulation of restrictions for private vehicles on campus
- Encouraging access to interchange stations by car (drive+bike/walk/bus)
- Polluter pays programme . Profits are used to support sustainable mobility. Punishing the low occupancy of private vehicles
- Promoting the usage of motorcycles with road safety aspects
- Strategies to break the association: car equals social status
- Regulation and improvement of loading and unloading
- Implementation of a congestion charge to enter the city
- Limiting the use of private vehicles on certain routes and schedules
- Calming the traffic and fostering slow circulation (areas 20 - 30 zones)
- Reducing the private motorized traffic flow
- Hierarchization and reorganization of traffic
- Rearranging space, thinking of the pedestrians, cyclists and public transport
- Rearranging the parking lot. Parking strategies
- Establishment of strategies for participation, collaboration and dissemination
- Reviewing of good practices
- Participation of those involved

Infrastructure measures

- Infrastructure investment in green energy recharge. Infrastructures provide electric vehicle charging to support advancement of low carbon vehicles. Fast charging stations
- Building an intelligent station with electric vehicle charging from solar panels. Use of energy not used for other items, such as gardens. For example: Energy 5,600 kWh per year, 15 solar panels nine shots. Universidad de Alcalá. Spain
- Establishing controls accessed by car
- Creating parking deterrents. Removing parking in certain ways and decreasing the number of lanes for car use
- Improve lighting conditions (smart lighting) in parking areas to increase safety in women
- Pedestrianize the streets (Fostering walkability)
- Establishment of 30 residential areas
- Installation of speed limiters to circulate inside the campus
- Construction of speed bumps at the entrances of the campus and long stretches inside the campus
- Installation of bollards in conflict zones to limit parking in the Campus
- Enabling parking areas for the disabled closest to the entrance to buildings, through horizontal and vertical signage and police control
- Improving the organization of motorcycle parking

Vehicle measurements

- Developing or increasing a fleet of electric vehicles available to the University
- Using cleans vehicle technologies
- Providing electric or test green cars for the staff at the Universities
- Using electric vehicles in the University mobility laboratories
- Green public bus fleets. Searching for funds to replace the bus fleet with zero emissions vehicles

ICT Measures

- Platform/application/ free website for car or vehicle sharing aimed at students and university workers. In this platform users would be required to be registered in order to create a social network of mobility and ensuring trust and user confidence. This application could provide incentives through vouchers. It could involve University technology centers, Environment Departments and other University centers. It may need a collaboration agreement with a company that develops the application and

is responsible for maintaining the platform. It is very important to consider campaigns to raise awareness about the platform
    - Example: University of Córdoba.
      http://www.uco.es/compartetucoche/index.php/bolsa-de-viajeros
    - Example: University of Girona
        - http://www.fesedit.cat
    - Example: University of Jaen
        - http://ujaen.amovens-pro.com/es
- Creating a car sharing platform that takes into account gender, to avoid situations of insecurity in girls of women
- Searching for European financing for pilot experiments in sustainable mobility
- One option for this type of service could be to use on already established and recognized platforms. For example in Spain: sharing trip. This is what has been done at the University of Zaragoza for implementing its own sharing trip service
- Parking regulation system that does not allow entry to vehicles at campus if there is not parking spaces
- Parking places providing parking information
- Implementing new technologies in road control and parking regulations
- Implementing variable signaling parking on public roads with updated information on smartphones and app

To obtain further information look through the Deliverable 3.5.2 ICT Tools model and requirements for communication between different actors and planning instruments.

7 Other support tools and References

There are different websites that provide information on actions and measures to promote sustainable mobility. Below are sources used for the elaboration of this document

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- Wefering, F., Rupprecht, S., Bührmann, S., & Böhler-Baedeker, S. (2014). Guidelines. Developing and Implementing a Sustainable Urban Mobility Plan. ELTISplus, EACI/IEE/2009/05/S12.558822. European Union. http://www.trt.it/documenti/guidelines-developing-and-implementing-a-sump_final_web_jan2014b.pdf

- CIVITAS: http://civitas.eu/
    - http://civitas.eu/tool-inventory
    - http://civitas.eu/mobility-management/planning

- EPOMM: http://www.epomm.eu/index.php

- CRUE (Conferencia de Rectore de Universidades Españolas): University survey on good practices in sustainable mobility and accessibility http://www.crue.org/SitePages/Universidad-y-Movilidad.aspx

- CRUI (The Conference of Italian University Rectors): http://www.crui.it/rus-rete-delle-universita-per-la-sostenibilita.html

- UMOB LIFE: http://u-mob.eu/ http://2017bcn.u-mob.eu/es/

- SMILE project http://smile-einfachmobil.at/index_en.html

- Review of good practices in sustainable mobility in Mediterranean Universities and others Universities.

- The Sustainability Tracking, Assessment & Rating System™(STARS) https://stars.aashe.org

Annex 1 Points of the Action Plan

POINTS OF ACTION PLAN

✓ 1. STUDY SOCIETAL TRENDS AND MOBILITY SCENARIO

1.1 DECARBONISATION AND AIR QUALITY

1.1.1 Collect an overarching overview of European, national and local regulatory framework
1.1.2 Collect best practices, assess posibe innovative and efficient interventions to reduce the environmental pollutants
1.1.3 Achieve data about of air quality in University's Campus

Objective of the action	
Responsible stakeholder	
Other involved stakeholders	
Way of proceeding	
Target(s)	
Duration of the activity	
Key elements of the activity	

1.2 LOCAL GEOGRAPHICAL AREA DYNAMICS

1.2.1 Urban master plan, uran development and territorial characteristics
1.2.2 University's future trends about zooning regulation and buildings' management
1.2.3 Local public transportation: current situation and future trends
1.2.4 Transport infrastructure and services connecting the campus to the rest of the city
1.2.5 Social inclusion

Objective of the action	

Responsible stakeholder	
Other involved stakeholders	
Way of proceeding	
Target(s)	
Duration of the activity	
Key elements of the activity	

1.3 DEMOGRAPHIC CHALLENGES

1.3.1 Analysing the surrounding demopraphic context
1.3.2 Analysing the University's demographic conntext
1.3.3 Commuters in Urban Context

Objective of the action	
Responsible stakeholder	
Other involved stakeholders	
Way of proceeding	
Target(s)	
Duration of the activity	
Key elements of the activity	

1.4 DIGITAL SOCIETY

1.4.1 Technology (future) trends
1.4.2 Web Access through mobile devices
1.4.3 Paperless payment

Objective of the action	
Responsible stakeholder	
Other involved stakeholders	
Way of proceeding	

Target(s)	
Duration of the activity	
Key elements of the activity	

1.5 SHARING ECONOMY

1.5.1 Acceptance and take up
1.5.2 Behavioural aspects of user
1.5.3 Profile of the user
1.5.4 Behavioural analysis
1.5.5 Willingness of data sharing
1.5.6 Sharing mobility in Urban Areas

Objective of the action	
Responsible stakeholder	
Other involved stakeholders	
Way of proceeding	
Target(s)	
Duration of the activity	
Key elements of the activity	

MILESTONE: The MPU should have analysed and achieved information about the active air qality regulatory framework, about the university campus context its future trends (and even information about campus' air quality level

✓ 2. PLAN OF SUSTAINABLE UNIVERSITY MOBILITY

2.1 STAKEHOLDERS IDENTIFICATION AND INVOLVEMENT

2.1.1 Local authorities and organizations
2.1.2 University authorities
2.1.3 Community and university end-users

Objective of the action	
Responsible stakeholder	
Other involved stakeholders	
Way of proceeding	
Target(s)	
Duration of the activity	
Key elements of the activity	

2.2 DEFINITIONS OF GOALS, KPIS, ACTIONS' PRIORITISING

2.2.1 Define achievable goals and "SMART" targets
2.2.2 Define KPIs
2.2.3 Action definition and its prioritizing
2.2.4 Action prioritizing
2.2.5 Communication

Objective of the action	
Responsible stakeholder	
Other involved stakeholders	
Way of proceeding	
Target(s)	
Duration of the activity	
Key elements of the activity	

2.3 COMMUNITY COMMUNICATION AND INVOLVEMENT

2.3.1 Communication to end users
2.3.2 Data collection activities
2.3.3 Feedback actions and next improvements

Objective of the action	
Responsible stakeholder	
Other involved stakeholders	
Way of proceeding	
Target(s)	
Duration of the activity	
Key elements of the activity	

2.4 HINTS ABOUT PLAN'S ACTIONS

2.4.1 Improve the efficiency of existing infrastrucures
2.4.2 Pillars
2.4.3 Cross cutting objectives
2.4.4 Other hints

Objective of the action	
Responsible stakeholder	
Other involved stakeholders	
Way of proceeding	
Target(s)	
Duration of the activity	
Key elements of the activity	

MILESTONE: The MPU has to develop a plan of sustainable university mobiity. First, a classification of stakeholders that could collaborate with the Project

is required. Then a set of proper goals have to be defined, along with KPIs and actions. Moreover, community communication activities have to be identified and assessed along with proper feedback loops in order to monitor and assess the implemented improvements to the SUMO and in order to understand the end users' furure acceptance.

✓ 3. DO

3.1 PLAN'S IMPLEMENTATION

3.1.1 Define time plan
3.1.2 Define role and responsibilities
3.1.3 Budgetin anf resources
3.1.4 Define tools, ICTs and mobile-based applications
3.1.5 Communications wirhin the Project partners
3.1.6 Step-by-Step Project Communication
3.1.7 Project monitoring
3.1.8 Future improvements and advances

Objective of the action	
Responsible stakeholder	
Other involved stakeholders	
Way of proceeding	
Target(s)	
Duration of the activity	
Key elements of the activity	

MILESTONE: The CAMP-sUmp plan should have been approved, hence resources, operative actions and related role and responsibilities are defined. Even cocmmunication actions sin order to inform the Project partners are operative. Moreover, further operative actions are set in order to receive feedbacks from the public (for understanding their acceptance about aimplemented measures) and in order to prepare corrective actions once feedbacks have been collected.

✓ 4. CHECK-ACT

4.1 KPIs EVALUATION

4.1.1 KPIs evaluations
4.1.2 Quantitative
4.1.3 Qualitative
4.1.4 Deviation causes

Objective of the action	
Responsible stakeholder	
Other involved stakeholders	
Way of proceeding	
Target(s)	
Duration of the activity	
Key elements of the activity	

4.2 CORRECTIVE ACTIONS

4.2.1 Identification of major drawbacks and weahnesses
4.2.2 Priorization of future actions
4.2.3 Implementation of most relevant corective actions
4.2.4 Feedback loop for further improvement

Objective of the action	
Responsible stakeholder	
Other involved stakeholders	
Way of proceeding	
Target(s)	
Duration of the activity	
Key elements of the activity	

4.3 DISSEMINATION OF RESULTS

4.3.1 Ensure the stakehoder's commitment
4.3.2 Spread the diffusion of the proposed solution between end –users
4.3.3 Monitoring of adoption of implemented actions
4.3.4 Infrom the public
4.3.5 Commitment with the citizens
4.3.6 Best practice catalogue

Objective of the action	
Responsible stakeholder	
Other involved stakeholders	
Way of proceeding	
Target(s)	
Duration of the activity	
Key elements of the activity	

MILESTONE: Quantitative and qualitative reports aout Project results and explanatin about deviations' causes. Reports of the kick-off, mid-term and final dissemination activities focused on ensure the adoption of the proposed solutions and the commintment of the citizens and stakeholders. Finally reports about plans dissemination in orden to provide best practices to other panners and practitioners.