

OUTPUT 3.1 OPERATIONAL MODEL FOR LCTPs

ALL PROJECT PARTNERS

WP 3

31.07.2018



OPERATIONAL MODEL FOR LOW CARBON TRANSPORT PLANS FOR CRUISE DESTINATION CITIES

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WP 3**

**DELIVERABLE 3.2.1
26/01/2017
FINAL VERSION**

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1. Introduction

1.1 Objective

WP3's first technical output is the outline of a tailored operational model to be used in the capacity building process to support cruise destination cities in developing their Low Carbon Transport Plans. From this standpoint, a sound design of the operational model is crucial to grant the efficient planning of the LCTP and later the implementation of its measures. The main goal of the deliverable is, therefore, to serve as a guide and reference to the partners in the process of developing the LCTPs in their territories.

1.2 Deliverable description

The operational model is a description of the methodology, techniques, tools and approaches to develop and assess an LCTP, entailing a detailed description of the subsequent stages and a protocol for participatory processes.

The deliverable contents are built on know-how, feedback and expertise provided by partners and associated partners throughout the seven territories participating in the project. To that end, a series of workshops, local research and validation process through territorial consultations have been foreseen.

The deliverable has been structured so as to present a logical flow which starts by describing the most relevant aspects and matters to consider when developing an LCTP, continues with the sequence of steps to follow in the methodology, and ends with a series of tools, techniques and references which can be of use along the process.

2. How to develop and assess an LCTP

2.1 Approach, main principles and areas of work

The biggest challenge linked to the development of a sound LCTP comes from the fact that it involves many different elements, stakeholders and activities, thus having a significant impact in the city in various ways and degrees. The LCTP must be designed in such a way it integrates in a synergic manner all relevant cruise-related flows, needs and conditions of the city, so as to serve as a tool for sustainable development and citizens' wellbeing.

Understanding which the main topics to address are, and the best approach to do so, is of paramount importance, since it will define and influence the whole process.

2.1.1 Main areas of work

When referring to areas of work, we are considering more or less wide topics which could be treated separately and imply specific conditions. Without discounting the existence of other topics in particular cases, the most relevant areas of work to consider are the following:



Every one of these main topics involves specific elements, limits, needs, etc., which must be considered and assessed before drafting the LCTP. The transport infrastructures, the economic activity, the energy use behaviour, the sensitiveness of citizens towards sustainability, the business model of cruise and tourism operators, or the existence of previous related plans such as SUMP or SEAPs, are, among many others, some of these elements.

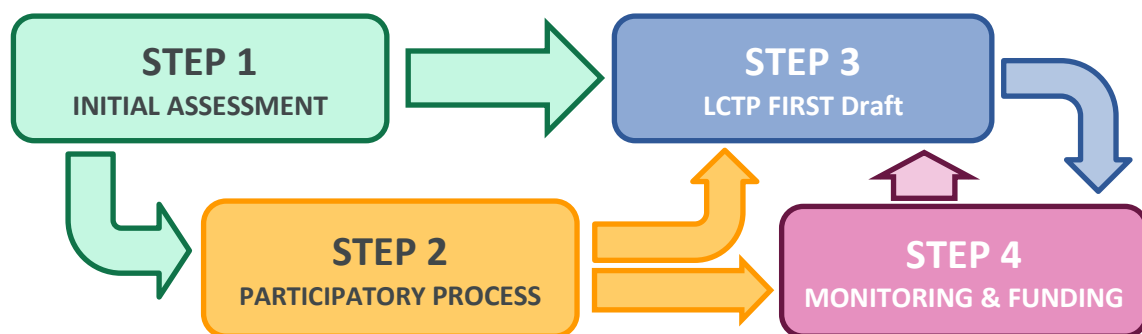
2.1.2 Principles to guide action

The large and heterogeneous number of elements to consider, together with the strong implications which the LCTP may have on the city and its inhabitants, could lead to conflicting visions and decisions, linked to different short term goals and interests. In order to avoid unsolvable discrepancies, and to establish a criterion to balance the different options which may come through, the following main principles shall be applied and used as guidance to assess the preferred option in any case:

1. **Sustainability:** The ultimate goal of the LCTP and other related plans such as SUMP, SEAPs, etc., is the promotion and adoption of sustainability as a model for development in Europe. Therefore, it is a key principle which may prevail when conflicting options arise.
2. **Holistic approach:** The mere fact that many elements and stakeholders are affected by the LCTP, requires a holistic approach looking to integrate all visions and expectations, so as to design a useful, resilient and comprehensive plan.
3. **Participatory focus:** No ambitious and relevant project for the city may be successful if it is not fully accepted, interiorized and fostered by most of its stakeholders. A participatory focus is therefore required from the very beginning, so as to involve all relevant stakeholders and make them 'owners' of the outcomes.
4. **Long term vision:** The LCTP is meant to be a tool which will guide and facilitate the city sustainable development in years to come. A long term vision, foreseeing different scenarios and making room for further developments is essential to achieve a truly useful LCTP. In this sense, looking for political commitment, as inclusive and extensive as possible, is a parallel activity which should be considered and wisely conducted along the whole process. Proposing the establishment of a local mobility roundtable which includes representatives of the main political parties, has proved to be a very useful and efficient initiative.

2.1.3 Workflow structure

The general Operational model described as guidance for the whole partnership, shifts into an Operational Plan when actually referring to a specific territory and conditions. The basic structure of the Operational Plan responds to a logical sequence as shown in the following scheme:



3. Methodology

3.1 Step 0: Work plan and team

Before actually starting with the definition of the Operational Plan's activities, it is highly recommended to set up a team of people responsible for the project, and schedule one or more meetings so as to define the work plan, milestones, people involved and duties, deadlines, etc.

This preliminary step may result of great help in avoiding misunderstandings, overlapping and frustration, while it also helps to establish common ground about the project rationale, goals and available resources.

3.2 Step 1: Initial assessment

3.2.1 Context analysis

A thoughtful assessment of the context in which the LCTP will act is totally essential since it will determine the baseline as well as the relevance of the measures and objectives proposed. A list with different topics and elements which will help to characterize the context of the studied cruise city is shown:

1	EU, national, regional and local framework of reference.
2	Current cruise-related flows features, trends, etc., in the city/port.
3	Mid to long term development trends estimation and weight.
4	Catalogue of current policies/ public & private related initiatives.
5	Weighted list of negative impacts linked to the cruise-related flows.
6	Existing network, services and infrastructures in the city/ port.

Once the collection of data and information is considered as sufficiently representative of the context, a comprehensive image can be obtained through a SWOT matrix, which may be followed by a CAME¹ analysis in further steps.

	THREATS	OPPORTUNITIES
WEAKNESSES	Adaptive strategy	Corrective strategy
STRENGTHS	Maintaining strategy	Exploring strategy

3.2.2 Stakeholders' involvement:

In the frame of the set of information which needs to be collected throughout the initial assessment phase, the identification and analysis of stakeholders plays a very relevant role. Besides being essential to grant a

¹ CAME refers to the matrix for SWOT possible strategies (Correct, Adapt, Maintain and Explore).

successful participatory process, the action of identifying the stakeholders may be very useful to access unknown sources of data.

1	Stakeholders' identification by individuals, groups and entities.
2	Identification of stakeholders' expectations and relevance.
3	Information and data sources linked to stakeholders.
4	Stakeholders' relevance matrix (power vs. interest).

When both, the collection of data and stakeholders identification are complete, the initial assessment phase is over, and the participatory phase may begin.

3.3 Step 2: Participatory process

3.3.1 Participatory process design

A correct identification of the stakeholders and their expectations is as important as a correct design of the participatory process (PP). A number of different techniques, tools and formats can be used for the purpose. However, the appropriateness of the format and techniques adopted will be determined by the type of stakeholder, the input we need from it, and the information we want to share.



3.3.2 Participatory Process development

As in any other activity involving interaction with people, especially if many, the participatory processes are subject to some degree of uncertainty regarding the way they will work and their expected level of success. Counting on a good design, as described previously, is a good start since it brings in a template with the structure to follow, the main points to tackle and the expected outcomes.

EXPERTISE: Conducting a participatory process is a demanding task which should be assumed, if possible, by someone with experience and good resources. Any participatory event will be a source of information and a way to communicate to others, but it is also a time to show how efficient and prepared the team is, thus, the value and seriousness of the LCTP itself. Moreover, the comparative analysis of issues from different point of views leads to a deeper understanding resulting in solutions each individual participant would have not identified independently. Any participatory process must be seen as professional, relevant and innovative.

FEEDBACK: The last but not least important action of a participatory process is giving timely feedback to the stakeholders who have participated. The involvement and level of interest that the stakeholders will have during the LCTP development phase will depend on how informed they are, and how respected and valued by the team they feel. A close and fruitful relationship between the team and the stakeholders

requires appropriate and quick feedback about the outcomes of the participatory processes, as well as about the progress in project implementation.

3.4 Step 3: Draft of the operational model

The information and participation phases required as constituents for the LCTP have already been completed, so the drafting step which will bring about the Operational model gets started. A sequence of steps should be followed, so as to produce a logical, solid and valuable Plan:

3.4.1 Definition of current scenario

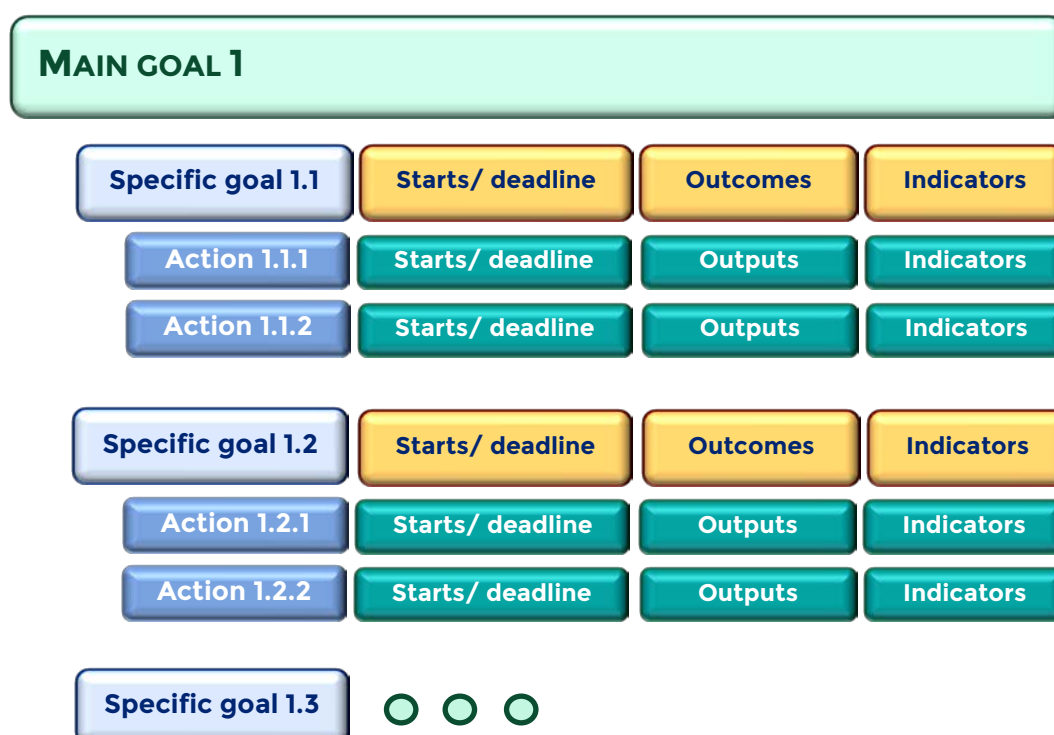
This first step is a summary of the information collected through the previous phases, so as to present the present context, including the main issues, opportunities and resources. The key factor is to present a clear, schematic and synthetic image as a baseline scenario, since it must permit the use of indicators to assess the evolution of the scenario variables through time.

3.4.2 Definition of vision and objectives

Now it is time to define the main goals of the LCTP, after the vision of city that the team and stakeholders share. This main vision derives from the previous work, as well as from the four guiding principles described in point 2.1.2. It is essential that both, vision and main objectives are shared and participated by all, or most of all, in order to reach good expectations of duration and success for the LCTP. Therefore, all relevant stakeholders should be part of this step, and the outcomes should be simple, clear and easily understandable.

3.4.3 Definition of actions and indicators (modular)

As with most project development processes, after the vision and main goals, the more specific goals shall be determined, together with the corresponding measures and actions, the time span, the expected results and the indicators/source of data stated to their assessment.

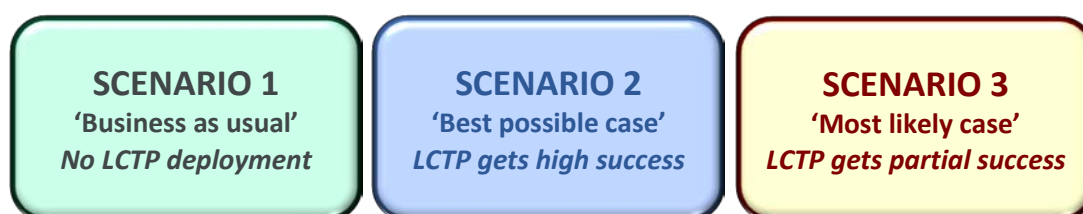


This process can be adapted to the specific circumstances and needs of the context, but it is advisable to keep it as close to a matrix as possible, so as to ease the further procedure to measure and assess.

It is also convenient to define actions and measures from a modular approach, meaning to say with the possibility of being independent from one another. The different measures will most likely be strongly related, but if the way in which they are designed permits their deployment separately, the risk of blocking the whole LCTP after a failed measure decreases substantially.

3.4.4 Development of future scenarios

The complexity of the context together with the many factors intervening, imply the likely possibility of deviations and relevant changes in the context. It is therefore advisable to foresee different future scenarios, so as to assess the outcomes of the LCTP in every case, and favor the chances to adapt it or adjust it to new conditions arising. At least three potential scenarios should be drafted for a medium/ long term future (5 to 10 years' time):

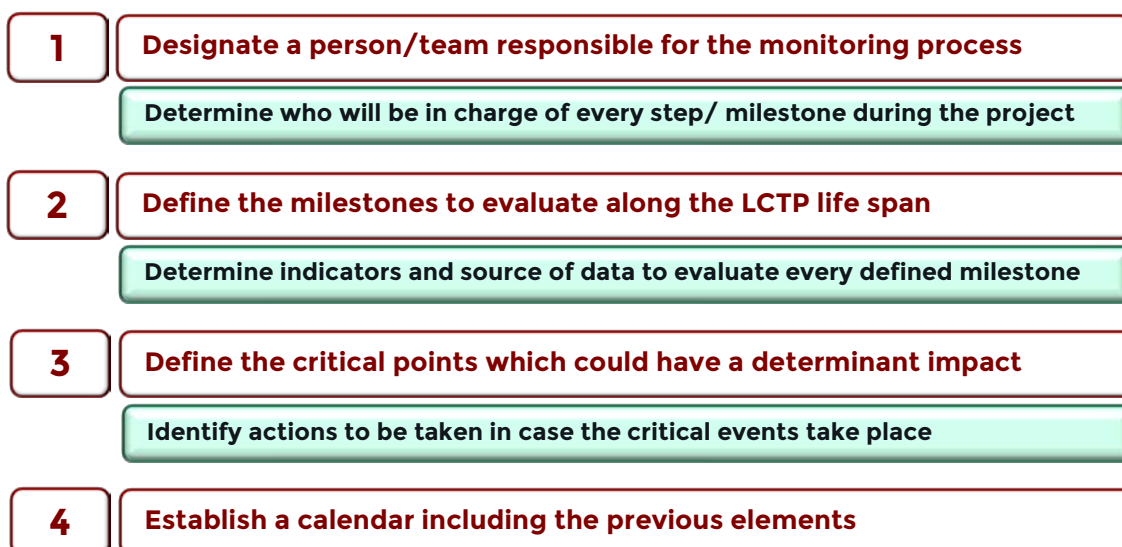


3.5 Step 4: Monitoring, assessment and sources for funding

The design of the LCTP is not really finished until the strategy and planning for monitoring and funding is defined and settled. In this sense, step 4 is related to step 3 in a double way, since it requires the LCTP to be already drafted, but it also feeds it back, leading to eventual changes.

3.5.1 Definition of the process for monitoring

The potential success of the LCTP largely depends on keeping constant track of its development and evolution, so as to assess if adjustments or new actions have to be adopted. Defining an effective monitoring process implies the establishment of the following elements:



Finally, the monitoring process, together with its calendar and milestones, should be agreed and shared by all relevant stakeholders, who, in return, should be informed in due time about the monitoring results along the project.

3.5.2 Assessment and evaluation of LCTP development

Once the process for monitoring has been designed and agreed, the actual action of collecting and evaluating the indicators results and feedback, will permit to assess the current situation at all stages of implementation.

It is advisable to define a heterogeneous group of experts to periodically evaluate the state of art of the LCTP, and deliver their recommendations. In this respect, the efficacy of the evaluation process will be higher it responds to a previously established calendar for reports, as well as to extraordinary circumstances led by unexpected events.

3.5.3 Funding

In many cases, the major obstacle faced by projects such as SUMP or SEAPs, is linked to insufficient access to funds and lack of resources to accomplish the agreed measures. As with the monitoring process, the funding shall be planned and tracked through a predefined strategy which has been developed by all relevant stakeholders, with the most holistic approach, looking for synergies and opportunities wherever they may be.

The main elements to consider within the funding plan are:

- 1 Identification of potential sources for funding.
- 2 Determine the actions to be taken to secure funding.
- 3 Design the person/entity in charged for the actions agreed.

4. Tools and Techniques

There is a large number of tools and techniques which could be used to facilitate and optimize the outcomes of the Operational plan activities process. Many of them are already accessible through internet, since they were designed and publicly offered by European Union institutions and funded projects.

The following list refers some examples of useful references classified after the area in which they relate to the LCTP Operational plan:



URBAN MOBILITY

- [Guide for the Urban Transport Professional – CIVITAS](#)
- [European platform on mobility management – European Commission](#)
- [Study to support an impact assessment of the urban mobility package – ECORYS](#)

**CLIMATE CHANGE/ ENERGY EFFICIENCY**

- [Planning for Adaptation to Climate Change - European Commission](#)
- [Guide To Community Energy Strategic Planning – US Dpt. Energy](#)

**STAKEHOLDERS' INVOLVEMENT**

- [Involving Stakeholders: Toolkit on Organising Successful Consultations - CIVITAS](#)
- [Green Solar Cities: Stakeholders Analysis – OTB & European Commission](#)

**PARTICIPATORY TECHNIQUES**

- [e-Participation Best Practice Manual - European Commission](#)
- [Co-deciding with Citizens: Towards Digital Democracy at EU Level – ECAS](#)

**PROJECT DEVELOPMENT**

- [World Bank Logframe Handbook – African Development Bank](#)
- [Introduction to the Logical Framework Approach – Global Environmental Facility](#)



Capacity Building Manual

LOCATIONS - Low Carbon Transport in Cruise Destination Cities

WP3 – Testing

Activity 3.3 Capacity building for partners to bridge the gaps

Deliverable 3.3.1

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**Work package 3
Deliverable D3.3.1
Date 14/03/2017**

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1. Introduction

1.1 Objective

The last activity providing tools and know-how before the actual implementation of the Low Carbon Transport Plan's pilot activities (Activity 3.4), consists of a three-day capacity building seminar for partners, addressed to bridge the gaps and grant common ground, share knowledge, maximize harmonization of processes, transferability and replicability of approaches and results in the application of the operational model.

The joint transnational capacity building, based on a manual developed for the purpose, provides partners with a more detailed, hands-on approach to the operational model and know-how for its implementation with practical tutorials held by experts in specific fields (data gathering and processing, setting goals and choosing indicators, drafting scenarios, organizing participatory processes, etc.).

The objective of this Deliverable 3.3.1 is, therefore, to develop the Manual required to support the Capacity Building Seminar. Besides, the Manual becomes an instrument to be used by any institution planning to engage in a similar project, since it provides practical and easy-to-follow guidelines about the efficient and successful implementation of a participatory focused project.

1.2 Deliverable description

This document has been designed with the aim of supporting any person, group or entity willing to start a strategic planning process leading to develop a Low Carbon Transport Plan. From this perspective, the Manual has been developed after the contributions of the technical partners in the project, with a rather practical approach, including as many examples as possible, so as to turn it into a hands-on manual.

The Manual is formed by two main parts:

- A step-by-step guide describing in detail and with practical examples based on real cases, the process to be followed so as to produce a sound and efficient Low Carbon Transport Plan (LCTP).
- A compilation of available references and tools which can be used to support the LCTP at every stage of its design and development.

Besides, a series of best practices and tips are presented throughout the whole document, aiming at illustrating with practical examples the concepts explained.

2. Low Carbon Transport Plan Manual

2.1 Step 0: Work plan and team

The Operational Manual is based on the process and activities to be performed so as to maximize the chances of producing an effective, ambitious and realistic Operational Plan for Low Carbon Mobility in Cruise Destination Cities. However, before actually starting with the Manual activities and steps, it is highly recommended to set up the team of people who will be responsible for the project, and schedule one or more meetings so as to define the work plan, milestones, people involved and duties, deadlines, etc.

Furthermore, it may be advisable to train those being part of the Team, especially by sharing this Manual with them, and making sure there is a common ground and understanding about the major steps and the relevance of every aspect included

This preliminary step may result of great help in avoiding misunderstandings, overlapping and frustration, while it also helps to establish homogeneity about the project rationale, goals and available resources.

2.2 Step 1: Initial assessment

2.2.1 Context analysis

A thoughtful assessment of the context in which the LCTP will act is totally essential since it will determine the baseline as well as the relevance of the measures and objectives proposed. A list with different topics and elements which will help to characterize the context of the studied cruise city is shown:

1	EU, national, regional and local framework of reference
2	Current cruise-related flows features, trends, etc., in the city/port
3	Mid to long term development trends estimation and weight
4	Catalogue of current policies/ public & private related initiatives
5	Weighted list of negative impacts linked to the cruise-related flows
6	Existing network, services and infrastructures in the city/ port

1. EU, national, regional and local framework of reference.

Seeking for more far-reaching local sustainable urban transport policies, the reference will set the ground in European context, but also, will encompass regulation national, regional and local framework to ensure the horizontal and vertical integration between multi-level governments. Being sustainable mobility a cross-cutting issue, different regulation areas (environmental, transport, spatial planning, etc.) will be taken into account. As a result, a list with the main normative elements affecting sustainable mobility will be elaborated, and properly updated if necessary, for the conception of the local low carbon transport plan.

2. Current cruise-related flows features, trends, etc., in the city/port

A comprehensive collection of reliable data on cruise-related features, from maritime ports freight and passenger statistics and other relevant sources, will be carried out. For each destination, information (related to passengers and goods traffic, alternative on urban/interurban transport, waste collection, provision of services, etc.) will be gathered, to define the starting point of the low carbon transport plan and serve as the foundation for future trends estimations in further steps.

3. Mid to long term development trends estimation and weight.

Mid to long term trend projections of cruise-related flows features in each City will be drafted and different scenarios considering: most likely to happen, worst case and best case scenario, will be defined. The trend estimations will be based in reliable relevant statistical sources, on consultation to experts, or other validated methodology according to the standards that will be established by each City. These assumptions together with the current statistical situation derived from available resources will represent the current action framework of the local low carbon transport plan. These trend estimations will be revised in further steps of the project to accommodate them in case high-impact events should happen.

These scenarios can also serve as a reference for assessing the impact of the devised LCTP initiatives at local level for energy, transport and environmental issues.

4. Catalogue of current policies/ public & private related initiatives.

Existing problems and emerging challenges result in a variety of initiatives that deal with them with different approaches and resources. Therefore, a catalogue collecting the current public and private initiatives taking place at national, regional and local level affecting the main areas concerned about LCTP will elaborate. The aim is to explore currently relevant mechanisms and allowing reflection on previous experience.

The catalogue will include information about the actors, the innovative contributions, the level of citizen participation and its potential impact, as well as lessons learnt.

5. Weighted list of negative impacts linked to the cruise-related flows

Cruise tourism in departure ports and ports of call often leads to series of impacts and externalities that can be both, positive and negative. Some of the widely known consequences of cruise traffic are:

- Road congestion
- Air and noise pollution
- Increased soil consumption for parking and road infrastructures
- Reduced road safety
- Stress for the local community

These externalities are related to environmental issues, urban mobility, accessibility, social cohesion, cultural heritage, etc. and the role they play in each City must be determined for every particular case.

Once the impacts associated to cruise tourism in a destination, attending to the specific case of each City, have been identified an order of importance must be established. This will allow prioritizing goals and barriers to tackle along the local low carbon transport plan. For this purpose, a weight will be given to every negative impact identified. This could be carried out by the City technicians, or by consulting a series of experts, that through a survey would point out the most relevant negative impacts and would assign them a specific weight.

6. Existing network, services and infrastructures in the city/ port

The purpose of this step is to provide an overview of network, services and infrastructures in the City and detect possible gaps/opportunities, favouring low-carbon transport systems and multimodal connection, especially with basic services and main attractions. This inventory will be crucial to uptake tourism and cruise traffic as a strategic resource.

Once the collection of data and information is considered as sufficiently representative of the context, a comprehensive image can be obtained through a SWOT matrix:

SWOT analysis (Strengths, Weaknesses, Opportunities and Threats), is a tool that allows identifying the state of a given situation, by considering the negative and positive aspects of the environment and the organization or project, in this case, the state of the City about urban transport related to cruise-tourism.

SWOT	NEGATIVE ASPECTS	POSITIVE ASPECTS
INTERNAL ANALYSIS	WEAKNESSES: Scarcity of resources and capabilities, low adaptability	STRENGTHS: Capabilities Advantages Resources
EXTERNAL ANALYSIS	THREATS: Risks and unforeseen events	OPPORTUNITIES: New technologies Strategic planning

The SWOT analysis is followed by a CAME¹ analysis in further steps, which is a useful tool to define strategies and actions from SWOT matrix results. The key is to focus on the most relevant weaknesses, strengths, threats and opportunities and, then, associate actions to Correct, Adapt, Maintain and Explore each identified situation.

CAME	THREATS	OPPORTUNITIES
WEAKNESSES	Adaptive strategy <i>'Resist'</i>	Corrective strategy <i>'Take advantage'</i>
STRENGTHS	Maintaining strategy <i>'Keep up'</i>	Exploring strategy <i>'Maximize'</i>

¹ CAME refers to the matrix for SWOT possible strategies (Correct, Adapt, Maintain and Explore)

Both, the SWOT and CAME analysis are efficient tools which from a logical approach present the type of strategy that should be adopted in every case. Different strategies can be followed at the same time, targeting different goals and situations. In every case, a close look to the stakeholders involved must be given, so as to foresee expectations and needs, as well as to maximize participation.

2.2.2 Stakeholders' involvement:

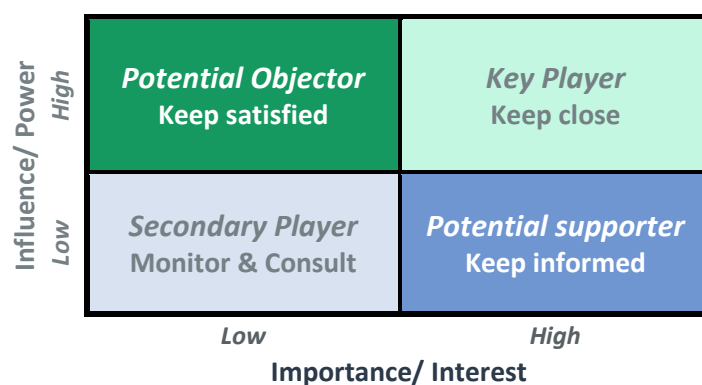
The identification and involvement of stakeholders is a crucial question which will have a major influence in the future acceptance of the Plan. A sound identification and engagement of stakeholders is of paramount importance in order to successfully establish a participatory approach. The process to grant a sufficient level of stakeholders' involvement relies on two consecutive phases: Identification and Dialogue.

Identification:

From a general standpoint, the targeted stakeholders will be all those individuals or groups which affect or are affected by the project which is being conducted. This definition includes present and future actions derived from the plan, so a wide scope must be considered when selecting potential stakeholders. Once there, three main questions shall define the relevance of every group of stakeholders, as well as the strategy to involve them in the project:

- How important the stakeholder is to the project?
- How influential/powerful the stakeholder is towards the project?
- What contribution/feedback do we expect from the stakeholder?

The first two questions are the ones determining the way in which the stakeholders will be approached by the project team. A frequent tool to assess both variables, importance/interest and Influence/power, consists in drawing a four cells matrix combining both variables in their two possible levels (low – high), and thus obtaining four different categories of stakeholders:



Those stakeholders identified which are considered *Key Players* must be involved and engaged in the project as soon as possible, so as to count on their support and contribution. For those included in the *Potential Objector* and *Potential Supporter* cells, the strategies to be followed imply establishing efficient lines for communication, as well as large predisposition to receive feedback, suggestions and advises. Finally, those included in the least relevant cell, considered as *Secondary Player* should still be monitored and consulted, so as to gain their support and avoid them upscaling to the *Potential Objector's* cell.

The third question, related to the expected contribution from every identified stakeholder, will determine the moment and mechanism linked to their involvement. The project process includes designing the plan, gaining political support, involving local authorities, securing human, technological and financial resources, transmitting the plan to the citizenship, etc. The potential contribution of every stakeholder may be linked to one or more of these project phases, and shall be planned accordingly. Therefore, it is convenient to define a coordinated stakeholder engagement process, i.e., a stakeholder engagement strategy. Once defined the engagement strategy, the Dialogue with Stakeholders phase begins.

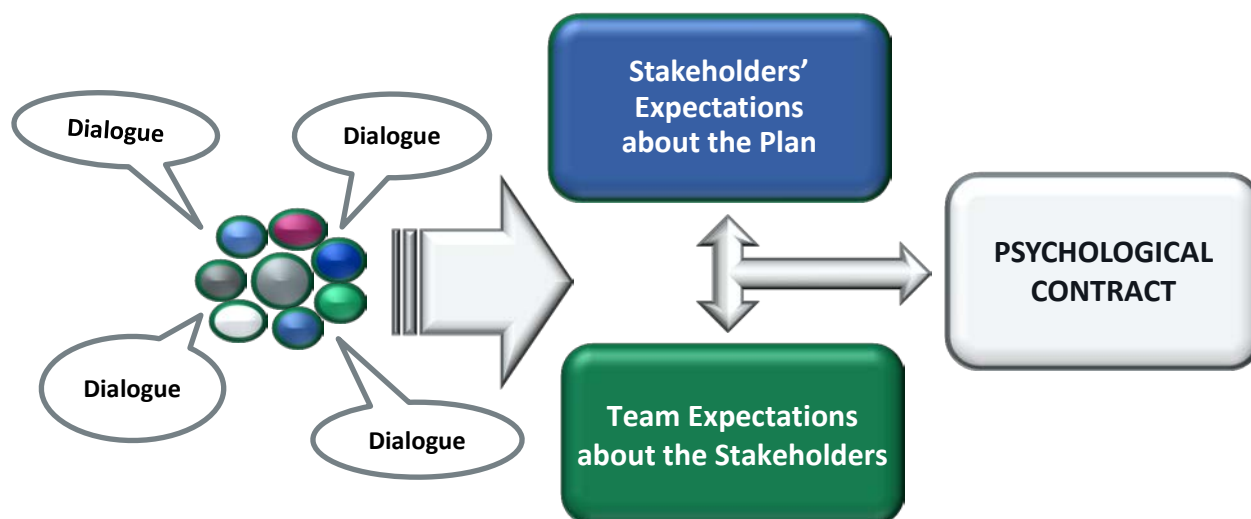
Tillburg municipality sought help from research company TMO for the drafting of the SUMP. Firstly, it was held a working local session that included experts from several areas such as transport, environment, social affairs, economy, scientific mobility, psychology, and modelling. From this meeting, measurable indicators were defined. After this with TMO's modelling tool - Urban Strategy - different scenarios were tested which helped to explore the significance of the indicators. A second meeting took place with city council members and the experts from the previous meeting to bring the SUMP process to the political level. This approach was considered successful since early results were gathered regarding effect of different scenarios and measures. It is pointed out that one of the strengths of the project was the adopted participative approach. www.eltis.org/discover/case-studies

Dialogue:

Although every particular process may present specific characteristics affecting the stakeholder engagement strategy, as a general standard, it is advisable to follow the three steps presented next:

1. Contact the stakeholders; inform them about the project, goals and process.
2. Present your expectations about their contribution, input, participation, etc., soliciting their feedback and impressions about it, and agreeing on the future relationship.
3. Request the agreed contribution (whatever it is), in due time. This contribution may vary deeply depending on the type of stakeholder and its role in the project. However, once the participation has been agreed during the second step, it becomes very important to continue the process, asking for the contribution or, in case it is no longer needed, contacting the stakeholder to explain the new circumstances.

The whole process of successfully involving stakeholders relies on the idea of the 'psychological contract' which is virtually established between the Team and the Stakeholders through active dialogue:



From the moment the engagement has been achieved, the project team has to assume this engagement will last until the end of the project, implying regular communication and update about progress even when the stakeholder participation is already over. It is convenient to keep record of all communications and activities related to stakeholders, as well as to let them see their input and opinions have been considered. There are many different techniques designed to reach and enhance the stakeholders' engagement, including public consultations, questionnaires, surveys, social media contributions, workshops, open debates, mass communication, participatory activities in the city, etc. Again, every technique must be adapted and designed bearing in mind which is the stakeholder targeted, as well as the input we want to get through the activity.

Lisbon's citizens can propose projects for the city in several areas such as transportation, mobility, environment, energy, culture, education or urban rehabilitation up to 500 000 € that were analyzed by the technical services of the city council and then voted by the citizens. The winning proposals are then validated and put into action. Since it began until now (2008-2016) 5770 proposals have been submitted of which 105 have won their contest and have either been or are in the process of being complete. In financial terms this means that 17 200 000 € have been spent on complete projects and other 14 105 000 € are to be spent on projects that are ongoing. On the first participatory budget, only 1101 votes were gathered while on the last (2016) the number was fixed at 51591 votes. www.lisboaparticipa.pt/home; <https://factsreports.revues.org/3363>

It may happen that one or more stakeholders have already participated in related previous plans, leaving a history of contributions, efforts, potential disappointment, expectations, etc. In these cases, prior to any other progress with stakeholders, it is advisable to gather all relevant information about the previous projects which involved the stakeholders, and figure out the real situation in the municipality so as to avoid misunderstanding, mistrust and disaffection towards our goals.

In those two cases, it is recommended to contact the previous team and gather as much information as possible, contact and solicit feedback from other relevant stakeholders, and, if possible, try to assess through surveys or similar means, if the public opinion and expectations match those you consider reasonable at this stage. If the assessment results do not correspond to what should be normal, some issues or unknown factors could have been underestimated, limiting the future chances for success.

Although the Identification and Dialogue phases are consecutive, they should bring feedback to each other, since the dialogue with stakeholders may bring in relevant information about not yet considered stakeholders, or other relevant data. As a general approach, the stakeholders' involvement process should be performed through the following four steps, so as to be sure all relevant information has been collected, and all related stakeholders have been involved:

1	Stakeholders identification and first power vs. interest matrix
2	Dialogue with stakeholders. Expectations
3	Information and data sources linked to stakeholders
4	Stakeholders' relevance final matrix & psychological contract

When both, the context analysis and stakeholders' involvement phases are complete, the initial assessment step is over, and the participatory process phase shall begin.

2.3 Step 2: Participatory process

2.3.1 Participatory process design

A participatory process implies the involvement of “public” in decision making processes. The definition of “public” depends on the topic to be addressed. Therefore, participatory processes can target several kinds of “public” such as citizens, the stakeholders of a project or policy, experts and even members of government and private industry (Slocum, N. 2003).

Generally, policy making processes like the decisions required for LCTP, implicate a three-step cycle of planning implementation, and evaluation for which the participatory processes can be used in some of these steps (Fig.1).

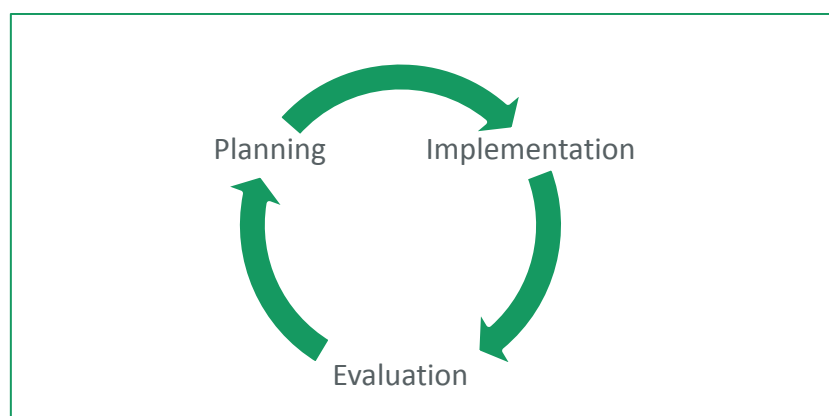


Fig. 1- Participatory process for policy making decisions. Source: Adapted from (Slocum, N. 2003).

Considering that the development of a LCTP implies a continuous decision making process, the involvement of several types of stakeholders should be considered according to the stage of the plan. We highlight that in the case of decision making process it is generally recommended to involve policy-makers as much as possible and in an early stage of the process which will increase the likelihood of their support to the process and to the outcome (Slocum, N. 2003).

With the purpose of supporting the identification of different groups of stakeholders and their role in the project we used a comparative chart for participatory methods (Tab. 1).

Tab. 1- Comparative chart for participatory methods.
Source: Adapted from (Slocum, N. 2003).

Method	Objectives	Topic*				Participants	Time		€ 1-4
		Knowledge	Maturity	Complexity	Controversial		Event	Total	
Charrette	Generate consensus among diverse groups of people and form an action plan.	+/-	+/-	-	+/-	Average citizens or stakeholders. Others give input.	1-5 days	2-3 months	3
Citizens Jury	A decision that is representative of average citizens who have been well informed on the issue. Aims	+/-	+/-	+/-	+	12-24 randomly selected citizens. Experts, stakeholders & politicians	3 days	4-5 months	4
Consensus Conference	Consensus and a decision on a controversial topic.	+	+/-	+	+	10-30 randomly selected citizens. Others give input.	3 weekends	7-12 months	4
Delphi	Expose all opinions & options regarding a complex issue.	-	-	+	+/-	Experts	Variable	Variable	1-3
Expert Panel	Synthesize a variety of inputs on a specialized topic and produce recommendations.	-	-	+	+/-	Experts	Variable	Variable	2

Focus Group	Expose different group's opinions on an issue and why these are held (reasoning).	+/-	-	m	+/-	Stakeholders and/or citizens	2 hours – 1 day	1 month	1
PAME	Evaluating and learning.	+/-	+/-	+/-	+/-	All stakeholders	Variable	Variable	Var
Planning Cells	Citizens learn about and choose between multiple options regarding an urgent & important issue. Develop	+/-	-	m	-	25 average citizens. Experts & stakeholders present positions.	5 days	5 months	4
Scenarios	Planning and preparedness for uncertain future. Vision-building.	-	-	+	+/-	Anyone	2-5 days	6 months	1-3
World Café	Generating and sharing ideas	+/-	-	-	+/-	Anyone	4 hours – 1 day	1 month	1

Legend: Explanation of chart symbols:

*Topic	+	m: Medium	-
Knowledge	A lot of common knowledge exists.	There is little common knowledge.	
Maturity	Most people have already formed opinions on the subject	The subject is new; people are still forming their opinions.	
Complexity	Highly complex or technical	Not very complex or technical	
Controversial	Highly controversial	Not very controversial	

Note: +/- means that the method can address subjects with either + or –.

€:1 = inexpensive; 2 = moderate; 3 = expensive; 4 = very expensive

As depicted in the chart, the methods are variable in accordance with the objectives and the type of participants. For example, if the goal is to obtain specialized inputs and recommendations from experts, the methods applied are Delphi or Expert Panel which require highly complex and technical knowledge. This type of information is particularly important to obtain in the initial stage of a decision-making process that requires the design of a technical plan. Every decision-making process has impact in different groups of people and in different economic activities, therefore the focus group method is a very common method since it can cover several types of stakeholders and citizens, it is not expensive and it is short in time.

Another example that could be relevant when we deal with uncertainty, as it is the case of an LCTP, is the application of a method based on scenarios where anyone can participate but the costs associated may be variable and expensive. Overall it is crucial to analyze carefully the methods proposed in Fig. 2, select one or more methods per the stage of the project, the type of stakeholders that we want to involve, the objectives and the available budget.

When a participatory method is adopted there are specific ways to communicate and share information among the participants which is crucial for the success of the participatory process. The language used and the depth of the contents should be adapted to the participants. For example, in a focus group it is important to use a trust and open language to quickly build synergies and secure cooperation among participants.

DISCUSSION

- What kind of stakeholders would you select to participate in each stage (planning, implementation, and evaluation) of a participatory process for policy making decisions, such as an LCTP?
- Choose some of the participatory methods depicted in Fig.2 and allocate them to each stage of an LCTP.

The participatory process development can be divided in four phases: preparation phase, publication phase, dialogue phase and response phase (Krywkow, J. 2008).

The preparation phase includes:

1. To define the purpose and goals of the strategy.
The clear definition of objectives is crucial for the success of the project. It is important to consider the current political situation regarding the subject in study. Understanding the political context and relevance of the subject will increase the political influence.
2. To determine the scope of a public involvement process.
The definition of the scope of a participatory process will require defining the topic, to identify the political decision making powers and consider the budget.
3. To understand legislative, legal, jurisdictional, and social context for the issue.
Understanding the context will be important in identifying stakeholders, choosing the method, or spotting possible limitation of the project. Important variables may be: level of governance influencing target system elements or if there have been any past interventions.
4. Identify the stakeholders and define their participation.
Stakeholders can be individuals, non-governmental organizations, and private companies, experts on the issue or policy makers. It is then important to clearly identify them, categorize them according to their relevance to the project and finally select who to involve in the process.
5. Resources
Manpower and funding must be allocated for the project. Resources such as cost of expert's advice, computer capacity, locations for meetings or printing costs should be considered
6. Design the plan
The plan can be designed according to one of the above methods which can be explore in depth in (Soulum, N. 2003) and taking into consideration all the information and decisions of the previous steps.

The publication phase includes providing information on the process through website publications and/or newsletters. Stakeholders should be aware of the process and able to give feedback and contact with the project employees.

During **dialogue phase** and after public and stakeholders have been informed a first meeting with public or stakeholders should take place. During this phase awareness, can be raised, questions answered, previous neglected problems identified and new unknown stakeholders identified. It is important to have this meeting on the right stage of the process, not too early that not enough information has been collected or processed. All aspects of the meeting must be covered, from logistics to stakeholders and public invitations. There should have an analysis of the meeting to figure out several aspects of the process. Better categorization of stakeholders; identify conflicts or errors such as missed criteria, side effects or hidden costs can come out of this process.

The **response phase** will answer the questions raised by the analysis of the meeting. Additional meetings can be planned or educational activities to better inform the public can take place. A final meeting should always be planned at the end of the project with all stakeholders and public to show the results.

TRAINING

- Considering the above-mentioned phases of a participatory process, develop a draft of a participatory guide to a LCTP.

Case study: ClimadaPT.Local (<http://climadapt-local.pt/en>)

Why was ClimadaPT.Local project chosen as a case study for the Participatory Process?

The ClimadaPT.local project was chosen as a case study regarding their implemented participatory methodologies in the decision-making process of climate change adaptation strategies. The project is an example of best practices due to their purposes, characteristics and the meaningful number of Portuguese municipalities involved.

What are the main features of ClimadaPT.Local?

The ClimadaPT.Local is a pioneer project in Portugal that ran from January 2015 to December 2016 with the main purposes of developing 26 Municipal Strategies for climate change adaptation (MSCCA) and disseminating these works to other municipalities through the creation of a Municipal network for climate change adaptation. The main characteristics of this project rely on the processes and methodologies adopted to capacitate municipal technicians, to involve policy makers and to raise awareness and participation of local stakeholders. The 26 municipalities selected for the project cover about 21 % of total country residents and were selected in each Intermunicipal Community, Metropolitan Area, and Autonomous regions. This geographic selection across all the country aimed to assure the socio-economic diversity, vulnerabilities, and opportunities of Climate Change in the several sectors already identified by the National Strategy for Climate Change Adaptation and to reinforce the political and institutional engagement for the future implementation of MSCCA. To reinforce the capacity building process and the transfer knowledge process, the project accounted with the participation of 3 additional Municipalities in different stages of their MSCCA (Fig.2).



Fig.2- Portuguese municipalities participants in Project ClimaAdaPT.local - Municipal Strategies for Climate Change Adaptation (26 municipalities developed their own strategy and 3 municipalities with their ongoing strategies).

Source: Adapted from (Simões, et al, 2016)

The ClimadaPT.local involved several partners including universities, research centers, municipalities, and urban planning companies. The EEA Grants and the Portuguese Carbon Fund co-financed the project.

The methodology adopted by the project relies on the assumption that Climate Change Adaptation is a decision-making process and therefore encompasses the following main characteristics:

- i. Continuity - activities that should be revisited and updated according to their relevance;
- ii. Specificity - should be focused in questions or concrete decisions and consider strategies and decision making-processes already existent;
- iii. Multiplicity of agents - important to understand different perspectives and their influence in the decision-making process;
- iv. Temporally adjusted- understand the lifetime of a decision will support the identification of the requested information and the level of uncertainty

KEY TOPICS FOR LOCATIONS:

- Innovation in participatory processes is a key for the success of strategic local planning.
- To innovate in participatory processes, it is crucial to develop new methodologies to capacitate municipal technicians, local decision-makers and to raise awareness among stakeholders.
- Alike ClimadaPT.local, LOCATIONS project involves continuous decision making-processes.

How was the participatory process designed in ClimadaPT.Local project?

The participatory process is a key element in the methodology used in ClimadaPT.Local project and it's embedded across all their implementation. This methodology was based in a tool designated ADAM ("Apoio à Decisão na Adaptação Municipal") developed by the project to support Decision in Municipal Adaptation. The methodology was inspired by UK Climate Impacts Programme (UKCIP) and the ADAM tool was built upon the UKCIP Adaptation Wizard (Capela Lourenço, et al, 2014). Therefore, the structure of ADAM tool benefits from the robustness and the experience of UKCIP Adaptation Wizard tested by several implemented cases in UK, Germany, Australia, Canada, and United States (Capela Lourenço, et al, 2014). The conceptual scheme used in ADAM methodology is a continue process that encompasses five steps (Fig. 3):

I. The step zero is dedicated to the preparation of work. The main goals are to assure the understanding of the methodology and the main motivations of each municipality to implement an adaptation strategy and to gather the technical team as well as the municipal decision-makers (Capela Lourenço, et al, 2014).

II. The first step is the identification of current climate change vulnerabilities. The main goals are the increase of awareness about the current vulnerabilities, the localization of the main municipal areas affected by climate events and the identification of the municipal departments or other institutions more prepared to plan and respond to past climate change events (Dias, et al, 2016a).

III. The second step is the identification of future climate change vulnerabilities. The main goals are the identification of the future climate change impacts that require an answer using different climatic scenarios that allows targeting geographic areas, sectors, and social groups more vulnerable to future climate change (Dias, et al, 2016a).

IV. The third step is assessment of climate change options. Like other decision processes, the climate change adaptation process require a strategic planning to achieve a specific ambition in the medium-long term which is usually designed by guide lines that support a vision and specific objectives. In this context, it is possible to assess climate change vulnerabilities defining the involvement of different stakeholders and prioritizing options and measures (Capela Lourenço, et al, 2016).

V. The fourth step is the integration of the adaptation options within the framework of territorial management. This step aims to identify and characterize territorial management policy instruments at the municipal level that can materialize the adaptations options selected for each municipality in the previous steps. It also considers the definitions of guidelines that will allow this materialization. The monitoring process is also included in this step of the methodology (Barroso, et al, 2016).

All the steps of the ADAM methodology include participatory approaches oriented to several targets and using different techniques (Fig.3). While all the methodology was developed by the municipal staff guided and trained by the technical team of the project, the third step related with the assessment of climate change options involved the participation of local stakeholders. The local policy-makers were also involved from the beginning of the process.

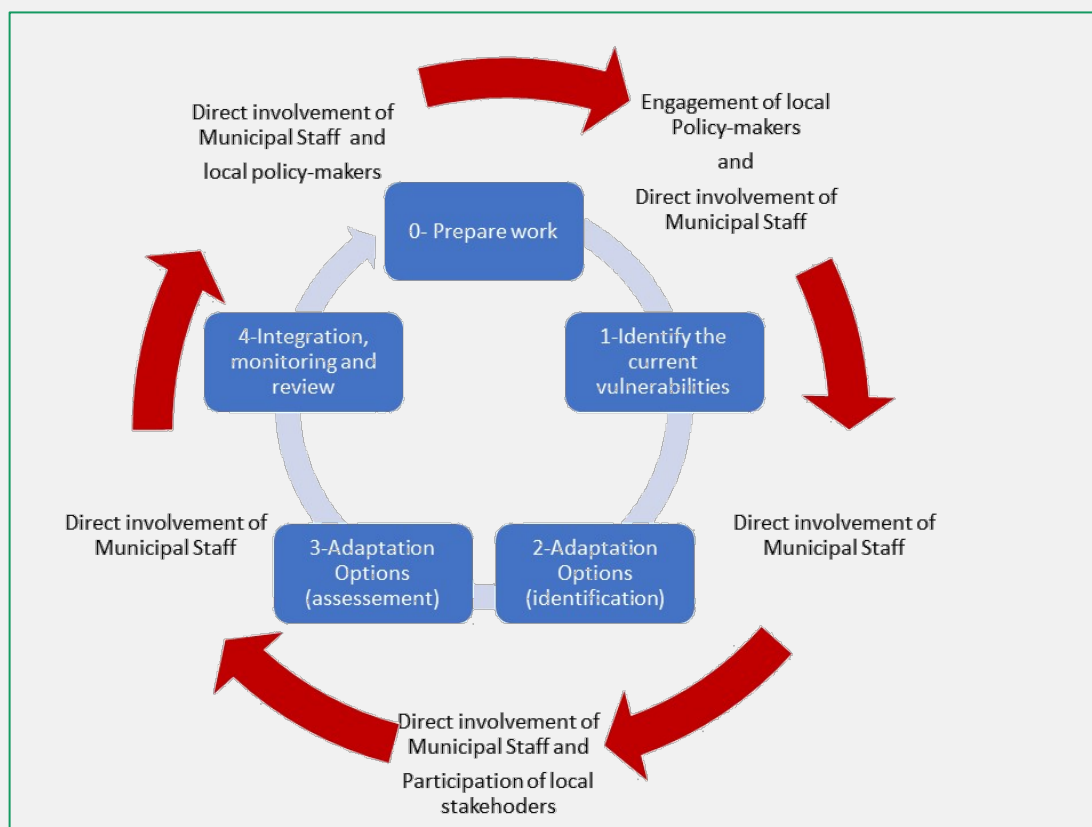


Fig. 3– Conceptual schema of ADAM (Support Decision for Municipal Adaptation) methodology used for the development of Municipal Strategies for Climate Change Adaptation (MSCC). The participatory process is continuous across the steps from ADAM methodology and involves different entities. Source: Adapted from Capela Lourenço et al (2014).

- The ClimadaPT.local adopted an innovative approach concerning the development of the municipal strategies. Each municipality involved in the project was responsible for the development of their own municipal strategies for climate change adaptation (MSCC). This approach was supported in all stages by the technical team of the project engaging all the participants in training sessions and local workshops.
- Given the continuous decision making-process in LOCATIONS, the participatory process should be embedded in its methodological approach;
- For each step of LOCATIONS, it is crucial to identify clearly how to involve entities and what kind of entities are key for each stage of the project.

How was the participatory process conducted?

The participatory approach was a continuous process in ClimadaPT.Local. Different participatory methods were applied according to the participants. The municipal staff directly involved in the elaboration of MSCCA received from the project team several training sessions and technical support to their work. In this context, the municipal staff produced a report for each phase of the project. Additionally, the municipal staff directly allocated to the project had also the responsibility to disseminate the project inside the municipality and engage other municipal technicians and policy-makers. Regarding the participation of local stakeholders (academia, private organizations, associations, public administration, and citizens), it was developed a local workshop for each municipality involved in the project where were organized round tables organized by subjects (e.g. Energy and health, agriculture and forest, Urban planning, Water resources, etc.) and moderated by experts to discuss the impacts of climate change and possible adaption options adjusted to each municipality. These surveys involved about 1 500 participants for the 26 local workshops organized. Afterwards the stakeholders involved received a report with the feedback of this workshop. The results of the workshops were considered and incorporated in the final MSCCA.

How was the participatory process monitored?

The participatory process and the project itself was monitored using four types of surveys that targeted specifically the technical staff involved in the MSCCA, the other technical members of each municipality, the policy-makers, and the local stakeholders. This monitoring covered all the period of the project and it was applied to surveys for each type of participants in different moments aiming to evaluate the evolution of the projects and the perception of each group of participants.

DISCUSSION

- How do you think that it could be organized and conducted the participatory process in LOCATION project?
- What kind of strategy could be designed to disseminate inside each municipality the LCTP during its construction among the technical staff and the municipal policy-makers?
- What kind of monitoring process could be adopted in LOCATIONS?

2.4 Step 3: Draft of the operational model

2.4.1 Design of the Plan – the Logical Framework Approach

The drafting of the Operational Model will define and guide all the subsequent measures and actions to be taken. Therefore, it is of the utmost importance to prepare a sound plan, based on solid foundations, which integrated all the data obtained through the previous steps.

A logical sequence of steps must be followed, so as to make sure no wrong assumptions or premature conclusions are included in the plan:

- **Definition of the current scenario**

This first step is a summary of the information collected through the previous phases, so as to present the current context, including the main issues, opportunities and resources. The key factor is to establish a clear, schematic and synthetic image as a baseline scenario, which must permit the use of indicators to assess the evolution of the scenario variables through time. A useful advice at this stage is to share the baseline scenario developed with relevant stakeholders who could complement, adjust or even question some of the conclusions obtained.

To improve the mobility and quality of life for its citizens, Dresden developed a SUMP to meet the mobility needs of residents, businesses, and the region for decades to come. It carried out an ex ante evaluation using a combination of potential scenarios and an impact assessment. Data collecting started in January 2014, and the city expects to perform monitoring activities annually and a SUMP evaluation every three years. Dresden organized a roundtable to involve partners and stakeholders in the process of creating, monitoring and evaluating the SUMP. The German city already has important findings due to this early monitoring and evaluation. This requires excellent co-operation between all involved parties, and significant financial and staff resources – the allocation of which Dresden intends to standardize for the next SUMP cycle. The co-operation of political and technical levels was also a challenge. It was used the CHALLENGE template for SUMP monitoring and evaluation which Dresden believes to be a good guide when developing a local plan, and advises other cities to use city-specific indicators and partners to collect data. A great advantage, it says, is receiving data describing urban mobility development that can be matched to data of actual developments with political objectives. www.sump-challenges.eu

- **Definition of vision and objectives**

Defining the main goals of the LCTP (after the vision of city that the team and stakeholders share), will determine all subsequent steps. This main vision derives from the previous work, as well as from the four guiding principles described previously. It is essential that both, vision and main objectives are shared and participated by all, or most of all, in order to reach good expectations of duration and success for the LCTP. Therefore, all relevant stakeholders should be part of this step, and the outcomes should be simple, clear and easily understandable.

- **Definition of actions and indicators**

As with most project development processes, after the vision and main goals, the more specific goals shall be determined, together with the corresponding measures and actions, the time span, the expected results and the indicators/source of data stated to their assessment.

To that end, it is advisable to use existing project design tools such as the logical framework approach (LFA), since it will allow to present all key elements of the plan in a clear, logical and efficient way. Furthermore, the LFA permits not only the project design but also its management along time, since it is an evolutionary, iterative analytical process which sets out in a systematic and logical manner all the project objectives and the causal relationships between them. The main advantages of using a LFA are:

- Easy and clear project design.
- Allows project management and monitoring.
- Fosters coordination and common ground among stakeholders.
- Clearly establishes the priority and relevance of every objective and measure throughout the whole Plan strategy.
- Permits a separately monitoring and assessment of every line of objectives.
- Allows changes and inclusions along time.

A visual example of a scheme of the Logframe Approach, as offered by the German Foundation for International Development (DSE)², is presented below:

² Introduction to the Logical Framework Approach (LFA) for GEF-financed projects. DSE - Deutsche Stiftung für internationale Entwicklung. www.unep.org/dgef/Portals/43/publications/file.2006-08-24.doc

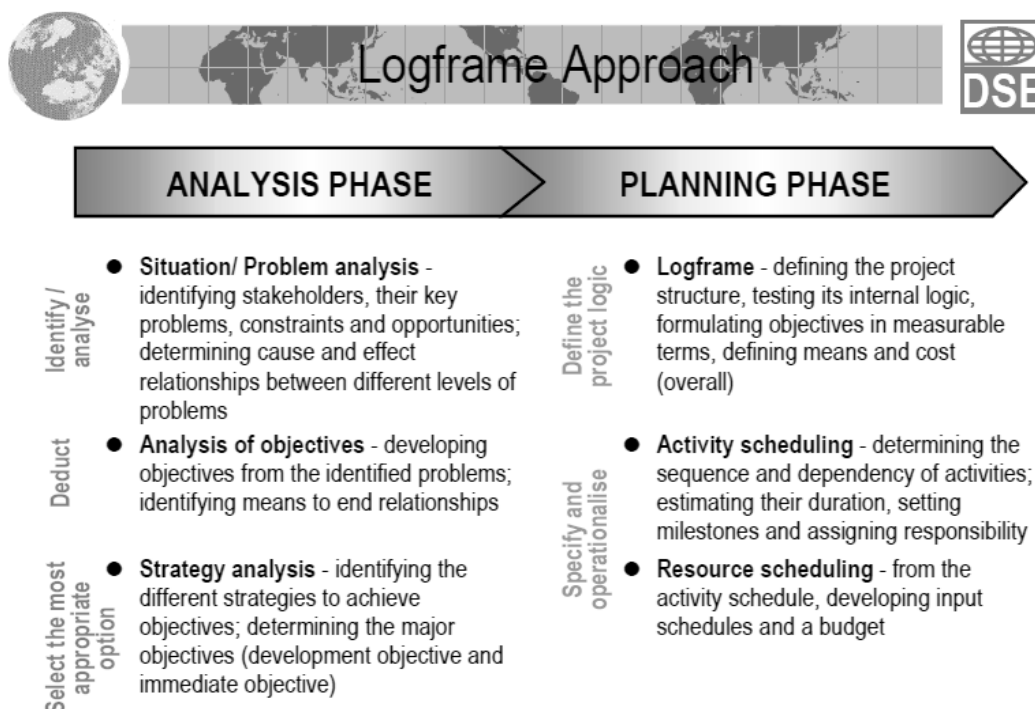
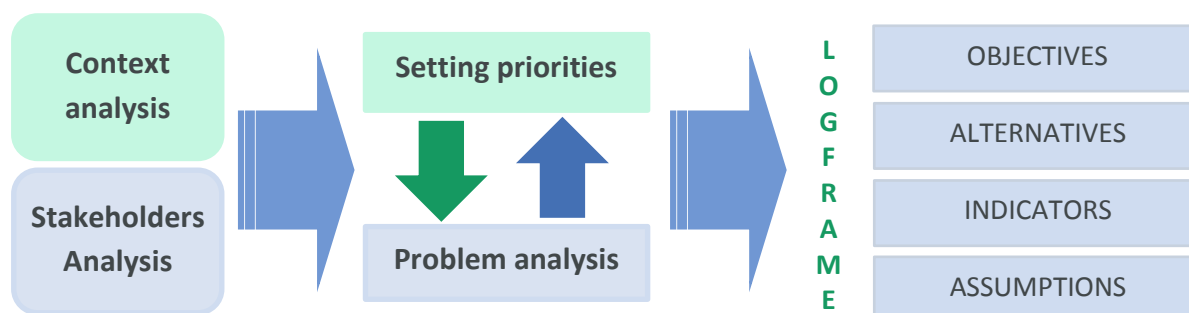


Fig. 4- Logframe approach. Source: DSE

The Logframe Approach is built on a matrix (Logframe matrix), which will comprise all the information obtained through the Analysis, Stakeholder identification, Prioritization and Planning phases, in a systemic, logical and summarize view. The sequence to be followed responds to a step-by-step analysis with the following structure:



It is important to understand that the LFA matrix is the results of all previous work, analyzing and processing the necessary information. It aims to present in a useful manner the data previously obtained, and will always depend on the quality of the latter. The LFA is a process, not a goal.

The usual Logframe matrix consists in a 4 x 4 cell table, which starts in the upper left corner, and has both vertical and horizontal logic. The vertical logic can be understood as what the project intends to achieve, thus presenting the objectives in its different levels. The horizontal logic can be associated to the progress, impact and monitoring of every line of action.

Project Description		Objectively verifiable indicators of achievement	Sources and means of verification	Assumptions
Goal	What is the overall broader impact to which the action will contribute?	What are the key indicators related to the overall goal?	What are the sources of information for these indicators?	What are the external factors necessary to sustain objectives in the long term?
Purpose	What is the immediate development outcome at the end of the project?	Which indicators clearly show that the objective of the action has been achieved?	What are the sources of information that exist or can be collected? What are the methods required to get this information?	Which factors and conditions are necessary to achieve that objective? (external conditions)
Outputs	What are the specifically deliverable results envisaged to achieve the specific objectives?	What are the indicators to measure whether and to what extent the action achieves the expected results?	What are the sources of information for these indicators?	What external conditions must be met to obtain the expected results on schedule?
Activities	What are the key activities to be carried out and in what sequence in order to produce the expected results?	Means:	What are the sources of information about action progress?	What pre-conditions are required before the action starts?
		What are the means required to implement these activities, e. g. personnel, equipment, supplies, etc.	Costs What are the action costs?	

Fig. 5- Typical Logframe Matrix. Source: Barreto (2010)

Vertical Logic:

1. Goal: Overall objective of the project. The overall objective may be beyond the reach of this project on its own, for instances: Reach a healthy, sustainable and comfortable city.
2. Purpose: Desired outcome that the project will achieve. Improved city cruise related mobility.
3. Outputs: Project intervention strategy. There may be several outputs: 1.1 Reduced Carbon emissions, 1.2 Reduced traffic congestions, 1.3 Increase in visitors expenditure in the city ...
4. Activities: Specific tasks needed to achieve these outputs. There may be several for each output. Statements should be brief and with an emphasis on action words. Examples: 1.1.1 Increase and develop the pedestrian itineraries; 1.1.2 Put in place a sharing car scheme; ...
5. Inputs: If required or useful, provide additional information, such as the means and costs, legal requirements, etc., which are needed to carry out these activities.

Horizontal Logic:

1. For every one of the levels vertically presented in the first column from the left, objectively verifiable indicators of achievement must be determined. From the top to the bottom of the objectives hierarchy, the indicators will allow to measure the progress in terms of quantity, quality and time. The indicators can relate to the impact of the measured goal or activity in the overall objective (carbon emissions decrease percentage in a given time), or to the process of the activity, thus related to the expected results and outcomes (car sharing number of users growth per year).

2. Sources and means of verification: the source of verification should be considered and specified at the same time as the formulation of indicators. This will help to test whether or not the indicators can be realistically measured at the expense of a reasonable amount of time, money and effort. They should specify how, who and when the information will be gathered.
3. Assumptions: This concept refers to those facts or events which must hold to allow the move from one stage of the Logframe to the next one. Assumptions are external factors that have the potential to influence (or even determine) the success of a project, but lie outside the direct control of project managers. Assumptions are usually progressively identified during the analysis phase, and can present different ranges of impact (1. Political commitment towards sustainable mobility is granted throughout the project; 1.1.2 Car sharing schemes remains a legal alternative).

This process shall be adapted to the specific circumstances and needs of the context, although the matrix may become too complex if too many details are included. It is advisable to use it to develop the plan in its basic and more important features, leaving to separate documents (annexes), the specific description of activities development and expected outcomes.

It is also convenient to define actions and measures from a modular approach, meaning to say with the possibility of being independent from one another. The different measures will most likely be strongly related, but if the way in which they are designed permits their deployment separately, the risk of blocking the whole LCTP after a failed measure decreases substantially. This approach is especially relevant in long term plans where there is no certitude about the budget allocations in coming years and, therefore, which activities and measures will be feasible.

2.4.2 Development of future scenarios

The complexity of the context together with the many factors intervening, and the ambition and duration of the Plan imply the likely possibility of deviations and relevant changes in the context. The potential future scenarios are uncountable and impossible to foresee. However, reasonable predictions can be established, looking to the most influential and frequent factors, and rating them in a scale from:

1. Nothing changes, neither for better nor for worse (Business as usual scenario, where historical data, trends and behavioral conduct will help us to define the future context).
2. Most positive possibilities foreseen actually occur, surpassing the expected outcomes and allowing to incremental adaptations of the Plan (Best possible scenario, which could require a revision of the main objectives and activities, as well as the consequent adaptation of the Logframe).
3. Unexpected events or circumstances, mostly negative for the project, become a significant obstacle and hazard for the fulfillment of foreseen objectives. In this case, the whole Plan should be revised and, if necessary, reconsider from its roots.
4. Most likely scenario: when events occur in the most likely way, thus progressing to a certain stage (not as good as they could have), but getting low or even stuck in some aspects. In this scenario, the most important is to properly assess the context and the most likely trends for the near future.

Typically, the Plan design, goals, measures and expected outcomes will be based on the most likely scenario, since it is the best way to be on the 'safe side' while trying to be ambitious. It is also the most

effective scheme to get sources of funding and stakeholders' participation, since the presentation of the Plan goals can be supported by reasonable and shared expectations.

Foreseeing and describing the potential scenarios can be done at different levels:

- For the whole project, thus combining the results and changes of the different strategies involved,
- Per main objective, strategy or line of action, which is especially useful when they are rather independent from the other,
- Per measure or pack of measures, this permits to analyze specifically different trends, gaining in accuracy and reducing the impact of unexpected negative events.

Obviously, the more developed and specific the future scenario is, the more expensive and complex it becomes. In order to design the Plan, a good advice in this sense would be to establish a general potential scenario for the whole Plan, and then go in some depth in those areas where the relevance or peculiarity of the measure makes it wise.

A visual example of different scenarios linked to the development of transport CO₂ emissions from 2010 to 2050 in some Indian cities is presented below:

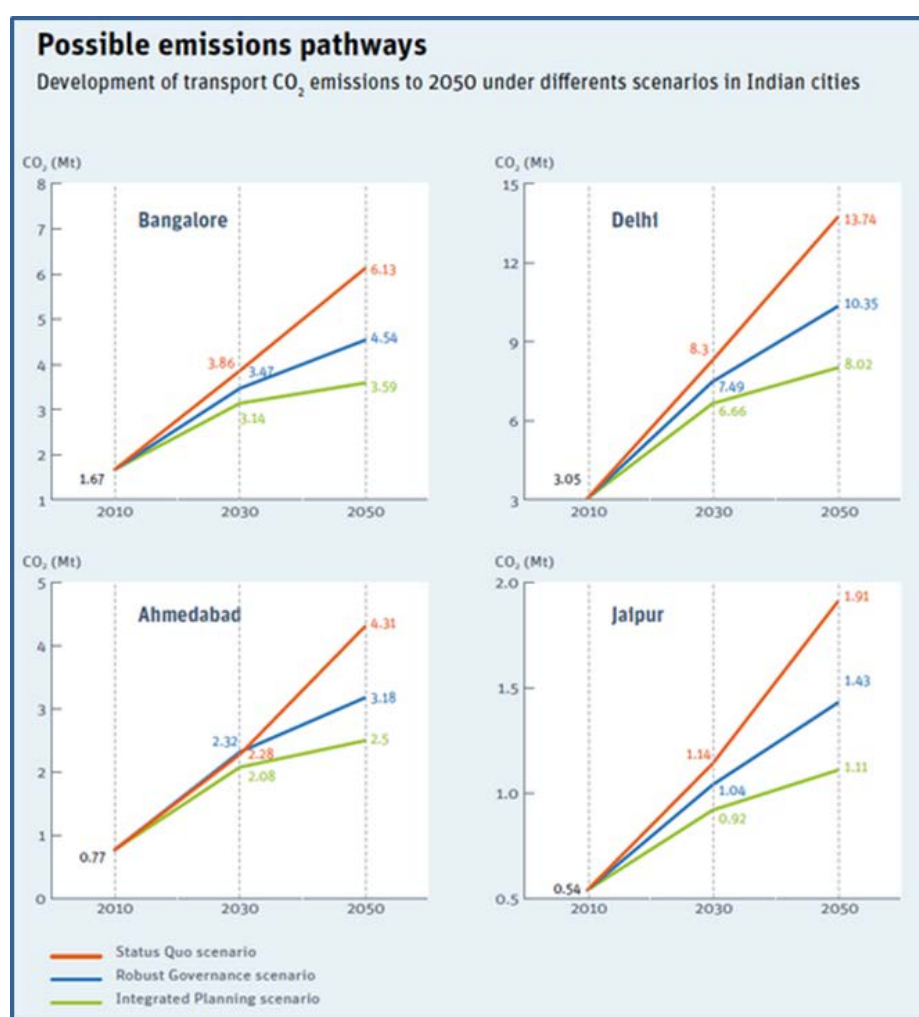
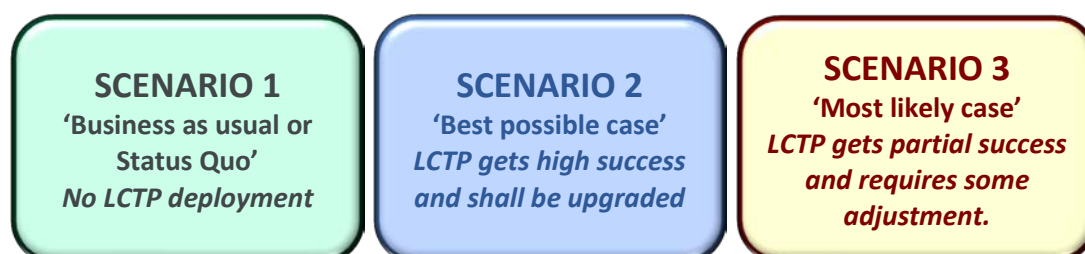


Fig. 6- Possible emissions pathways. Source: Int. Transport Forum. COP21

Once the most likely scenario (to whatever chosen level of detail) has been drafted, it is very important to do so with the extreme potential scenarios, so as to have a framework delimiting the future cases, permitting to assess the outcomes of the LCTP in every case, and increasing the chances to adapt it or adjust it to new conditions arising. Leaving apart the worst case scenario since it is actually very hard to foresee, at least three potential scenarios should be drafted for a medium/ long term future (5 to 10 years' time):



Defining future scenarios is necessarily linked to the monitoring and assessment process, so as to make sure the established indicators bring in the required information to evaluate the whole picture from a scenario perspective. In this regard, it is important to proceed with step 3 and step 4 in a coordinated manner, revising its consistency and robustness.

2.5 Step 4: Monitoring, assessment and sources for funding

2.5.1 Definition of the process for monitoring

Monitoring means 'supervising activities in progress to ensure they are on-course and on-schedule in meeting the objectives and performance targets'.³ In other words, monitoring means taking a snapshot of the current situation (or a series of snapshots) in the implementation of activities and pinpoint where we are, how much we achieved, how many resources we used and how well in comparison with our work-plan. For the purpose of this manual, two monitoring processes will be described, respectively measuring:

- Performance in the production of the LCTP
- Performance in the implementation of the LCTP

Quantitative as well as qualitative parameters shall be used for monitoring processes, which may vary depending on the individual features and choices made in the design of each LCTP. The following lines are, therefore, general guidelines and need adapting and customizing for each individual operational context. The main elements to be considered in monitoring actions are: timing and deadlines; indicators; methodology for data gathering and elaboration; reliable sources of data; accountability or definition of responsibilities.

2.5.1.1 Monitoring LCTP production

The steps in LCTP production are described under WP 3 (Testing). After the preparation phases are concluded and over a period of 16 months (March 2017 – July 2018), LCTPs need to be produced (draft and

³ Source: Businessdictionary.com

finalized versions) and evaluated according to a set of evaluation parameters developed firstly for the mid-way stock-take in November 2017 and then finalized by March 2018 for the final evaluation of LCTPs (preparing evaluation parameters and procedure is an activity envisaged under WP 4 - Transferring).

The Gantt chart represents the envisaged sequence of actions.

				Module 1 - TESTING																																			
WP	Activity (A) / Deliverable (D)		Responsibility	2016		2017												2018																					
				11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7															
3 - Testing WP Leader: CIRCE	A 3.1	Coordinating the WP																																					
	A 3.2	Tailoring the operational model for LCTPs																																					
	D 3.2.1	Operational model for LCTP for cruise destination cities	CIRCE																																				
	A 3.3	Capacity byuiling for partners to bridge the gaps																																					
	D 3.3.1	Capacity building manual	CIRCE																																				
	A 3.4	First phase in the implementation of pilot activities																																					
	D 3.4.1	7 drafts of LCTPs	allIPPs + Aps																																				
	A 3.5	Mid-way stock take																																					
	D 3.5.1	Mid-way stock take report	CIRCE																																				
	A 3.6	Finalisation of pilot activities																																					
	D 3.6.1	7 complete LCTPs	all partners																																				
	A 3.7	Evaluating the 7 complete LCTPs																																					
	D 3.7.1	Report on the evaluation of the first 7 LCTPs																																					
	D 3.7.2	7 finalised and evaluated LCTPs	all partners																																				

The main milestones are the following:

- October 2017 – Drafts ready:
 - LCTP drafts in the national languages ready with detailed report in English or full translated version produced by each PP (this stage envisages the organization of at least 2 participatory sessions in each territory);
 - LCTP drafts in the national languages + detailed report in English or full translated version to be sent to CIRCE and AREA for assessment against a set of shared evaluation parameters (templates for the detailed report and evaluation parameters will be provided in due course);
 - Draft assessment reports sent to all PPs in due course and before the midway stock-take session.

Deadline	Indicator	Methodology	Source of data	Accountability	Output
27/10/2017	7 Draft LCTPs (national languages) + detailed reports in English or full translated versions	Collection of detailed reports / full translated versions in English, checked against parameters	PPs	All PPs to CIRCE/AREA	7 draft assessment reports

- November 15-16, 2017 (Rijeka) - Midway stock-take:
 - all PPs present the main features of their LCTP drafts according to a common set of slides based on their detailed reports in English/full translated versions of LCTPs drafts (templates for the slides will be provided in due course);
 - strengths and weaknesses of each plan are discussed jointly during the workshop in a proactive effort to improve and upgrade existing drafts in the following months, also learning from what the rest of the partnership managed to produce;
 - all outcomes will be gathered in the midway stock-take report;

Deadline	Indicator	Methodology	Source of data	Accountability	Output
15/11/2017	7 PPTs	Collection of 7 reports + PPTs + suggestions for improvements	PPs	PPs to CIRCE/AREA	1 midway stock-take report

- May 8-9, 2018 (Durres) - Finalization of LCTPs:
 - following suggestions and ideas from the mid-way stock take, LCTPs are finalized to come up with their complete versions by the end of April 2018 (this stage envisages the organization of at least 2 additional participatory sessions in each territory);
 - Complete LCTPs will be presented during the meeting in Durres with updated detailed reports in English/full translated versions highlighting progress from the midway stock-take session (templates for the slides will be provided in due course);

Deadline	Indicator	Methodology	Source of data	Accountability	Output
8/5/2017	7 complete LCTPs + updated detailed reports in English/full translated versions	Collection of complete LCTPs + updated detailed reports in English/full translated versions	PPs	PPs to CIRCE/AREA	Collection of PPTs

- July 2018 – LCTPs finalized and evaluated:
 - evaluation of LCTPs completed (evaluation pack: quality standards and procedures by REAK);
 - 21 modular packages;
 - all outcomes will be gathered in the report on evaluation of the 7 LCTPs;

Deadline	Indicator	Methodology	Source of data	Accountability	Output
31/07/2018	7 LCTPs finalized and evaluated	7 evaluation reports	PPs	PPs to CIRCE/AREA	Report on evaluation of the first 7 LCTPs

2.5.1.2 Monitoring LCTP implementation

Based upon the work-plan (actions, indicators, timelines) developed following the guidelines contained in paragraph 3.4.3, a monitoring plan shall be developed, containing detailed instructions to supervise implementation, with the purpose of checking the timely achievement of objectives within established deadlines, measuring performance using the chosen set of indicators. The main elements are again: timing and deadlines; indicators; methodology for data gathering and elaboration; sources of data; accountability or definition of responsibilities.

For an efficient use of resources and for LCTPs to be effective, it is paramount to align them with the most relevant plans affecting traffic and mobility in the city (typically a SUMP, a SEAP, a traffic plan, city development plans, etc.). Since these plans are likely to have a monitoring plan of their own, it is recommendable to harmonize monitoring actions in order to achieve synergies and economies of scale. In this respect, the definition of LCTPs' milestones and the general timing of operations will enhance their feasibility and applicability if broadly in line with actions and measures contained in the other plans of reference.

The indicators chosen for measuring performance in the implementation of the actions contained in the work-plan need to be SMART (Specific, Measurable, Attainable, Relevant and Time-bound). As a consequence, the work-plan sets timelines against which to monitor the achievement of objectives and provides indicators and sources of data. Data sources and methodologies used to define the context analysis (paragraph 3.2.1) should be used as much as possible also during monitoring operations to allow for feasible comparison and facilitate measuring.

In the definition of the monitoring plan, it is advisable to appoint a person to be responsible for the management of the process. In a monitoring team accountable to the monitoring manager, different individuals may contribute with data and information. Members of the team may include representatives of different departments within the institution implementing the LCTP (local authority, port authority) and partners identified in other institutions and organizations capable of providing support in data collection and elaboration. Once performance has been assessed, a review of objectives and timelines needs to be carried out and corrective actions devised and agreed upon, adjusting the work-plan accordingly.

Work-plan complete with deadlines and responsibilities

Main goal 1							
Specific goal 1.1	Start/ deadline	Outcomes	Indicators	Data source	Responsibility for monitoring	Monitoring schedule	Description and methodology
						(Milestones)	
Action 1.1.1	Start/ deadline	Outcomes	Indicators	Data source	Responsibility for monitoring	Monitoring schedule	Description and methodology
						(Milestones)	
Action 1.1.2	Start/ deadline	Outcomes	Indicators	Data source	Responsibility for monitoring	Monitoring schedule	Description and methodology
						(Milestones)	

Gantt with deadlines and milestones

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Main goal 1																								
Specific goal 1.1																								
Action 1.1.1				U					U			U												
Action 1.1.2		U					U											U						
U = milestone																								

2.5.2 Funding

Without a sound estimation of the financial resources needed to go from planning to doing, any plan, no matter how well designed, remains a book of dreams. Defining where funding shall come from is an essential element of the work-plan and needs to be indicated by each action, identifying an estimation of the needed resources and the potential sources.

Koprivnica launched Croatia's first public electric car charging network and municipal e-car sharing system which was achieved through the combined support of an EU-funded urban mobility project and financed from a Croatian national fund and electro mobility program. This synergy proved to be beneficial for all parties. For the city, the initial costs were considerably lower due to the external financial contribution. On the other hand, for these partners it was provided the opportunity to test new solutions and to contribute to reaching their own goals through the implementation of innovative technologies. The national environmental fund paid for charging systems, and additional funds were also provided by the CIVITAS DYN@MO project. Also through the monitoring and evaluation of the project valuable data will be gathered for these partners and future users. Moreover, the system is considered highly transferable. www.eltis.org/discover/case-studies

Resources may be made available, partly or entirely, for instance by

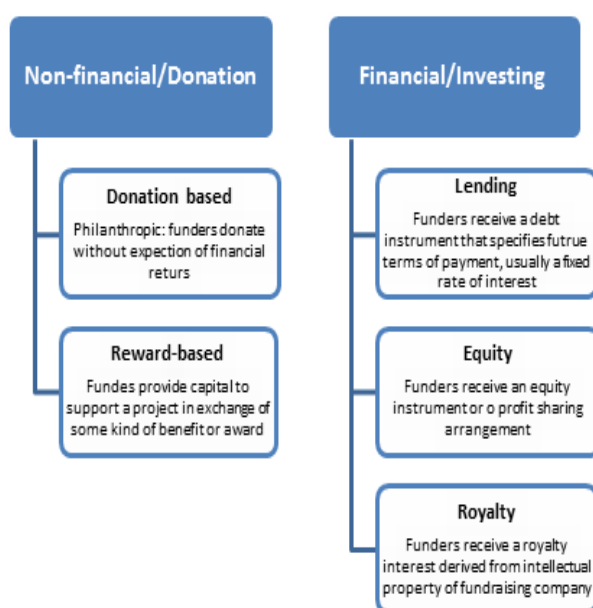
- the institution designing the plan through its own budget;
- external EU, national, regional, local institutional donors;
- revolving funds originally public, later becoming self-sustaining;
- public support to leverage commercial financing;
- commercial financing (loans from banks, municipal bonds)
- a mix of the abovementioned measures.

Moreover, innovative funding opportunities include:

Crowdfunding: the practice of funding a project or venture by raising monetary contributions from a large number of people. Several types of crowdfunding models exist, which can be grouped in two categories:

- Non-financial or donation crowdfunding, where individuals' contributions are not associated with a financial return;
- Financial or investing crowdfunding, where financial instruments are sold in relation to companies assets and/or financial performance.

Figure shows an overview of major crowdfunding models



Public-private partnership (PPP): a funding model for a public infrastructure project, where the private partner can be a privately-owned business, public corporation or consortium of businesses with a specific area of expertise. Different models of PPP funding are characterized by which partner owns and is responsible for maintaining assets at different stages of the project. Examples of PPP models include:

- **Design-Build (DB):** The private-sector partner designs and builds the infrastructure to meet the public-sector partner's specifications, often for a fixed price. The private-sector partner assumes all risk.
- **Operation & Maintenance Contract (O & M):** The private-sector partner, under contract, operates a publicly-owned asset for a specific period of time. The public partner retains ownership of the assets.
- **Design-Build-Finance-Operate (DBFO):** The private-sector partner designs, finances and constructs a new infrastructure component and operates/maintains it under a long-term lease. The private-sector partner transfers the infrastructure component to the public-sector partner when the lease is up.
- **Build-Own-Operate (BOO):** The private-sector partner finances, builds, owns and operates the infrastructure component in perpetuity. The public-sector partner's constraints are stated in the original agreement and through on-going regulatory authority.
- **Build-Own-Operate-Transfer (BOOT):** The private-sector partner is granted authorization to finance, design, build and operate an infrastructure component (and to charge user fees) for a specific period of time, after which ownership is transferred back to the public-sector partner.
- **Buy-Build-Operate (BBO):** This publicly-owned asset is legally transferred to a private-sector partner for a designated period of time.
- **Build-lease-operate-transfer (BLOT):** The private-sector partner designs, finances and builds a facility on leased public land. The private-sector partner operates the facility for the duration of the land lease. When the lease expires, assets are transferred to the public-sector partner.
- **Finance Only:** The private-sector partner, usually a financial services company, funds the infrastructure component and charges the public-sector partner interest for use of the funds.

Budget connected to each action in the work-plan

Action 1.1.1	Start/ deadline		Cost Category					
			Staff	Description	Subcontracting	Description	Investments	Description
		Amounts						
		Source of funding						

The Morgenstadt Network aims to accelerate the global transition to sustainable urban systems. The primary mission of the Network is to identify, conceive, initiate, and implement pilots and demonstration projects for sustainable urban solutions in cities in Germany and around the world. The Fraunhofer Society thereby acts as an aggregator between the development needs of the partner cities and the solutions offered by industry and business. Since 2014 the Morgenstadt network has launched 18 mostly publicly funded innovation projects with an overall volume of 82 M EUR. www.morgenstadt.de/en/city-of-the-future.html

3. Tools and Techniques

Urban mobility

- [Urban Mobility Package \(EU\)](#)
- [The urban mobility observatory](#)
- [SUMP guidelines](#)
- [CIVITAS: cleaner and better transport in cities](#)
- [CIVITAS Guide for the Urban Transport Professional](#)
- [European platform on mobility management](#)

Climate change

- [Climate Action: transport](#)
- [Covenant of Mayors for Climate and Energy](#)
- [Planning for Adaptation to Climate Change](#)
- [Guide To Community Energy Strategic Planning](#)

Stakeholders' involvement & participatory techniques

CIVITAS:

- [Involving Stakeholders: Toolkit on Organizing Successful Consultations](#)
- [Citizens' involvement in planning](#)
- [The use of social media for participatory processes](#)
- [Co-deciding with Citizens: Towards Digital Democracy at EU Level \(ECAS\)](#)
- [e-Participation Best Practice Manual \(EU\)](#)

Funding:

- [CIVITAS EU financing opportunities for urban mobility](#)
- [Guidelines for successful Public – Private – Partnership \(EU\)](#)
- [Resource Book on PPP Studies \(EU\)](#)

Project development

- [Project cycle management and logical framework approach \(EU\)](#)
- [The guide to the LFA approach \(Republic of Serbia, EU Integration Office\)](#)

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Report on LCTP for Durres City (Final Draft)

LOCATIONS - Low Carbon Transport in Cruise Destination Cities

WP3 – Testing

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The content of this document reflects only the author's view and the Managing Authority of the Interreg MED programme is not responsible for any use that may be made of the information it contains.

1. Introduction

1.1 The template

This template, based on Deliverable 3.3.1 (Capacity Building Manual, final version dated 14/03/2017) which serves as reference, is to be used to produce a synthetic report in English providing all essential information on the finalized LCTPs.

The template consists of 5 sections (or steps), namely 'Work-plan and team', 'Initial assessment', 'Participatory process', 'Design of the plan', 'Monitoring and funding'.

The report has to be completed in all its sections in English, respecting the format and the number of characters. Please use diagrams and bullet point lists whenever possible to facilitate evaluation.

The report has to be sent no later than May 15, 2018 in a Word format to:
mmarcof@fcirce.es; locations@area.trieste.it

Those partners that decided to produce full versions of their LCTPs in English, should send them to the same addresses. It is advisable to fill in the report in any case, to facilitate the assessment.

LCTP synthetic reports and/or full translations will be used to carry out LCTP evaluation.

2. Low Carbon Transport Plan

2.0 Step 0: Work plan and team

Please describe the team appointed to produce the LCTP and the work-plan elaborated to guide the drafting of the plan.

For the team: name, organization, role in the organization, tasks in the elaboration of the LCTP

For the work-plan: diagrams providing details on tasks, timing, responsibilities, etc. can be inserted and commented as necessary.

Please report any deviations from the original work-plan and elaborate on the reasons, hindrances and solutions found.

Working Team

Name:	Organization:	Role in the Organization:	Tasks:
Bujar Kotri	Albanian Institute of Transport	<ul style="list-style-type: none"> Chief of Transport Planning Sector Transport Engineer, Transport Planning Expert 	Team Leader; Context Analysis; Participatory Process; Design of the Plan.
Florjan Xhelilaj	Albanian Institute of Transport	<ul style="list-style-type: none"> Official of Studies and Project Sector Civil Engineer, Transport Infrastructure Expert 	Context Analysis, SWOT Analysis; Participatory Process; Design of the Plan.

Work – Plan

Tasks	Deadline	Status	Responsibilities
Step 1: Initial Assessment	May-17	Completed	Realize a complete assessments on the state of the art on the Port and City of Durres
1.1. Context Analyses	Apr-17	Completed	Identification of the Framework of Reference (EU, National, Regional etc.) Cruise Related Flows Analyses Existing Infrastructure Analysis
1.2. SWOT Analysis	May-17	Completed	Produce a SWOT analysis and a CAME Analysis
Step 2: Participatory Process	Sep-17	Completed	Involvement of the main Stakeholders and Actors
2.1. Stakeholders Identification	Jun-17	Completed	Identification of main Stakeholders
2.2. Participatory Process	Sep-17	Completed	Organize Participatory Process (2 or 3 expected meetings)
Step 3: Design of LTCP	May-18	1st Draft Produced / Final LTCP Draft May 2018	Current Scenario Vision and Objectives Actions and Indicators Future Scenarios
Step 4: Monitoring and Funding	May-18	In Process	Methodology to monitor LTCP implementation
4.1. Monitoring LTCP Implementation	May-18	In Process	Development of Monitoring Plan to supervise the implementation of LTCP
4.2. Funding	May-18	In Process	Estimation of needed resources and possibilities of funding.

2.1 Step 1: Initial assessment

2.1.1 Context analysis

Strategic positioning of Durres City make a safe, high-value tourism destination featuring an unparalleled variety of world-class natural and cultural attractions in a small geographic area, managed in an environmentally and socially responsible manner, easily accessible to European tourism markets. In Durres City and Tirana –Durres Region, visitors are welcomed as guests as part of the country's rich cultural traditions and heritage. Municipality of Durres is one of the richest geographical areas in a historical and cultural perspective. As a gateway in Albania, the city of Durres offers the first experience and impression of tourists who come to Albania from the sea.

1. EU, national, regional and local framework of reference.

EU Framework:

- Action Plan on Urban Mobility (2009)
- White Paper on Transport 'Roadmap to a Single European Transport Area - Towards a competitive and resource efficient transport system' (2011)
- Urban Mobility Package (2013)

SUMP's main goals:

- **ACCESSIBILITY:** Guaranteeing accessibility to all road users, with a focus on the so-called "vulnerable users", namely pedestrians, cyclists, children, disabled persons, etc.;
- **MODAL SPLIT REBALANCING:** fostering a balanced development of all transport modes, tackling public and private, motorized and non-motorized transport, inter-modality, urban logistics, mobility management and ITS systems;
- **ENVIRONMENTAL, TECHNICAL, ECONOMIC AND SOCIAL SUSTAINABILITY:** reducing environmental impacts (primarily air and noise pollution) rationalizing efficiency and cost-effectiveness;
- **CITIES' ATTRACTIVENESS AND QUALITY OF LIFE:** optimizing the use of urban areas leading to a cleaner urban environment and consequently more attractive cities and better quality of life for all citizens;
- **SAFETY AND SECURITY:** improving road safety and security

EU Regional Framework:

1. South-East Europe 2020 Strategy (SEE 2020)

SEE 2020 has set up some ambitious targets for the transport sector, including:

- Decrease of the cost of transport per unit of transport service for 20%, and decrease in TEU transport costs to the EU average ;
- Improve transport infrastructure utilization rates to over 40% of designed capacity;
- Higher energy efficiency by decreasing energy consumption per unit of transport service for 20%; and
- Increase railway/ waterborne share to country specific targets to be defined in the national Action Plans and (v) facilitate air transport.

2. European Union Strategy for the Adriatic and Ionian Region (EUSAIR)

The EUSAIR Strategy released in 2014, which sets out the needs and potential for smart, sustainable and inclusive growth in the Adriatic and Ionian Region. When it comes to Transport, EUSAIR highlights that the Region has significant infrastructure deficits, notably between long-established EU Member States and the other countries, resulting in poor accessibility. This Strategy, based on the following pillars:

- Blue Growth,
- Connecting the Region (transport and energy networks),
- Environmental quality,
- Sustainable tourism.

National framework:

1. National Strategy for Development and Integration (NSDI-II)

The NSDI-II defines Albania's vision for its national social, democratic and economic development over the period 2015-2020, including a roadmap for integration in the European Union following the granting of candidate country status on 27 June 2014. The present "National Sector Strategy for Transport 2016-2020" has been therefore aligned with such governmental effort.

The development and modernization of Albania's transport infrastructure has been and remains one of the top priorities of the Government of Albania. The aim has been:

- to create the preconditions for the development of other sectors of the economy,
- to increase the accessibility of freight and passengers in trade and service delivery, and
- to significantly contribute to overall economic growth and development of the economy

The strategic priority is to accelerate the integration of Albania's transport system and the establishment of an integrated market comprised of transport infrastructure by land (road and rail), by sea and by inland waterways.

The main sector development goal for the period 2015-2020 is foreseen to be the "development of an efficient transport system, integrated in the region and in the EU network, which promotes economic development and the citizens' quality of life".

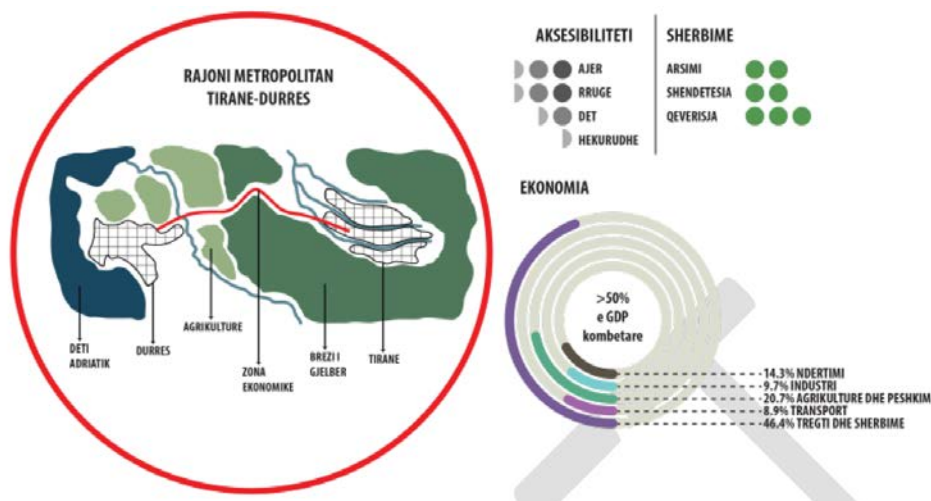
2. Integrated intersectional plan of the economic area Tirana - Durres 2015 – 2030

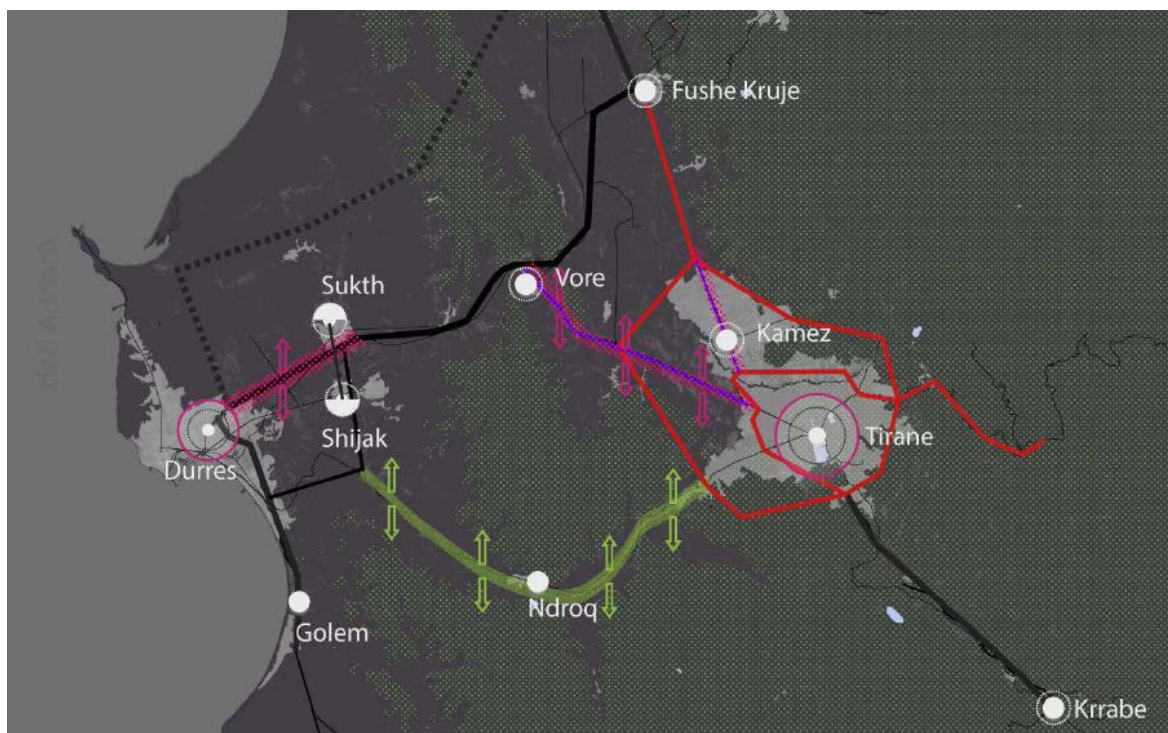
The National General Plan has identified the Tirana-Durres area as one of the most important economic spaces for the country as well as in the Balkan region. The Plan consist of three important documents such as the Territorial Development Strategy and the Policy, Plan of Territorial Development and, the Planning and Development Regulation.



Figura 23. Harta e infrastrukturës, mjedisit, turizmit dhe qendrave urbane

This economic area is seen as an important Balkan Hub, as a national and regional economic center, able to compete in the Balkans and South East Europe. The Tirana-Durres Economic Zone should increase the quality of life to absorb new talents that will guarantee the economic and innovative development of the area. New businesses and technologies will be supported. An appropriate transport and electronic infrastructure will be provided, which will enable the fast and secure movement of people, goods and information.





3. Albanian National Transport Plan (ANTP2)

Was released in 2010 and which has been maintained and updated annually since then. The general objective of the ANTP2 is to provide a safe, reliable, efficient and fully integrated transport system and infrastructure, aiming to meet the needs of freight and passenger customers, whilst being environmentally and economically sustainable. ANTP2 has been essential to support strategies for economic and social development as well as an optimal integration of the country's transport systems within international, European and regional transport networks. Based on these principles, the main specific objectives or goals are to:

- Create a regulatory and legal system which promotes the optimal operation of the transport system;
- Support the development of the economy;
- Ensure equitable access to transport throughout the country leading to an improved balance in the country's regional development;
- Reduce traffic bottlenecks;
- Promote integration with the European Union and meet the transport demand of the Southern Balkan Region;
- Improve safety, quality and reliability of the transport system;
- Provide enhanced focus on passengers and freight shippers as customers and users;
- Create an environmentally sustainable transport system;
- Ensure transparency in the decision-making process.

4. Update of the Master Plan for the Port of Durres approved with the decision of CM no. 56 /2009

Objective is to decide optimal operational, commercial and financial strategies in long terms period. Masterplan includes:

- Strategy & Policy

- Trade, Traffic Forecasting; Market Assessment
- Competitor Analysis
- SWOT Analysis
- Strategic Planning & Analysis
- Stakeholder Analysis
- Organizational Alignment
- Institutional & Regulatory Analysis
- Investment/Divestment Strategy
- PPP Strategy
- Pricing, Tariff Reform & Analysis
- Business Planning Preparation

Currently two important projects are completed:

- Construction of passenger terminal with all facilities, with funding of about EUR 22 million from EIB and EBRD
- Rehabilitation and extension of the eastern seabed and the squares for the processing of bulky goods, with a funding of about 35 mln euros from the EIB and EBRD.



5. Territorial Strategy of Municipality Durrës 2015 – 2030;

Draw up the development vision of Durrës 2030, in function of the territory as well as to orient the economic-social development by efficiently utilizing the potential of the territory, economic, environmental and social resources in the service of Durrës citizens, business actors and other groups of interest.

The tourism component of the strategy looks at the Municipality of Durrës as follows:

- Durres: Albania's showcase for the visitors of the cruise ships;
- Protection and promotion of natural parks / valleys of the hinterland for visitors
- local and national (from Tirana);
- Tourism of the sea & sand;
- Protection and valorization of historical and archaeological wealth

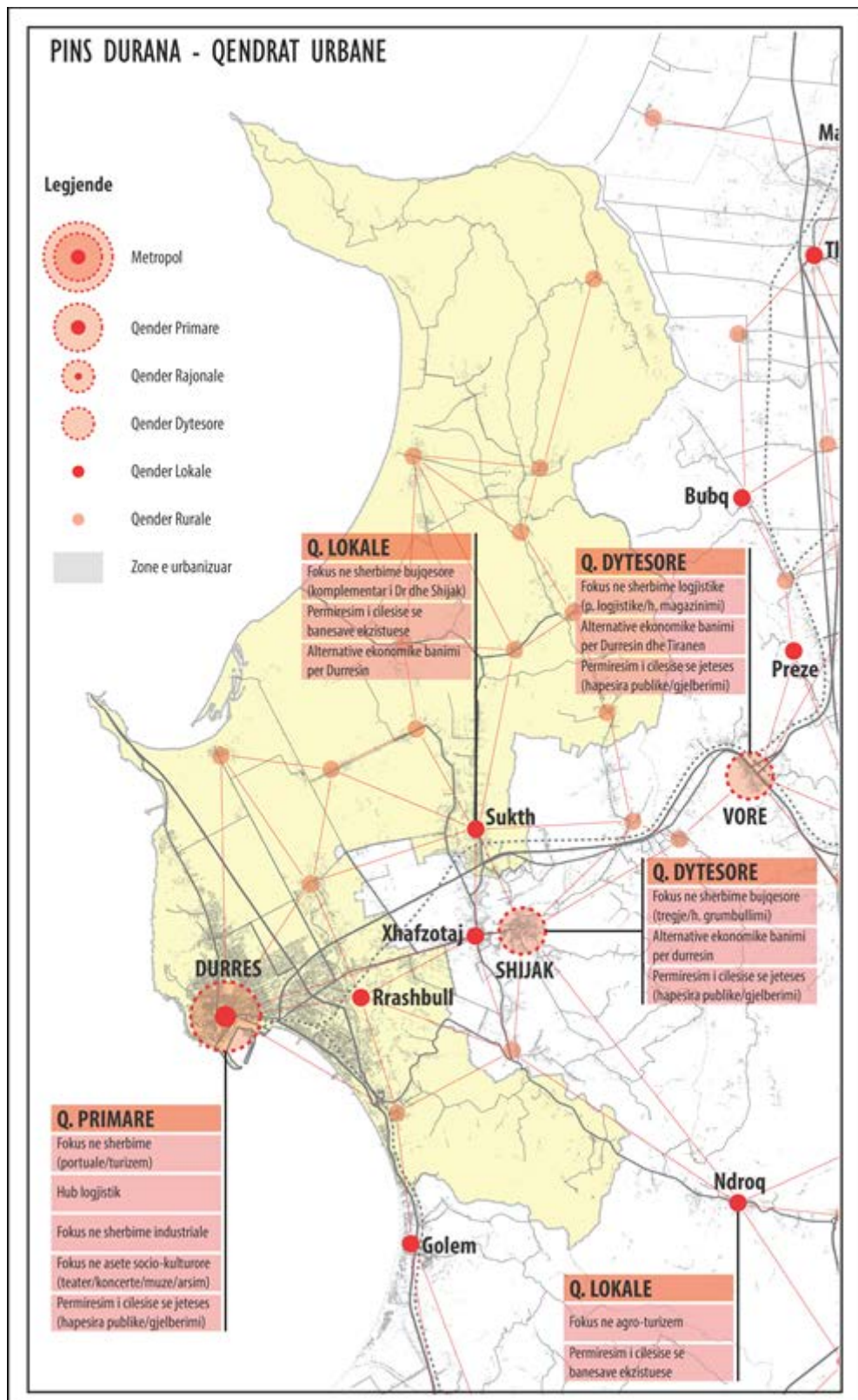
This strategic document for Tourism Supports interconnection of relevant service sectors based on the elements natural, historical, cultural, etc. and support services.

Focus on transportation: Oriented by Mobility Development and Mobility Optimization between communities; and between settlements and markets (labor/services/agricultural/etc.) with the aim of improving the interconnection between businesses, individuals and public services. In this context, for the Durres Municipality is very important the advancement of the national road/port infrastructure Strategic Projects /railways that enable national & international flows, such as:

- Design and Development of the Blue Corridor (coastal tourist road with impact of low environmental level connecting the localities of the coast: Velipojë - Shëngjin - Patok - Durrës - Divjaka - Seman - Vlorë - Dhermi - Saranda - Butrint);
- Corridor VIII as the primary means of transport of goods (the shortest link between the Mediterranean Sea with the Black Sea; Durrës --- Varna / Durrës --- Istanbul) and Via Egnatia as well historical roads of tourist importance.
- Nation's Road (Durrës - Kukës - Prishtinë - Nis) as one of the influential corridors the largest in the region, due to the connection between Pristina and Corridor X and Serbia.
- Development of the Port of Durres (commodities - tourist) as the main port in Albania and the starting point for maritime highways through investments to increase its capacity and complementary functions.
- Development and Profiling of Porto Romano Industrial Port as a freight port, and tourism; its connection with adequate infrastructure and filling with functions complementary.
- Restructuring the rail system in the main axes: a) Tirana - Rinas (Airport) - Durrës; Durrës - Vlorë;
- Durrës --- Hani Hotit (Montenegro Border);
- Durrës -Lin, Pogradec (Macedonia border); and b) the development of Durres as one of 10 stations
- International intermodal, to meet the transitional needs of the movement and exchange modes of transport with other countries.

Future Infrastructure Development Projects of National Importance up to 2030, as follows:

- Design and Development of the Blue Corridor (impacted low environmental level) connecting the localities of the coast: Velipojë - Shengjin - Patok - Durrës - Divjaka - Seman - Vlorë - Dhermi - Saranda - Butrint;
- Development of the Port of Durres (commodities - tourist) as one of the 4 main ports on Albania, starting points for maritime corridors;
- Increased capacity investment and complementary functions of the Durrës port as the western central gate linking the national roads of Corridor VIII with West;
- Increased investments for Porto Romano industrial port - Profilization as a port cargo, and tourist - in order to connect it with the necessary infrastructure for filling with complementary functions;
- Restructuring the rail system in the main axes: a) Tirana - Rinas (Airport)- Durrës; b) Durrës - Vlore.
- Building a Yacht Harbor together with the Navy



“Old town Durres” master plan is an elaboration of specific studies, relative to the most important themes and the topics were met:

- Archaeological City Byzantine,
- Venetian and Ottoman Town of the '900 Period
- Social Morphology and Social Circulation,
- Port, Metropolitan Area, Corridor VIII
- Housing Requirements,
- Construction Process and Housing Marks University,
- City, Cultural Institutions Jogging,
- Hydrogeological Hazards and Geotechnics Structural Problems and
- Assessing Seismic Risk Event Tourism, Crafts and Trade

The plan proposes the strengthening and development of a sprawling parks and public spaces, which is both an attempt to revitalize the historic city and to evaluate the sites of a greater historical and environmental value (Roman amphitheater, Byzantine fortress and King's fortress, the southern part of the hill.) The implementation of this program is linked to the procedures of urban equality and public-private cooperation for the implementation of the interventions.

2. Current cruise-related flows features, trends, etc., in the city/port

Durres Port is the largest port of Albania and now defined as the main gate of the VIII corridor. One of the main investments in the port infrastructure, was the construction of passengers' terminal with all facilities, with funding of about EUR 22 million. The Ferry Terminal is provided with a concession, and the Port Authority benefits 49% of the revenues generated from the services provided in it, as well as a lease for the area provided to the concessionaire. The ferry terminal have connections to Bari, Brindisi, Ancona and Trieste. The terminal has recently been modernized, is one of the most modern in the Mediterranean. More than 800,000 passenger, 160,000 cars and 65,000 trucks pass the terminal annually.

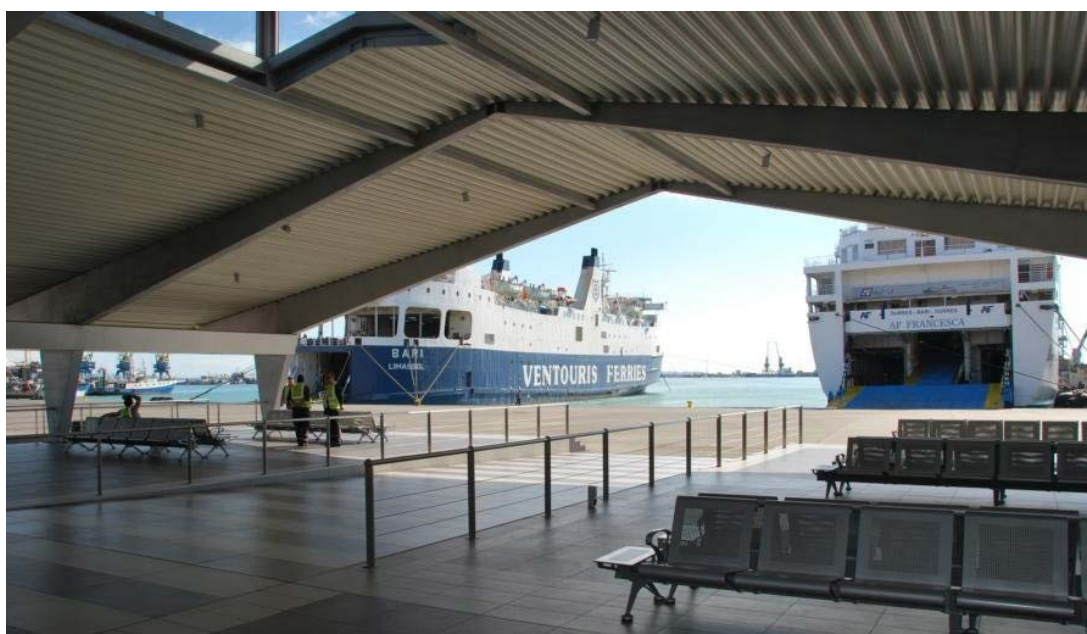


Figure 1 - Passangers Terminal

The last 5 years volumes are in the following table:

AFTO	2012	2013	2014	2015	2016
Passengers	798,524	717,399	774,702	774,411	839,598
Cars	183,263	152,272	150,703	152,497	172,961
Trucks	51,673	55,145	57,076	58,454	61,962
Trailers	10,904	8,284	7,347	5,927	5,550
Goods	699,426	710,249	715,547	743,405	770,154

Passengers

Analyzing the data from the customs police, the purpose of the travel of foreign nationals that enter into Albania, get the result that 2% are daily tourists, using Cruise ships, Tourist ships and regular ferry lines to Durres Port.

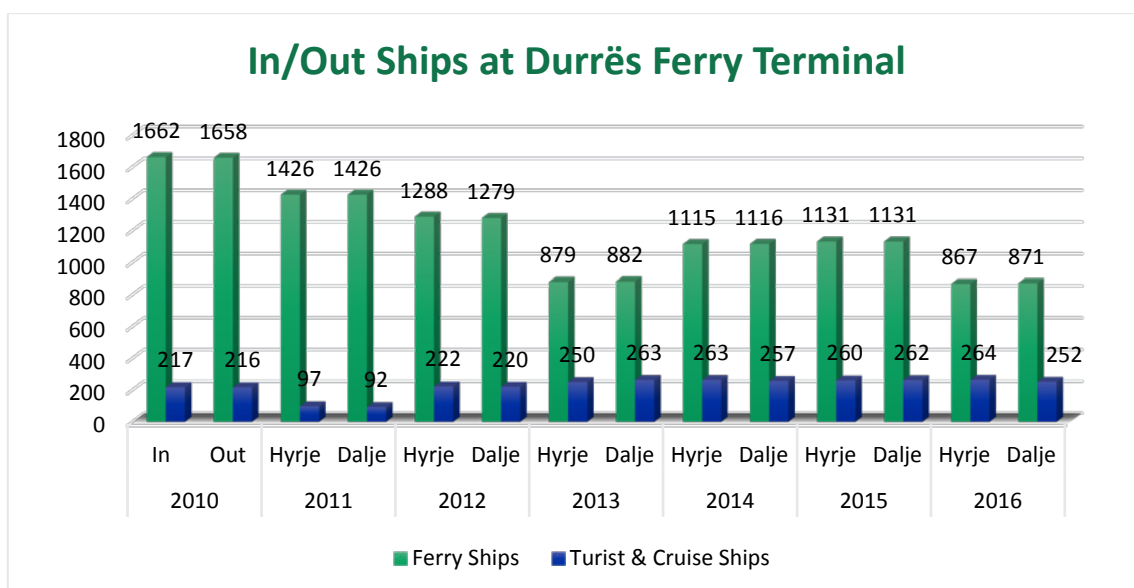
The number of cruisers is about 25 cruiser last year but a lot of tourists use the regular ferry lines.

The Capacity of Ferry Terminal is: 2000 passengers at once, 5 to 6 ferries at once, 1.5 million passengers for year.

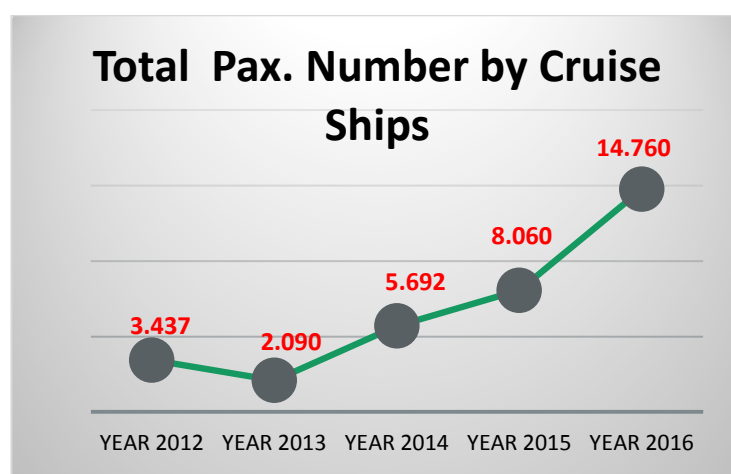
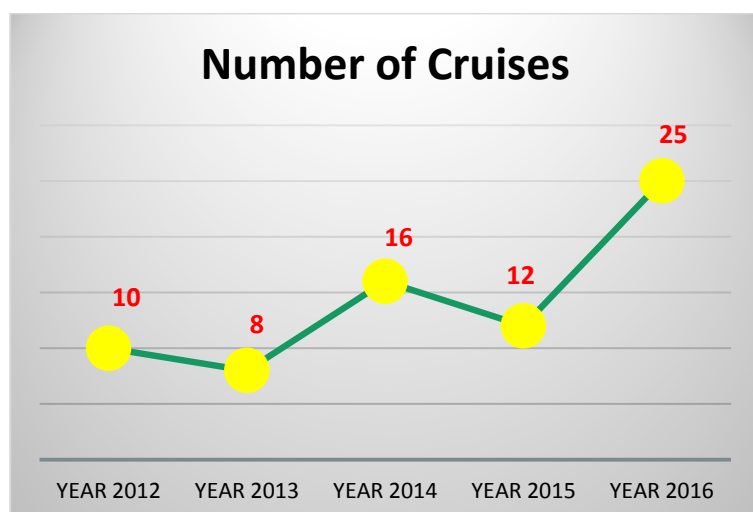
The cruises stay for a short time in the Port (a maximum of 24h). They usually walk into the areas of interest in the city or they take the bus to Kruja City (and Castle) the nearest touristic destination of Cruise passengers.



In total, number of tourist ships in Durres Port is increased by about 20% since 2010.



The number of passengers using cruisers has increased about 5 fold and the cruise ships number are increase by 2.5 fold in the last 5 years.



For the 2016 year 3.6% of total passengers are from cruise ships.

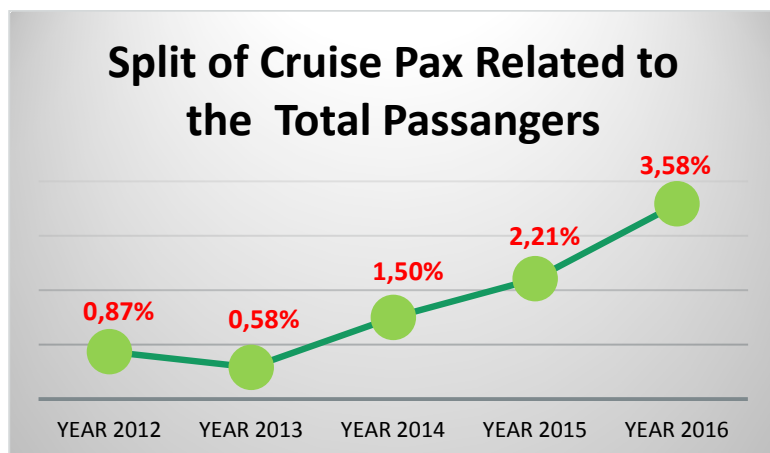
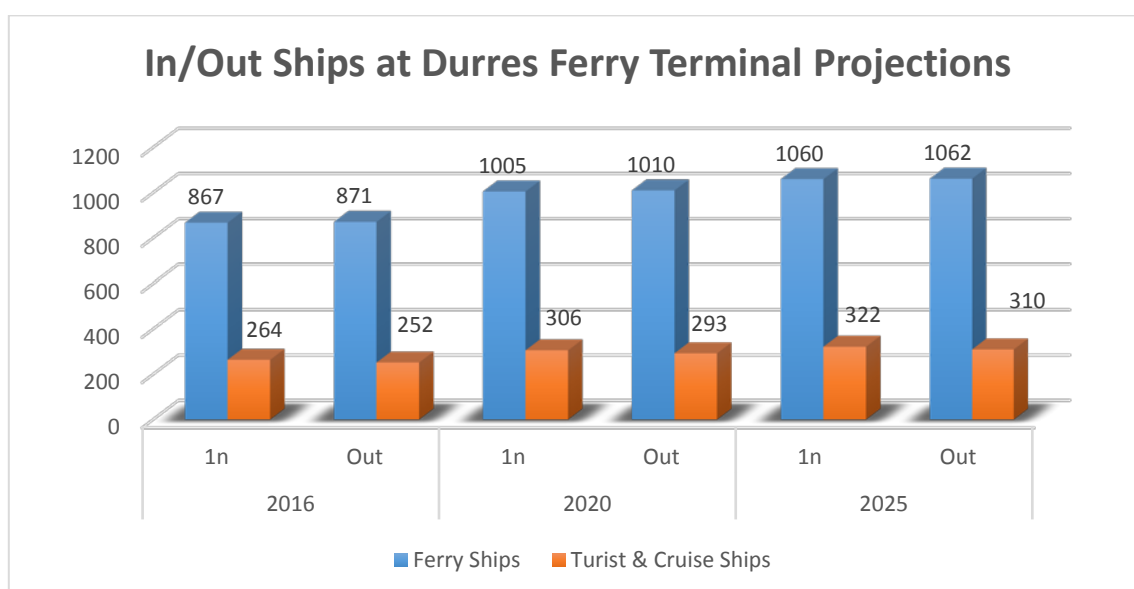
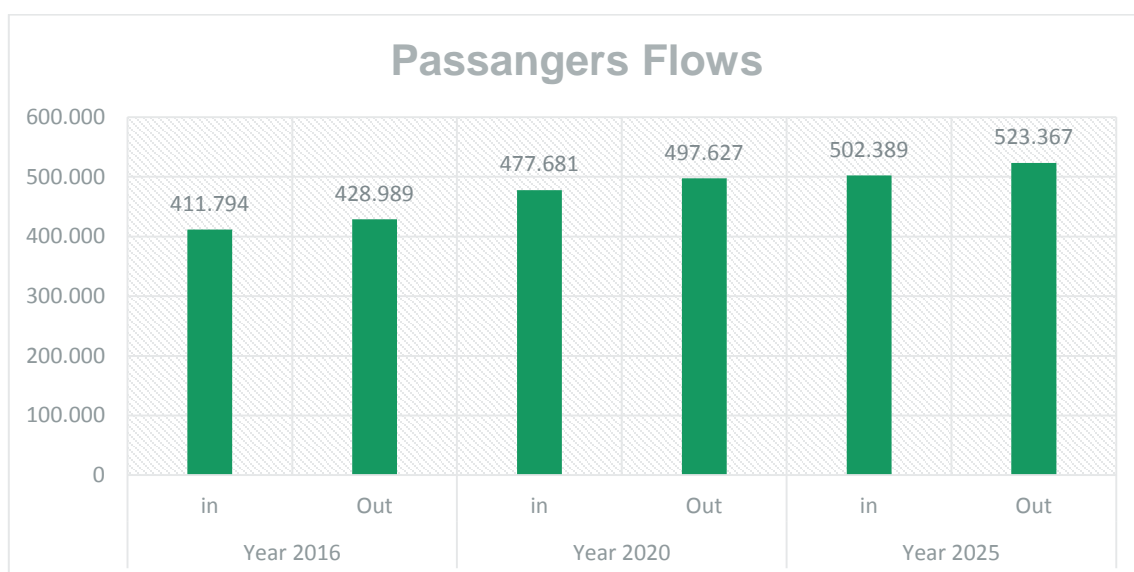


Figure 2 - Cruise Passangers at the Port of Durres

As seen in the above photo there is no terminal for cruise passengers arriving at the Port of Durres.

3. Cruise-sector mid- to long-term (5 to 10 years) development trends

Mid to long term trend projections of cruise-related flows.



4. Current cruise-related mobility and transport management policies and public & private initiatives addressing the existing flows.

General port information:

Durres Port Ferry Terminal is designated for ferry lines. There are not specific one cruise berths on this terminal, but usually berths 7 and 8 for cruises with no adequate terminal infrastructure.

General passenger services:

Passenger Terminal / Building is high-quality with:

- Benches for resting;
- Toilet facilities;
- Touristic Info Point (light infrastructures: information desks, totem and monitors);
- Food and beverage area (bar, restaurants, etc.);
- Wi-Fi network free;
- Luggage storage
- First aid equipment (heart impulse, ...);
- Services for passengers with reduced mobility;
- ATM point;
- Air conditioning;
- Waiting area/room;
- Waiting garden/roof;

Cruise services:

Except of footbridge covered, missing:

- Exposition area
- Escalator
- Lift
- Home port Touristic services
- Port of call Touristic services
- Touristic services for the city-port
- Hinterland Touristic services
- Luggage service from-to vessels/ships

Safety & security is high-quality with:

- Safety video-control system
- Electronic check-in system for passengers and vehicles
- Security team
- Body scanner
- Video surveillance
- Stairs to get out of water in case of accident
- Secure pedestrian paths

Mobility and info mobility services existing:

- Public transport Bus stop in walking distance
- Railway platform
- Connections to railway station from the Passengers Terminal
- Taxi service
- Real Time information for ferries

But are missing:

- Connections to City Centre
- Terminal for Cruise Passengers
- Connections to main urban areas
- Connections to airport Bypass/ring road directly access

- App for smartphone
- QR code for fast info point
- Underground
- Organized trips for tourist
- Real Time information for public transport
- Interactive information displays
- Unique selling point for information
- Multilanguage information
- Real Time Info Services Platform
- Integrated ticket (Urban or Interurban)

5. Weighted list of negative impacts linked to cruise-related flows

Environmental impacts: “Air pollution and Noise”

- Heavy traffic in Durres port and city entrance
- Road congestion at the exit of the Port
- Misconception of the tourist activity in the City
- Congestion in old historical zones
- Lack of parking spots in touristic area
- Low traffic capacity streets
- Coaches cross downtown adding traffic volume during rush hour
- Coaches and taxis are among the most used modes
- Lack of information
- Low use of Public Transport

Economic impacts:

- Decrease the incomes from cruise tourist activities
- Raise of prices in touristic areas

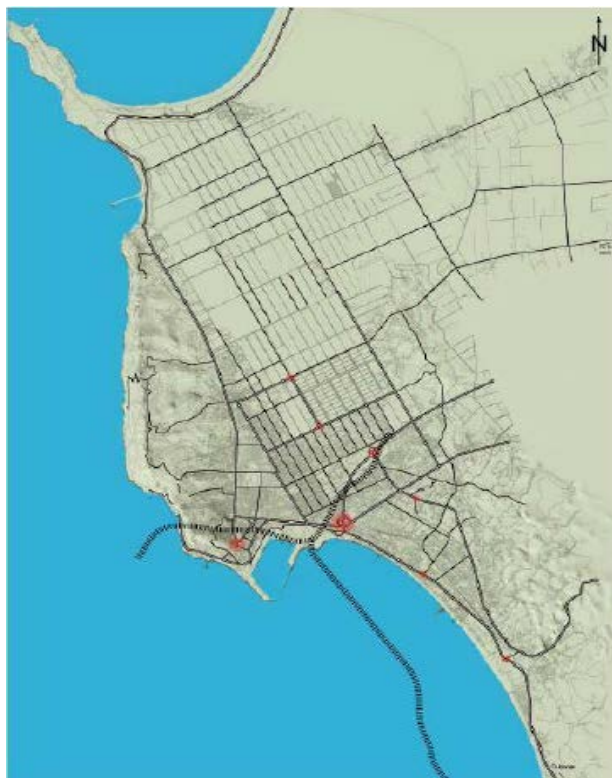
Climate impacts:

- GHG emissions

6. Existing road network, transport services and infrastructure in the city/ port

There are three road networks that are intertwined:

- The first, the historic one, follows the labyrinth of walls in the old town. It can be considered as a small network, and not fitting to the flux of circulation that has brought about the recent urbanization.
- The second, later network extends to the line of agricultural areas. Since there is neither a given hierarchy nor a suitable model, the network does not even have a clear and practical circulation scheme.
- A third network (consisting of large axes) forms the backbone and enables the north of the city (with the industrial zone). In this network is also included the axis Tirana - Durres, which causes considerable traffic overload.

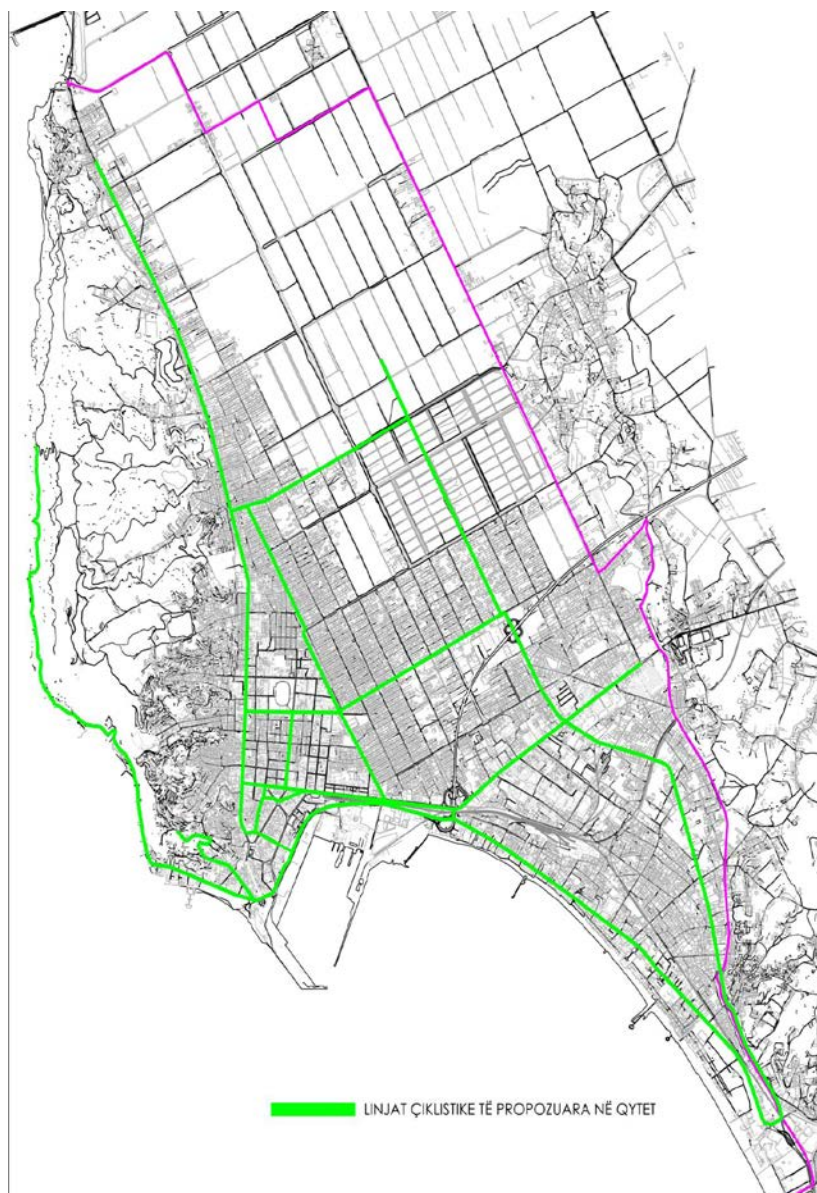


The fact that the Durres road network is not inadequate for such fast economic development, has brought problems that are characteristic of big developing cities:

- Breaking infrastructure, and especially the Tirana-Durres highway.
- Continuous increase in the number of vehicles related car ownership, increase of daily car usage.
- Physical breakdown of major infrastructure (highway / roundabout / railways to port area), and especially between the historic centre and the rest area.
- Consequences of conglomeration and uncontrolled distribution of constructions (informal zones) along the highway, which generate a chaotic urbanization to the detriment of the quality of life and the landowner's economy

Public transportation is based on 6 bus-lines, operated by private ownership companies. Dedicated bus lines are missing, and also there is a lack of information about stops, timetables etc.

The bicycle lines are missing in Durres City, but referring the last studies and initiatives by Durres municipality, is proposed the new scheme of the adaptation of existing bicycle lanes or the construction of new lines that would push many citizens to use bicycle transport. This Initiative aim to connect the railway station to all the eastern and southern coasts; it is expected that this network will connect the central area of the city with the coastal tourist fauna and the industrial zone.



The road parallel to the wall of the port of Durres and Port Road, is a project having opened a new road alternative. The multi-functional role of this road emphasizes the fact that it stretches in between Durres train station, by ensuring multimodality to road users and it goes by the terminal of passengers from/to the port of Durres.

This road, which can be considered as an urban "motorway", creates communication with the "Skanderbeg" centre and the city centre, and on the other side around the turning at the entrance of Durres where the directions lead to different areas of Albania. The plan gives this space the role of restoring the connection between different parts of the city. The purpose of the construction of this road is to facilitate the traffic that is created at the entrance to the city in the only access road for all means coming from the direction of Tirana and the southern direction of the country.



The first part of the road from "DAJLAN BRIDGE" to the ferry shore is designed as a 2-lane road, 1 bicycle lanes with a total width of 10.5m, with the passing width of $B = 7\text{m}$.

The second part of the road from the ferry market to the commercial bank Durres is designed with a total of 19m B with 2 lanes of motion, with parking and bicycle lanes in both directions.

The road creates advantages in the movement of pedestrians and bicycles towards the beach of Durres.

2.1.2 SWOT/CAME analysis

Based on information and data collected in the analyses and through consultations with stakeholders, was produce a SWOT analysis (Strengths, Weaknesses, Opportunities and Threats) following the provided model.

After the collection of the data and based on the inputs of relevant stakeholders the following SWAT was developed:



The SWOT analyses was followed by the CAME matrix below:



2.2 Step 2: Participatory process

1. Stakeholders identification

The stakeholders were divided in groups based on relevance and impact they had in the development of the LCTPs activities and future scenarios. Also in account was taken their potential influence in the development of Transfer and Capitalizing activities.

Group 1: Local and Regional Stakeholders (Very High Importance).

This group is directly involved, affected and interested in the development of the LCTP for cruise passengers.

Stakeholder	Impact	Interest	Involvement	Comments
Durres Municipality (Ass. Partner)	<ul style="list-style-type: none"> - High impact since the LCTP will be developed in own territory. - Political Support. 	<ul style="list-style-type: none"> - Sustainable Development Policy Implementation. - Economic Growth Expected. 	<ul style="list-style-type: none"> - Continuous collaboration with the LCTP working group. - Providing specific required data. 	<ul style="list-style-type: none"> - Integration of the LCTP with the SUMP that is being currently developed.

<i>AFTO – Albanian Passenger Terminal Operator</i>	<ul style="list-style-type: none"> - High impact since the LCTP directly affects the services of the Passengers Terminal. 	<ul style="list-style-type: none"> - Improving the Cruise Passengers related services. - Raising attractiveness. 	<ul style="list-style-type: none"> - Providing the required data. - Collaboration in identifying major mobility issues. 	<ul style="list-style-type: none"> - Improvement of the Mobility within the Port Areas.
<i>Durres Regional Political Authorities</i>	<ul style="list-style-type: none"> - High Impact since the LCTP will be developed in own territory. - Political Support. 	<ul style="list-style-type: none"> - Raising attractiveness for the region. - Economic Growth Expected. 	<ul style="list-style-type: none"> Collaborating in identifying the “Touristic Points” and mobility issues outside the city. 	<ul style="list-style-type: none"> - Tackling Mobility issues in the Town of Kruja old part. (Kruja Old Castle is a major Touristic Attraction.)
<i>Municipality Association of Albania</i>	<ul style="list-style-type: none"> - High Impact since this Project will represent a potential “good practice”. 	<ul style="list-style-type: none"> - Sustainable Development Policy Implementation. 	<ul style="list-style-type: none"> - Collaborating on Transferring and Capitalizing activities. - Adapting LCTPs guidelines for other municipalities 	<ul style="list-style-type: none"> - Define a set of guidelines for other municipalities to develop their own LCTPs.

Group 2: National Authorities (High Importance).

This group consists in the national political and development national authorities, which are important to the project in both phases, development of LTCP and during the Transferring and Capitalizing phase.

<i>Stakeholder</i>	<i>Impact</i>	<i>Interest</i>	<i>Involvement</i>	<i>Comments</i>
<i>Ministry of Infrastructure and Energy;</i> <i>Ministry of Finance and Economy;</i> <i>Ministry of Environment</i>	<ul style="list-style-type: none"> - Political support. - Enhancing Transferring and Capitalizing activities efforts. 	<ul style="list-style-type: none"> - Sustainable Mobility and transport Policies Development. - Low Carbon Economy Policy Development. - Economic growth expected. 	<ul style="list-style-type: none"> - Providing continuous feedback on policies. - Providing required information on future investments. 	<ul style="list-style-type: none"> - Focus on Energy conservation Methodologies. - Improve cruise passengers “comfort”, aiming to raise attractiveness.
<i>National Agency for Territorial Planning</i>	<ul style="list-style-type: none"> - Political Support. - Technical Support. 	<ul style="list-style-type: none"> - Territorial Development 	<ul style="list-style-type: none"> - Providing Information on regional territorial developments and investments. 	<ul style="list-style-type: none"> - Integration with national and regional transport plans.

<i>National Monuments Directorate</i>	<ul style="list-style-type: none"> - Political Support. 	<ul style="list-style-type: none"> - Increase of tourist visits in monuments within Durres Region - Increased income 	<ul style="list-style-type: none"> - Providing information on all potential touristic points. 	<ul style="list-style-type: none"> - Providing information to cruise lines.
<i>Albanian Railways</i>	<ul style="list-style-type: none"> - Political support. 	<ul style="list-style-type: none"> - Improvement of multimodal / intermodal transport 	<ul style="list-style-type: none"> - Providing information regarding the frequency of use of the railways by cruise passengers 	<ul style="list-style-type: none"> - Improve the available touristic information to the passengers, regarding nearby towns.

Group 3: Economic Operators and Associations (Medium Importance).

This groups consists in SMEs like Travel Agencies, Touristic Operators and related Associations which are highly interested in the improvement of the services offered for Cruise Passengers. Also they view the LCTP as a tool to raise the attractiveness of the Durres Region.

<i>Stakeholder</i>	<i>Impact</i>	<i>Interest</i>	<i>Involvement</i>	<i>Comments</i>
<i>Travel Agencies and Touristic Operators</i>	<ul style="list-style-type: none"> - Raising awareness. - Presenting the results to the cruise operators. 	<ul style="list-style-type: none"> - Increasing income. - Improving tourist related services. 	<ul style="list-style-type: none"> - Providing inputs on major issues to tackle related to tourists' services. 	<ul style="list-style-type: none"> - Focus on information of tourists. - Improvement of tourist services.
<i>Durres Trade Chamber</i>	<ul style="list-style-type: none"> - Political Support. - LCTP will be developed within Durres territory. 	<ul style="list-style-type: none"> - Raising attractiveness of the region. - Economic growth expected. - Low Carbon Economy Policy Development. 	<ul style="list-style-type: none"> - Providing potential touristic attractions in the Durres Region. - Providing Potential funding instruments. 	<ul style="list-style-type: none"> - Inadequate information infrastructure - Inadequate transport infrastructure
<i>ATA and Touristic Operator Association</i>	<ul style="list-style-type: none"> - Raising awareness. - Presenting the results to the cruise operators. 	<ul style="list-style-type: none"> - Economic growth expected. - Low Carbon Economy Policy Development. 	<ul style="list-style-type: none"> - Providing inputs on major issues to tackle related to tourists' services. 	<ul style="list-style-type: none"> - Focus on information of tourists. - Improvement of tourist services. - Inadequate travel connections.

2. Participatory process design and implementation

Participatory process undertaken:

The participatory process was organized in four phases and for each phase at least one meeting was planned to be organized.

Phase One: Identification and First Contact

Identification and establish contact with all relevant stakeholders mostly with informal meetings.

- Establishment of the Project Stakeholders Mailing List (Names, Organization, Function Contact Details, etc.)
- Travel Agencies Mailing List
- National Authorities Mailing List
- Regional and Local Authorities Mailing List

Phase Two: Involvement of relevant stakeholders in identifying the main bottlenecks and issues. The interviews intended to deepen the knowledge of the current situation and gather actions and measures that the interviewees found necessary to be included in the plan.

- Questionnaires were developed and provided to all stakeholders.
- Semi Structured Interviews (58 interviews conducted)
- Questionnaires (86 questionnaires completed)
- Info Events for Stakeholders
- **On - Line Questionnaires was uploaded to the AIT and APD official Web.**

1st Participatory Meeting, held in Tirana, on 17th June 2017

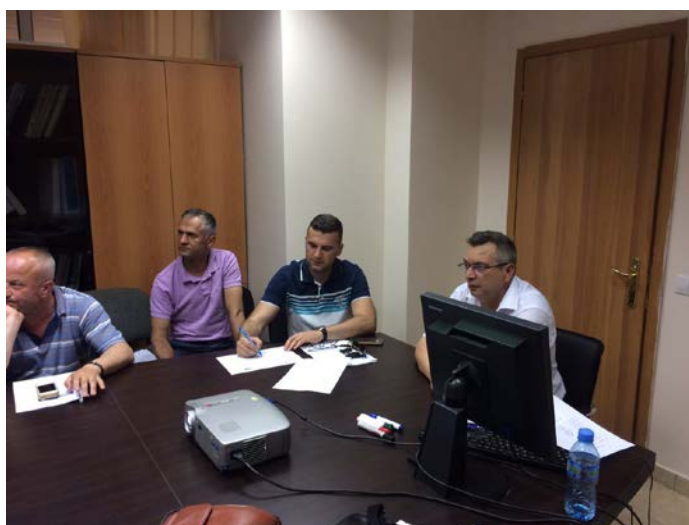
During this session, attended by 30 representatives, from main stakeholders were presented the

- ***Project objectives***
- ***Project Methodology and WP***
- ***Expected results.***

Also the participants were invited to offer their comments and proposals.

Photo from Meeting





Main outcomes

- *Different option of Vision for Durres LCTP*
- *Additional Stakeholders to be involved*
- *Different future scenario related tourist traffic flow*
- *First indications of measures proposed and free discussions.*

2nd Participatory Meeting, held in Durres, on 10th October 2017

Organized in Durres in this meeting were discussed the main issued identified. Also during this meeting the municipality representatives proposed the integration of the LCTP with the SUMP which is being currently developed. Also the agencies contributed on drafting the final touristic attractions list.



Lessons Learned and challenges faced

1. The Durres citizens are not worried from the cruise and daily tourists
2. The Durres LCTP will consider daily tourist using ferry ships and arriving at Ferry Terminal
3. All stakeholders support introducing e-bike Rent/sharing
4. Suggestion for free e-minibus service within the port area for cruisers
5. The Challenge , E- bus introducing for cruisers, (sceptical for implementation)
6. Integration of Durres SUMP with LCTP
7. Info point, Web and application, most important
8. Creating conditions for increasing the number of cruise ships for the future.
9. Balancing of the future demand mobility with Low Carbon transport modes.
10. Easy access for tourist to the city centre and attractive places.
11. Low mobility, old user need to get attention

Phase Three: Finalization of the Action List

3rd Participatory Meeting, held in Durres

During the meeting the first draft of the LCTP was presented to the relevant stakeholders where comments for improvement or changes were expected.



New stakeholders joined the meeting, from public transport private company and local environmental agency.

Dissemination of the LCTP

- Through the Albanian Partners websites
- Through direct mailing
- Throw Port of Durres Exhibition Day
- Press Release and Media Communication



Phase Four: Transferring and Capitalization

- Info Events
- Direct Contact

2.3 Step 3: Design of the plan

1. Definition of the current scenario

Based upon steps 1 and 2, the collected data, information and feedback from stakeholders and main actors provides the basis for the elaboration of an overview of the current state of things and an opportunity to define the main working areas

The current state of things for the Durres Port and city tourist's mobility is characterized by:

- Low number of cruise ships and missing the Cruise Terminal (14,700 tourists by 25 cruise ships for 2016)
- Considerable number of daily tourist arriving in Ferry Terminal by regular scheduled lines (33,000 or 4% of total passengers by 2016 year)
- The future projection is optimistic for increasing the number of Cruisers and daily tourists (5 fold approximately).
- Lack of urban mobility related studies like SUMP and SEAP.
- Most urgent issues relate to Heavy traffic and Road congestion in Durres port and city entrance; Lack of rationalization of the touristic spaces; Lack of well-defined walking tourist paths infrastructure and information; Lack of Cruiser liners and operators business coordination; Low spending time of cruiser tourists, etc...
- The best of things: Territorial Strategy of Municipality Durres 2015 – 2030

Analyzing the current situation with the data and information collected, shared and discussed with main stakeholders, it is a clear current situation and an opportunity to define the main working areas:

- Mitigation of Environmental impacts in the better way using the Demand Management Strategies
- Mitigation of Climate impacts introducing "Clean transport and fuels" like: e-bike; e-bus; e-taxi.
- Make positive economic impacts by optimization of accessibility level of City and Port.

2. Definition of vision and objectives

Based on the current scenario, a strategic vision and a set of objectives is defined to guide the development of the LCTP

Vision:

Draw up the development vision of Durrës City as cruise destination that use of low-carbon transport systems and multi-modal connections in the frame of wider sustainable traffic and mobility policies.

Objectives:

To improve the mobility and quality of visit for cruise passengers, Durres citizens and the nearby areas, by fostering a complete and comprehensive plan. This requires developing a LCTP to meet the mobility needs of cruise passengers, residents, businesses, and the region for decades to come.

To attract more tourist using cruise ships to visit Durres and nearby areas of interest, by making the visiting experience as comfortable as possible.

To reduce the GHG emissions by developing the LCTP, this will promote the use of friendly environmental transport modes.

3. Definition of actions and indicators

Following the strategic vision and objectives, detailed actions are chosen and indicators to measure the performance in their implementation towards the objectives.

Please note that each action/measure envisaged in the plan is to be described according to the “Measure description template”, Annex 1 of the present document.

In terms of Demand Management Strategies the actions proposed are:

- Improving the mobility pathway of the cruise passengers from the Cruise Terminal (Western Terminal) and Ferry Terminal to the city.
- Establish touristic info points along the touristic paths within the city and the port areas.

The City walking paths becomes more important and necessary to allow cruisers to fulfill their recreation and travel goals more effectively. The mobility will be improved by establish of horizontal and vertical signals that will extend from the terminal to the city. The horizontal signals will include path lines of different colors that will guide the cruise tourists to the different “Exit Gates” of the Ports and different areas of the city. Ideally the lines will go on in the city and link all the touristic attractions and the info-points. These two action are considered most important measure and graphically are shown at the figure below

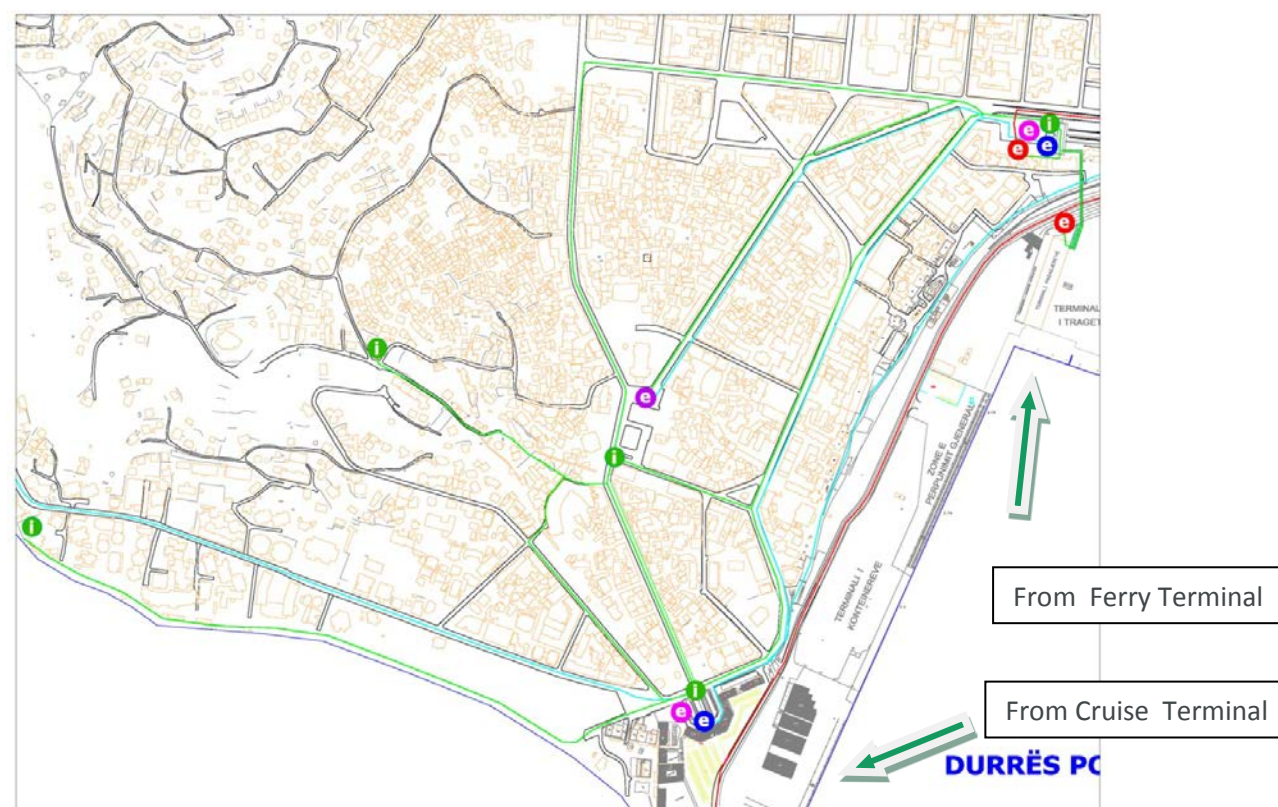


Figure 3 - Info Point & Walking Paths

Another important measure is considered:

- Develop an application for cruise tourists with all attraction points and activities.

The cruise tourist app will focus on this specific target group, supply them with all relevant information they will need during their visit in the city. The City walking paths and Info points will be included. This measure also improves optimization of accessibility level of Durrës City and Port.

In the table below are detailed Actions and indicators for the above actions described.

General Objective	PROBLEM	Specific Goals	ACTIONS	INDICATORS
To improve the mobility and quality of visit for cruise passengers, Durrës citizens and the nearby areas, by fostering a complete and comprehensive plan. This requires	Pedestrian congestion at the exit of the Port.	Simplify the pedestrian transit through the Port areas.	Establish touristic info points along the touristic paths within the city and the port areas.	1. Number of info points. 2. Number of tourists helped.
		Reduce of traffic in Durrës port and city	Develop an application for cruise tourists with all attraction points and activities.	1. Number of downloads

developing a LCTP to meet the mobility needs of cruise passengers, residents, businesses, and the region for decades to come.		entrance by 20% in one year	Improving the mobility pathway of the cruise passengers from the Cruise Terminal (Western Terminal) and Ferry Terminal to the city	<ol style="list-style-type: none"> 1. Number of passengers using every path (exit) promoted. 2. Time needed for the tourists to exit the Port Area. (Reduce by 25%) 3. Number of cruise tourists using walking, public transport
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In terms of Mitigation of Climate impacts, the actions as follow introduce The Clean transport and fuels vehicles:

- Establish an e-biking rental service in the cruise terminal and ferry terminal.
- Extend the e-taxi services in the cruise terminal and Ferry Terminal.
- Establish an electrical bus shuttle service from the Cruise Terminal and Ferry Terminal to the regional touristic areas

Introduce e-bike service

Territorial Strategy of Municipality Durres 2015 – 2030 already completed and according to the strategy a bike-separate line network was forecast. It is accepted that this network to be included in the Durres SUMP (at starting process). The measure proposed in LCTP, is to introduce e-bike, and two of the rentals/share points to be:

- The first at the main Port Gate, that corresponds to the exit for cruisers that corresponds to the exit for cruisers
- The second at the Railway City Terminal (as multimodal terminal) that corresponds to the exit for daily tourists arriving at the Ferry Terminal, using Walking Bridge Pathway.

Extend the E-taxi services

Already the E-taxi services have started. One private company provides this service, as a pilot, with one post e-taxi at the center of the city. The proposed action on this LCTP is to extend with two other station to be establish at the Passengers Terminal of the Durres port through the pedestrian bridge pathway to the railway Station and also at the main entrance of the port near the Cruise terminal, increasing the number of electric taxis, and making it possible for them to use by tourists who come with cruisers, as well as daily tourists.

Introduce e-bus service

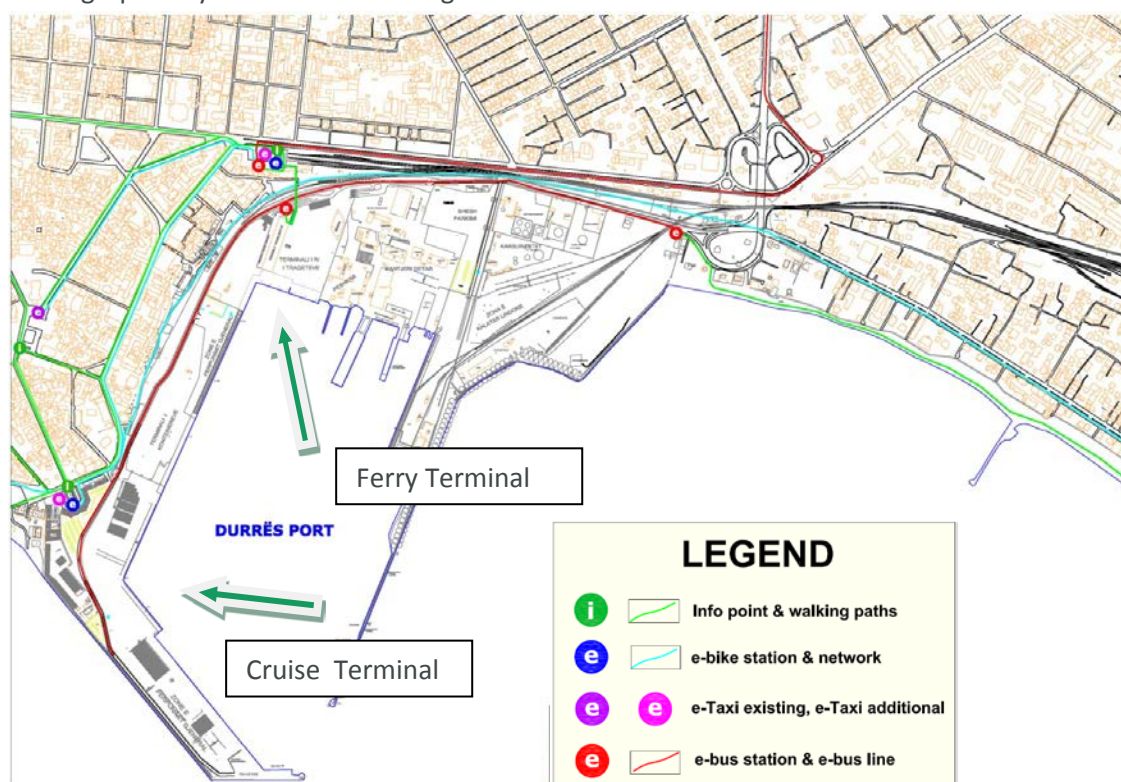
E-bus service is proposed to serve all the tourists who come with Cruise, as well as for day-to-day tourists. The proposal to this action is to offer:

- Free service from the Port Authority by establishing a e-minibus line from the cruise terminal to the Exit Gate near the beach touristic area and with a another stop to the Ferry Terminal linked with the pedestrian bridge that connects with the Railway Station.

- E-bus line that will have the starting point at the Railway Station area and the destination will be the Castle of Kruja, within the Prefecture of Durres. This measure, envisages the deployment of 2 e-bus with 4 hours of departure and return

Those measure (e-bike; e-taxi; e-bus line) have to consider the service to offer for all other tourist visiting the city, arriving by other mode of transport.

These Actions graphically are shown at the figure below:



In the table below are detailed Actions and indicators for the above actions described.

General Objective	PROBLEM	Specific Goals	ACTIONS	INDICATORS
To reduce the GHG emissions by developing the LCTP, promoting the use of friendly environmental transport modes.	Heavy traffic in Durres port and city entrance	Promote the use of Electrical Vehicles by the cruise passengers.	Establish an e-biking rental service in the cruise terminal and ferry terminal.	1. Number of bicycles 2. Number of rentals 3. Hours of Services 4. No of Users 5. Utilization Rate
			Extend the E-taxi services in the cruise terminal and Ferry Terminal.	1. Number of cruise tourist using the e-taxi service.

			Establish an electrical bus shuttle service from the Cruise Terminal and Ferry Terminal to the regional touristic areas.	1. Number of cruise tourists using shuttles visiting the regional spots.
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Regarding to the vision and one the main objective, making Durres city and Port more attractive and having a positive economic impacts for the Region, three actions are included to the LCTP:

- Create and disseminate a website with information about the benefits of the touristic activity in the Durres Region.
- Promotion of facilitating policies for cruisers
- Improve accessibility for disabled low mobility passengers.

The last determinant of the attractiveness of a City as a cruise destination is the level of City and Port accessibility optimisation has to offer. Advance and real time information for organisation of City-visit and mobility, are the solution for Optimisation. A website with updating information about the benefits of the touristic activity is one of measure that must implement at a local level.

“Discover Durres city and more...” must be the local web with information about History (City history, Archaeological Sites); Culture, (Museums, architecture, music tradition); Exploring (Beaches, flora, fauna) Enjoy (Activities and Events); Travel Stay (accommodations and useful travel information); Taste (Local Products and Gastronomic destinations); Alternative Tourism and Interactive Maps. Focusing on this specific target group and supply with all relevant information make them possible to be prepared to enjoy the city attractions.

This measure is linked with of Demand Management Strategies measures for developing a mobile application for cruise tourists with all attraction points and activities.

Durres City and Port has to respond proactively to the national cruise tourism developments. Demonstration of the positive market trends is potential for cruise tourism in the region. The chance for Durres city to be Albania's showcase for the visitors of the cruise ships, is attention of Cruise operators and liners that are more than ever searching for new destinations and itineraries. New facilitating policies for cruisers is necessary to apply:

- Create the policy to support the development of Cruise Tourism in Durres.
- Clearly demarcate roles and responsibilities of each agency/department in different aspects of cruise tourism development.
- Address tax related issues. In addition to tourism related taxes, a cruise vessel & its passengers are also subject to several charges and fees
- Simplification of payment procedures for dues and charges would create a favorable environment with the cruise tourists.

“Improve accessibility for disabled low mobility passengers” is another measure proposed on Durres LCTP. This measure takes in consideration that a large part of cruise passengers are senior citizens usually with low mobility. This measure focuses to provide the passengers with all the needed facilities to reach all the attractions within the city.

In the table below are detailed Actions and indicators for the above actions described.

<u>General Objective</u>	<u>PROBLEM</u>	<u>Specific Goals</u>	<u>ACTIONS</u>	<u>INDICATORS</u>
To attract more tourist using cruise ships to visit Durres and nearby areas of interest, by making the visiting experience as comfortable as possible.	Low number of cruise ships visits. Also the cruise that come to Durres have a short staying. (Max 8 h)	Increase the number of cruise ships calls by 25% per year. Increase the staying time to 24h per cruise visit.	Create and disseminate a website with information about the benefits of the touristic activity in the Durres Region.	1. Platform created and available with a number of visits over a year.
			Improve accessibility for disabled low mobility passengers.	1. Number of infrastructure interventions.
			Promotion of facilitating policies for cruisers	1. Number of policies adopted by the regional and national authorities.

4. Development of future scenarios

Base Line: Current situation (Year 2016).

BCS Scenario: Normal Trend without project implementation (“Business as usual scenario”);

Nothing changes, neither for better nor for worse, where historical data, trends and behavioral). In this scenario, we must take into consideration that the Durres SUMP process is at the starting point. It will take a long time to develop Durres SUMP, and also to implement it.

Scenario 1: “Most positive possibilities foreseen actually occur”

Most positive possibilities foreseen actually occur, surpassing the expected outcomes and allowing to incremental adaptations of the Plan. In this Scenario all the Action/measures will be implemented.

Scenario 2: "Unexpected events or circumstances"

Unexpected events or circumstances, mostly negative for the project, become a significant obstacle and hazard for the fulfillment of foreseen objectives.

In this scenario, we expect that only 3 action (Action 1.1.3; Action 2.1.2; Action 3.1.1) will be completed. Those action do not need too much investment, as well as the 2 first could be the part of SUMP.

Two other action/measures (Action 1.1.1; Action 2.1.1) are expected partially completed, it means:

- Not all Info Points will be establish as in LCTP Plan because lack of collaboration of City Council with other stakeholders.
- Not e-bike will be introduced because lack of funds, or collaboration with private company providers, but bike rent/sharing scheme will be accepted.

Four other actions/measures (Action 1.1.2; Action 2.1.3; Action 3.1.2; Action 3.2.1) will be not completed because:

- Lack of funding, or crawl procedure for using PPP scheme for e-bus line,
- Disregard for developing the Apps and improving the accessibility for disabled low mobility passengers,
- Disregard of collaboration of Local and National governance for "Promotion of facilitating policies for cruisers"

Scenario 3: "Most likely scenario"

When events occur in the most likely way, thus progressing to a certain stage (not as good as they could have), but getting low or even stuck in some aspects.

In this scenario, the most actions/measures will be implemented (5 of them) and 4 other will be partially implemented as in table below.

For the Action 2.1.3, Partially Implemented means that at least one of two components must be completed. If the e- bus route will start as a Pilot Project, it will be accepted.

MEASURE	BSC	S1	S2	S3
Action 1.1.1 Establish touristic info points along all touristic paths within the city	x	✓	✓ PARTIALLY IMPLEMENTED	✓
Action 1.1.2 Develop an application for cruise tourists with all attraction points and activities.	x	✓	x	✓
Action 1.1.3 Improving the mobility pathway of passengers/tourist at the ferry/cruise terminal in/out	x	✓	✓	✓

Action 2.1.1 Establish an e-biking rental/sharing service in the cruise terminal, (linked to the city service)	x	✓	✓	PARTIALY IMPLEMENTED	✓ PARTIALY IMPLEMENTED
Action 2.1.2 Extend the E-taxi services in the cruise terminal.	x	✓	✓		✓
Action 2.1.3 Establish an electrical buss shuttle service from the Passenger's Terminal to the regional touristic spots.	x	✓	x		✓ PARTIALY IMPLEMENTED
Action 3.1.1 Create and disseminate a website with information about the benefits of the touristic activity in the Durres Region.	x	✓	✓		✓
Action 3.1.2 Promotion of facilitating policies for cruisers.	x	✓	x		✓ PARTIALY IMPLEMENTED
Action 3.2.1 Improve accessibility for disabled low mobility passengers.	x	✓	x		✓ PARTIALY IMPLEMENTED

According to the above scenario, in the table below are calculated the indicators of Mobility.

Indicator Descriptions	Measurem ent Units	Base line Period (2016)	Normal Trend	Scenario 1 "Most positive possibilities foreseen actually occur"	Scenario 2 "Unexpected events or circumstances"	Scenario 3 "Most likely scenario"
Total Mobility Users	N°	240.417	276.48 0	324.863	290.304	311.039
Transport Intensity (km/Users)	km/Users	23.24	27.8	28.7	28.16	28.72
mobility Users (for working)	% of Users	66,8%	67,5%	70,3%	68,1%	69,5%
mobility Users (for studying)	% of Users	24,7%	24,9%	21,2%	23,7%	22,1%
mobility Users (for tourism)	% of Users	1,2%	1,5%	2,7%	2,0%	2,6%
mobility Users (for other reasons)	% of Users	7,3%	6,1%	5,8%	6,2%	5,9%
LPT Users	% of Users	5,4%	4,9%	5,1%	4,8%	5,0%

Private Car Users	% of Users	44,7%	48,3%	37,2%	48,7%	41,2%
Walking Users	% of Users	43,4%	40,8%	50,0%	40,5%	47,4%
Bicycle User	% of Users	6,5%	6,1%	7,6%	6,0%	6,4%
Average Car Occupancy	%	46,0%	46,0%	45,1%	43,2%	44,6%
Average LPT Occupancy	%	62,0%	60,0%	72,6%	60,6%	68,4%

2.4 Step 4: Monitoring and funding

2.4.1 Monitoring LCTP implementation

The LCTP Implementation monitoring will follow the steps:

- Acceptance of the plan from the Durres City and Durres Port Authority
- Create the Co-working team responsible for implementation
- Pre-decision for funding from Port Authority and City Council possibility from theirs own resources.
- Involving the key stakeholders for funding support.
- Appointment of the coordinator for the implementation of the plan
- Monitoring and control of the measures by the pre- management
- Monitoring of the results

The table below, shows the Work-plan complete with deadlines and responsibilities

Main goal 1: To improve the mobility and quality of visit for cruise passengers, Durres citizens and the nearby areas, by fostering a complete and comprehensive plan

Specific goal 1.1	Start /deadline	Outcomes	Indicators	Source of data	Responsibility for monitoring	Monitoring Schedule	Description and Methodology
Simplify the pedestrian transit through the Port areas.	09/18-10/19	smooth transit	n/a	Ferry Terminal Operator	Durres Port Authority	Every 6 month	Survey by DPA & AFTO
Action 1.1.1	Start/dead line	Outcomes	Indicators	Source of data	Responsibility for monitoring	Monitoring Schedule	Description and Methodology
Establish touristic info points along the touristic paths within the city and the port areas.	09/18-10/19	5 Info-Point in different spots of Durres City	Number of info points. Number of tourists helped.	Durrës Municipality	Durrës Municipality	Every 6 month	Staff from Urban Development Dep.monitoring
Action 1.1.2	Start/dead line	Outcomes	Indicators	Source of data	Responsibility for monitoring	Monitoring Schedule	Description and Methodology
Develop an application for cruise tourists with all attraction points and activities.	09/18-10/19	Tourist spots and paths application	Number of downloads	Ferry Terminal Operator and Durres Municipality	Durrës Port Authority	Every months 3	Staff from Urban Development Dep.monitoring
Action 1.1.3	Start/dead line	Outcomes	Indicators	Source of data	Responsibility for monitoring	Monitoring Schedule	Description and Methodology
Improving the mobility pathway of the cruise passengers from the Cruise Terminal (Western Terminal) and Ferry Terminal to the city	09/18-10/19	Different colored paths for tourist	Number of passengers using every path (exit) promoted.	Ferry Terminal Operator and Durres Municipality	Durrës Port Authority Durres Municipality	Every months 3	Staff from Urban Development Dep.monitoring

Main goal 2: To reduce the GHG emissions by developing the LCTP, which will promote the use of friendly environmental transport modes.

Specific goal 2.1	Start/deadline	Outcomes	Indicators	Source of data	Responsibility for monitoring	Monitoring Schedule	Description and Methodology
Promote the use of Electrical Vehicles by the cruise passengers.	09/18-10/20	Reduced emissions	CO2, NOx, SOx, PM 10, PM 2.5	Environmental agency	Durres Municipality	Every months 3	Gathering of data recorded by scheduled monitoring
Action 2,1,1	Start/deadline	Outcomes	Indicators	Source of data	Responsibility for monitoring	Monitoring Schedule	Description and Methodology
Establish an e-biking rental service in the cruise terminal and ferry terminal.	09/18-10/20	E-Bike tourist users	Number of bicycles Number of rentals Hours of Services No of Users Utilization Rate	E-bike sharing Company	Durres Municipality	Every 3 months	E-Bike Company Monitoring
Action 2.1.2	Start/deadline	Outcomes	Indicators	Source of data	Responsibility for monitoring	Monitoring Schedule	Description and Methodology

Extend the E-taxi services in the cruise terminal and Ferry Terminal.	09/18-10/20	E-Taxi tourist users	Number of cruise tourist using the e-taxi service.	E-Taxi Company	Durres Municipality	Every Month	E-Taxi Company Monitoring
Action 2.1.3	Start/deadline	Outcomes	Indicators		Responsibility for monitoring	Monitoring Schedule	Description and Methodology
Establish an electrical bus shuttle service from the Cruise Terminal and Ferry Terminal to the regional touristic areas.	09/18-10/21	Electric bus shuttle service	Number of cruise tourists using shuttles visiting the regional spots.	Bus Company	Durres Municipality	Every Month	Department of Transport & Tourism in Durres Municipality monitoring

Main goal 3: To attract more tourist using cruise ships to visit Durres and nearby areas of interest

Specific goal 3.1	Start/deadline	Outcomes	Indicators	Source of data	Responsibility for monitoring	Monitoring Schedule	Description and Methodology
Increase the number of cruise ships calls by 25% per year.	09/18-05/22	Increase the tourist activities	Number of cruise ships calls	AFTO	Durrës Port Authority	Every months	Gathering of data recorded by scheduled monitoring
Action 3.1.1	Start/deadline	Outcomes	Indicators	Source of data	Responsibility for monitoring	Monitoring Schedule	Description and Methodology
Create and disseminate a website with information about the benefits of the touristic activity in the Durres Region.	09/18-05/20	New Platform	Number of visitors	Durrës Port Authority	Durrës Port Authority	Every month	IT data monitoring
Action 3.1.2	Start/deadline	Outcomes	Indicators	Source of data	Responsibility for monitoring	Monitoring Schedule	Description and Methodology

Promotion of facilitating policies for cruisers.	09/18-05/20	Number of policies adopted by the regional and national authorities.	Number of tourists	Durrës Port Authority	Durrës Port Authority	Every 3months	Durrës Port Authority Ministry of Infrastructure & Energy
Specific goal 3.2	Start/deadline	Outcomes	Indicators	Source of data	Responsibility for monitoring	Monitoring Schedule	Description and Methodology
Increase the staying time to 24h per cruise visitors	09/18-05/22	Economic Benefits	Avarage visit duration	Durrës Port Authority	Durres Port Authority	Every Cruise visit	Passangers Staying Time
Action 3.3.1	Start/deadline	Outcomes	Indicators	Source of data	Responsibility for monitoring	Monitoring Schedule	Description and Methodology
Improve accessibility for disabled low mobility passengers.	07/18-05/22	New infrastructure interventions	number of older tourist used	AFTO and Durrës Port Authority	Durrës Port Authority	Every 6 month	Durrës Port Authority monitoring

2.4.2 Funding

Estimation of the needed resources and where funding comes from.

Item	Start / Deadline	Funding	Cost Category				Total
			Investments	Description	Sub-contracting	Description	
Action 1.1.1: Establish touristic info points along all touristic paths within the city	09/18-10/19	Amount (€)	50,000 €	Purchase of 5 Kiosk suitable for info-point	10,000 €	Web update and maintain for 5 years	60,000 €
		Source of Funding	Durres Port Authority Private Companies Municipality of Durres				

Action 1.1.2: Develop an application for cruise tourists with all attraction points and activities.	09/18-10/19	Amount (€)	5,000 €	App Development	15,000 €	Update and Maintain for 5 years	20,000 €
		Source of Funding	Ministry of Tourism and Environment Municipality of Durres				
Action 1.1.3: Improving the mobility pathway of passengers / tourist at the ferry / cruise terminal	09/18-10/19	Amount (€)	150,000 €	Purchase of all equipment	30,000 €	Construction works	180,000 €
		Source of Funding	Durres Port Authority Albanian Ferry Terminal Operator Municipality of Durres				
Action 2.1.1: Establish an e-biking rental/sharing service in the cruise terminal, (linked to the city service)	09/18-10/20	Amount (€)	200,000 €	Purchase of 400 e-bike and equipment	70,000 €	Construction work for two stations	270,000 €
		Source of Funding	Private Companies Municipality of Durres PPP				
Action 2.1.2: Extend the E-taxi services in the cruise terminal.	09/18-10/20	Amount (€)	250,000 €	Purchase of 20 e-taxi and equipment	30,000 €	Construction work for two stations	280,000 €
		Source of Funding	Private Companies Municipality of Durres PPP				
Action 2.1.3: Establish an electrical buss shuttle service from the Passengers Terminal to the regional touristic spots.	09/18-10/21	Amount (€)	360,000 €	Purchase of 2 e - bus (>40seat); 3 e - minibus, (<20seats); and equipment	70,000 €	Construction work for two stations	430,000 €
		Source of Funding	Durres Port Authority Private Companies PPP				

Action 3.1.1: Create and disseminate a website with information about the benefits of the touristic activity in the Durres Region.	09/18-05/20	Amount (€)	2,000 €	Website developing	6,000 €	Website update and maintain for 5 years	8,000 €
		Source of Funding	Ministry of Tourism and Environment Municipality of Durres				
Action 3.1.2: Promotion of facilitating policies for cruisers.	09/18-05/20	Amount (€)	50,000 €	Cruise Tourism Potential Strategy Study	0 €	n/a	50,000 €
		Source of Funding	Ministry of Tourism and Environment Municipality of Durres				
Action 3.1.3: Improve accessibility for disabled low mobility passengers.	07/18-05/22	Amount (€)	300,000 €	Purchase of equipment	50,000€	Construction works	350,000 €
		Source of Funding	Durres Port Authority Municipality of Durres				

ANNEX 1 – LCTP measure description template

Action 1.1.1: Establish touristic info points along the touristic paths within the city and the port areas.

- How is the measure implemented at a local level?

The measure foresees the implementation of four/five Info-Points for cruise-passengers, with the first one to be at the Port Main entrance the second stationed at the Railway Terminal for Passengers and the others in specific touristic points along the “touristic

pathways". These can be created and run by a private operator and/or by a public agency with an agreement with the city council.

- Which are the critical issues that one has to deal with in terms of implementation of the measure?

The main issue is the involvement of the key stakeholders, Durres Port Authority, Albanian railways and the City Council, to financially support the establishment of the Info Points, cause at first the interest of the private operators may be low.

- What sets the measure apart from other similar measures?

The measure will be specific and directed toward helping the cruise passengers, to help them "navigate" the through the city in less time and experience as much as possible touristic attractions.

- How does the measure satisfy the needs of cruise passengers?

The touristic info-points will take in account that the cruise passengers have a defined window (average 4-6 hours stay) of time to visit the city, and therefore will develop a suitable "touristic path", tailored made for cruise passenger's needs.

Action 1.1.2: Develop an application for cruise tourists with all attraction points and activities.

- How is the measure implemented at a local level?

Development of an application for cruise tourists, which will include information about the touristic spots, areas and activities on local level. The application will be developed with the collaboration of local touristic authorities and private operators and will include the "touristic paths" to follow in the city, based on different criteria (exp. "traditional cuisine" etc.).

- Which are the critical issues that one has to deal with in terms of implementation of the measure?

The information needs to be updated in real time so to contain all touristic activities foreseen in the area. Therefore the main issue will be the maintenance and update of the application. Which may arise the risk of the app being not sustainable financially. Developing a sound business plan will be a critical issue, for the measure to be effective.

- What sets the measure apart from other similar measures?

The app for the information of cruise passengers is a more accessible and always in hand tool compared to other methods of information. Also the tool will create different paths of movement based on the passenger criteria, which makes the measure unique for the local area.

- How does the measure satisfy the needs of cruise passengers?

The cruise tourist app will focus on this specific target group, supply them with all relevant information they will need during their visit in the city.

Action 1.1.3: Improving the mobility pathway of the cruise passengers from the Cruise Terminal (Western Terminal) and Ferry Terminal to the city.

- How is the measure implemented at a local level?

Establishment of horizontal and vertical signals that will extend from the terminal to the city. The horizontal signals will include path lines of different colours that will guide the cruise tourists to the different “Exit Gates” of the Ports and different areas of the city. Ideally the lines will go on in the city and link all the touristic attractions and the info-points developed in “Action 1.1.1”.

- Which are the critical issues that one has to deal with in terms of implementation of the measure?

The critical issue is the involvement of the local authorities to embrace the idea and to develop coloured lines walking paths, throughout all the city. Along the pathway will be established the required horizontal and vertical signals, to better orient the tourist within the city.

- What sets the measure apart from other similar measures?

The measure is simple and the costs of implementation will be relatively low.

- How does the measure satisfy the needs of cruise passengers?

The cruise passengers will have an easy way out of the terminals and an easy way to orientate within the city.

Action 2.1.1: Establish an e-biking rental service in the cruise terminal and ferry terminal.

- How is the measure implemented at a local level?

Establishment of the e-bike sharing/rental service throughout different areas of the city and in the Cruise and Ferry Terminals. Contribution to the design of a cycling network in collaboration with the Durres City SUMP developers. Establishment of two e-bike sharing/rental stations at the entrances of the port. The stations will be linked with the pedestrians’ ways from the cruise and ferry terminals.

- Which are the critical issues that one has to deal with in terms of implementation of the measure?

The critical issue is the financial support. In Durres City the cycling infrastructure is non-existent at the moment, thus it will require a lot of funds to develop all the cycling lines

and required infrastructure. Also a crucial issue will be the collaboration with the SUMP developers.

- What sets the measure apart from other similar measures?

This measure introduces in the city with the e-bike sharing/rental services, which will contribute to improve the mobility significantly.

- How does the measure satisfy the needs of cruise passengers?

This measure provides the cruise passengers with a different and cheap mode of transport, to move faster and easier around the city attraction areas.

Action 2.1.2: Extend the E-taxi services in the cruise terminal and Ferry Terminal.

- How is the measure implemented at a local level?

This measure determines the placement of two other e-taxi station at the Passengers Terminal of the Durres port through the pedestrian bridge pathway to the railway Station and also at the main entrance of the port near the Cruise terminal, increasing the number of electric taxis, and making it possible for them to use by tourists who come with cruisers, as well as daily tourists.

- Which are the critical issues that one has to deal with in terms of implementation of the measure?

The critical point of implementation of this measure is the engagement of local authorities, the Port Authority and the Albanian Railways, to reach an agreement regarding the necessary spaces for e-taxi near the terminals.

- What sets the measure apart from other similar measures?

This measure provides a clean transport mode for all tourist visiting the city. This measure reduces the GHG emissions and costs for the city.

- How does the measure satisfy the needs of cruise passengers?

This measure provides the cruise passengers with a different and cheap mode of transport.

Action 2.1.3: Establish an electrical buss shuttle service from the Cruise Terminal and Ferry Terminal to the regional touristic areas.

- How is the measure implemented at a local level?

Establishing an e-Shuttle bus line that will serve all the tourists who come with Cruise, as well as for day-to-day tourists, which is a considerable amount. The service will be divided in two parts.

The first part will include a free service from the Port Authority by establishing a e-minibus line from the cruise terminal two the Exit Gate near the beach touristic area and with a

another stop to the Ferry Terminal linked with the pedestrian bridge that connects with the Railway Station.

The second part will establish an e-bus line that will have the starting point at the Railway Station area and the destination will be the Castle of Kruja, within the Prefecture of Durres. This measure, envisages the deployment of 2 e-bus with 4 hours of departure and return.

- Which are the critical issues that one has to deal with in terms of implementation of the measure?
- The critical point of implementation of this measure is the involvement of local and central authorities such as MEI and MTM on administrative licensing issues and the application of PPP strategies, since the investment value is considerable.
- Also the Port Authority will need to invest on e-mini buses, to offer free service within the port area.
- What sets the measure apart from other similar measures?
This measure connects different transport modes in order to reduce the GHG emissions, and offer different destinations.
- How does the measure satisfy the needs of cruise passengers?
This measures provides the cruise passengers with different cheap options to travel to different touristic areas of city and the prefecture.

Action 3.1.1: Create and disseminate a website with information about the benefits of the touristic activity in the Durres Region.

How is the measure implemented at a local level?

“Discover Durres city and more...” will be the local web with information about:

- History (City history, Archaeological Sites)
- Culture, (Museums, architecture, music tradition)
- Explore (Beaches, flora, fauna)
- Enjoy (Activities and Events)
- Travel Stay (accommodations and useful travel information)
- Taste (Local Products and Gastronomic destinations)
- Alternative Truism
- Interactive Maps
- Which are the critical issues that one has to deal with in terms of implementation of the measure?

The information needs to be updated in real time so to contain all touristic activities foreseen in the area. Therefore the main issue will be the maintenance and update of the website. Which may arise the risk of the service being not sustainable financially. Developing a sound business plan will be a critical issue, for the measure to be effective.

- What sets the measure apart from other similar measures?
The website for the information of cruise passengers is a more accessible and always in hand tool compared to other methods of information. Also through the website the tourists are able to get pre-information on the city attractions.
- How does the measure satisfy the needs of cruise passengers?
The cruise tourist website will focus on this specific target group and supply them with all relevant information they will need during their visit in the city touristic areas. Allowing to be prepared to enjoy the city attractions.

Action 3.1.2: Promotion of facilitating policies for cruisers.

- How is the measure implemented at a local level?
 - o Create the policy to support the development of Cruise Tourism in Durres.
 - o Clearly demarcate roles and responsibilities of each agency/department in different aspects of cruise tourism development.
 - o Address tax related issues. In addition to tourism related taxes, a cruise vessel & its passengers are also subject to several charges and fees
 - o Simplification of payment procedures for dues and charges would create a favourable environment with the cruise tourists. This can be explored through Combined tariffs (single tariff for multiple port calls in a single itinerary)
- Which are the critical issues that one has to deal with in terms of implementation of the measure?
Engagement of the port authority, local authorities and central government agencies to clarify all the possibilities of facilitating tourism with cruisers.
- What sets the measure apart from other similar measures?
This measure tackles all the bottlenecks created by the national legislations different from the EU legislations.
- How does the measure satisfy the needs of cruise passengers?
This measures helps the tourists by easing the police controls and reduces the travel costs.

Action 3.1.3: Improve accessibility for disabled low mobility passengers.

- How is the measure implemented at a local level?
Improvement of the infrastructure for low-mobility cruise-passengers. This will require the analysing of the actual infrastructure at the Cruise and Ferry Terminals.
Ideally the improvements made will lead to the use of low carbon modes during all the visit in the city areas.

- Which are the critical issues that one has to deal with in terms of implementation of the measure?

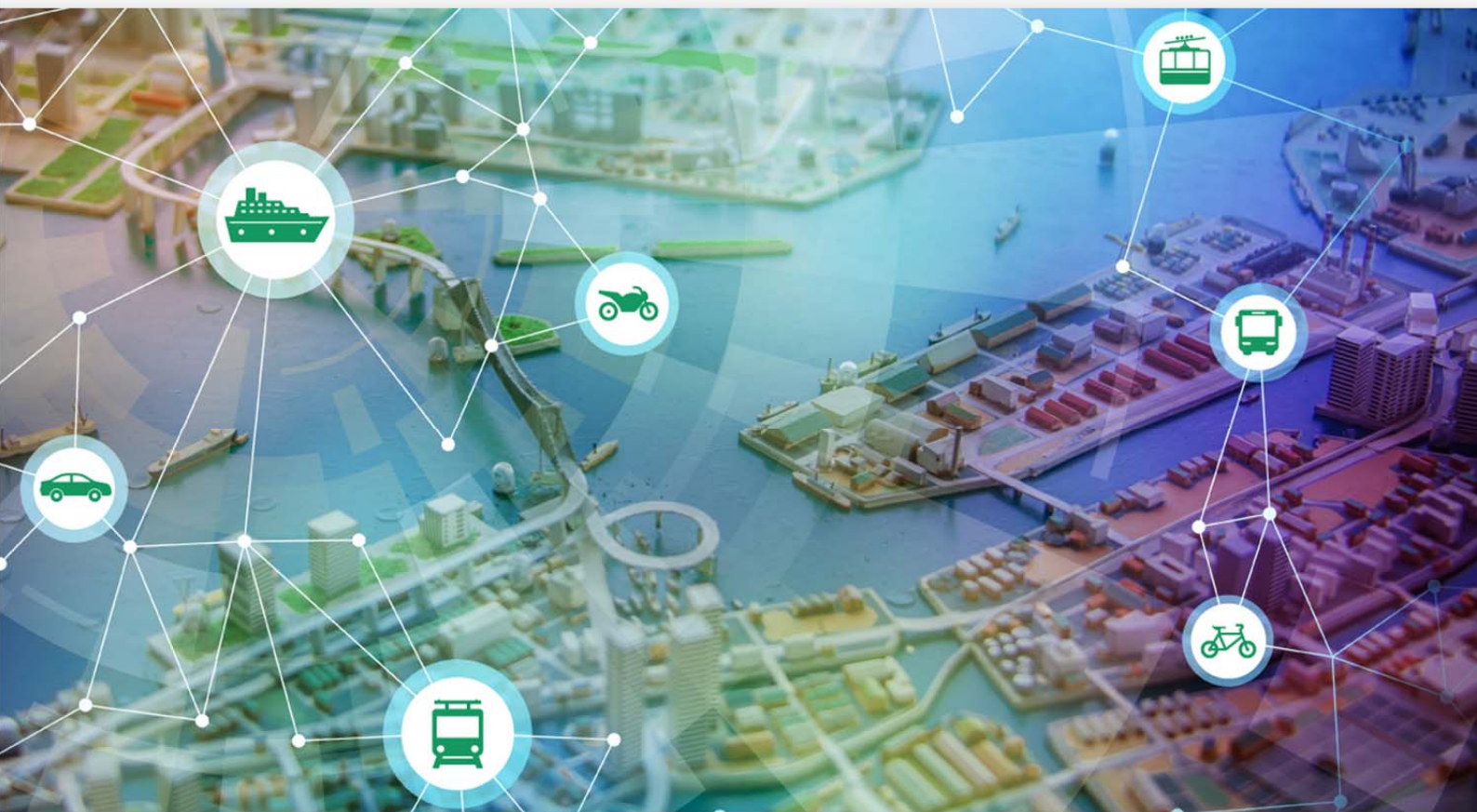
The critical issue is the financial support. The infrastructure is non-existent at the moment, thus it will require a lot of funds to improve the actual infrastructures. Also a crucial issue will be the collaboration with the SUMP developers.

- What sets the measure apart from other similar measures?

This measure takes in consideration that a large part of cruise passengers are senior citizens usually with low mobility. This measure focuses to provide the passengers with all the needed facilities to reach all the attractions within the city.

- How does the measure satisfy the needs of cruise passengers?

This measure focuses to provide the passengers with all the needed facilities to reach all the attractions within the city areas.



Low Carbon Transport Plan – Lisbon

LOCATIONS - Low Carbon Transport in Cruise Destination Cities

Lisbon, 29th May 2018

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This project has received funding from the Interreg MED Programme under grant agreement LOCATIONS (1MED_15_2.3_M23_234).

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Executive summary

The Low Carbon Transport Plan (LCTP) of Lisbon aims to reduce the carbon impact on the mobility of cruise tourists in the city of Lisbon and, simultaneously, to protect and increase the quality of life of their inhabitants. These objectives are embedded in the vision envisaged by the LTCP which states that ***“Lisbon should become a destination of excellence where the available options of mobility have a reduced impact on the environment and on the city residents’ quality of life, contributing to potentiate opportunities and balance the coexistence between residents and tourists.”***

The LCTP of Lisbon is fully aligned with the European and National policies that traces the routes for the decarbonization of the economy by 2050. The LCTP of Lisbon is a planning tool that contributes for the city government programme – *Grandes Opções do Plano para a Cidade de Lisbon-* (2018-2021). In this context the LCTP emphasizes the need for promoting the clean mobility, the development of shared services and the improvement of public transport, favouring intermodal transport and, when possible, active modes such as walking and cycling. Lisbon has been at the forefront of efforts to decrease CO₂ emissions, placing Climate and Energy concerns at the center of its agenda. Lisbon’s administration created a cross-cutting program to mitigate and adapt to climate change and recently Lisbon was the first European Capital to subscribe the new Covenant of Mayors for Energy and Climate.

The city of Lisbon is facing several challenges regarding the ageing and loss of their residents, the decrease on public transport demand, the increased number of vacant dwellings, the rise of renting and real estate market prices, the increasing number of tourists and the high number of daily commuters.

Notwithstanding the current implementation of an integrated package of local policies regarding urban planning, climate change and transport, the city of Lisbon remains high dependent on individual transport (48% modal share for inner trips and 54% modal share for trips with origin on other councils of the metropolitan area, in 2011) with more than 370 000 vehicles coming into the city and getting out every day (2016).

The tourism in Lisbon has been intensified during the last decade, representing a prosperous and crucial sector for the local economy but also bringing new challenges. From 2001 to 2016, the number of nights spent by tourists in Lisbon increased 63% reaching the number of 11 million-night stays. With the increase of tourism and attractiveness of the city, also the cruise tourism business grew. The increasing demand of cruise tourism and the number of cruise ship calls, combined with the need to receive ships with large size, triggered the construction of a new cruise terminal in the city centre that is operating since September 2017. In this context, new challenges should be tackled to overcome the negative impact of the growing cruise tourism that due to its characteristics (short stays, touristic buses excursions, seasonality of cruises and easily changeable routes) and its location in a congested historic area of the city, will require the implementation of specific measures.

The LCTP of Lisbon was developed following a participatory methodology in order to diagnosis the current situation regarding the mobility of cruise tourists. In this context several meetings and interviews were conducted with key stakeholders with different roles as regulators and operators in the cruise tourism industry.

The main results of the participatory process were analysed according the CAME₁ matrix that systematises measures already existent but require to be corrected or maintained and identifies new measures that need to be explored or adapted. The CAME matrix assesment allowed the identification of critical challenges that lead to the design of the four main strategies proposed in the LCTP:

- 1- To promote the exploration of the city by active modes of transport;
- 2- To promote the use of public transport when distance and mobility conditions of tourists justify;
- 3- To balance the number of tourists at points of interest, reducing impact, enhancing their experience, and spreading opportunities;
- 4- To reduce touristic transports impact on historical centre and main touristic areas;

In order to support the implementation of the LCTP, the strategies designed are disaggregated into eleven actions and thirty-four activities that will be monitoring by specific indicators.

A fifth crosscutting strategy was considered to promote the integration and dissemination of the foreseen activities and actions.

The successful implementation of LCTP of Lisbon will require the creation of synergies across different sectors and policies in the city. This approach will assure the articulation with the main ongoing programmes oriented to public spaces: *Uma Praça Em Cada Bairro* (One Plaza in Each Neighbourhood), *Pavimentar Lisbon 2015-2020* (Paving Lisbon 2015-2020) and *Plano Geral de Intervenções da Frente Ribeirinha de Lisbon* (Lisbon River Front General Intervention Plan, as well as with other planning tools as it is the case of the recently approved Municipal Strategy for Climate Change Adaptation of Lisbon (November 2017).

The LCTP of Lisbon will contribute for the operationalization of the current city government programme (2017-2021) and for the local implementation of European Urban mobility policy. Therefore, it is expectable that strategies and actions proposed in the LCTP of Lisbon would be integrated in the Sustainable Urban Mobility Plan (SUMP) of Lisbon, that is currently being developed by the Lisbon city council.

¹ CAME: Correct, Adapt, Maintain and Explore

Introduction

The Low Carbon Transport Plan in cruise destination cities (LCTP) is very well framed by the Europe's objectives for the next 30 years regarding the climate change goal of reducing the greenhouse gas emissions (GHG) by 80-95% compared to 1990 levels. The current LCTP aims to support the low carbon energy transition of Lisbon and it is aligned with the efforts of the global Paris agreement of keeping a global temperature rise well below 2 degrees Celsius above pre-industrial levels.

Regarding the transport sector the European Commission states that by 2050 a 60% reduction of GHG emissions compared to 1990 levels is necessary to reach the declared goals. By 2030 the objective is to reduce the emission 20% below the 2008 levels. The challenge will be "to break the transport system's dependence on oil without sacrificing its efficiency and compromising mobility". [1]

Portugal follows the ambitions of the European Commission with the current govern declaring that the main objective (relating climate change) is the decarbonisation of the economy with the objective of having a country independent of fossil fuels by 2050. It also states the need for promoting, with a focus on cities, clean mobility, shared services, more attractive public transport, favouring intermodal transport and, when possible, active modes such as walking and cycling. [2]

As its biggest metropolis and capital city, Lisbon has taken actions to contribute to Portugal's ambitions. In 2016 it was the first European capital to join the Covenant of Mayors for Climate & Energy pledging therefore to reduce its CO₂ emissions by 40% until 2030.

Lisbon has been at the forefront of efforts to decrease CO₂ emissions, placing Climate and Energy concerns at the center of its agenda. Lisbon's administration created a cross-cutting agenda to fight climate change and recently Lisbon was the first European Capital to subscribe the new Covenant of Mayors for Energy and Climate. Lisbon's GHG targets currently go beyond those set at the national level and the city aims to lead by example, actively contributing for successful delivery of the Energy Union objectives and its interface with the National Integrated Energy and Climate Plan. The main city challenge is to mobilize the private sector to further continuing to reduce emissions.

In 2010 a Baseline Emission Inventory was prepared for 2020 and included in Lisbon's Sustainable Energy Action Plan (SEAP). Meanwhile, the primary energy consumption in Lisbon decreased considerably between 2002 and 2014. This decrease, of 35% (from 1.294.280 tep in 2002 to 844.740 tep in 2014), was due to reductions in the consumption of Diesel (43%), Gasoline (69%) and Electricity (49%). Consumption of LPG and other forms of energy decreased over 80%, while natural gas increased 28%. This decrease was mainly due to the transport sector, which reduced its consumption by 36% between 2008-14. This general downturn is seen regardless of the period between 2008-12, when the transport sector showed an increase in consumption. However, this growth is due only to differences in the breakdown of consumption attributable to the municipality of Lisbon compared to the consumption recorded in the district during this period. [3]

In the context of the new covenant of Mayors agreement that includes a mitigation and adaptation approach, the Sustainable Energy Climate Adaptation (SECAP), Lisbon has set targets to fully deliver the climate and energy package by 2030. The SECAP 2030 report for Lisbon is on submission up to June 2018 under the agreements defined in the Covenant of Mayors for Climate and Energy. From a global perspective, Lisbon intends to save 60% of CO₂ emissions until 2030 and to be carbon neutral in 2050,

making use of its four pillars - Energy Efficiency, Renewable Energy, Smart and Clean Mobility and Circular Economy.

The city of Lisbon is facing several challenges such as an ageing population, a reduction of public transport demand, bigger share of empty dwellings, rise of renting and real estate market prices, increasing number of tourists, reduction of resident population, high number of people with pendular movements from outside the city. On the other hand, there are positive aspects that can accelerate and contribute to overcome these challenges such as the economic benefits of tourism, an innovative and entrepreneurship ecosystem and a recent decrease on the concentration of pollutants.

In the transport sector the city aims at promoting a modal shift from individual transport to walking, cycling and public transport to achieve the necessary GHG emission reduction of this sector. [4] The Lisbon's Sustainable Urban Mobility Action Plan (PAMUS – *Plano de Ação Mobilidade Urbana Sustentável do Município de Lisbon*) states this ambition and lists 14 actions to be implemented which cover cycling and pedestrian infrastructure, accessible and inclusive infrastructure, integrated ticket system, information platforms and others.

Other city council programs that promote urban regeneration - such as *Uma Praça Em Cada Bairro* (One Plaza in Each Neighbourhood), *Pavimentar Lisbon 2015-2020* (Paving Lisbon 2015-2020), *Plano Geral de Intervenções da Frente Ribeirinha de Lisbon* (Lisbon River Front General Intervention Plan) or *Plano de Acessibilidade Suave e Assistida à Colina do Castelo* (Plan for Soft and Assisted Accessibility to the Castle Hill), also aim to create safe pedestrian networks and accessible routes.

Along with these measures and benefiting from some of the referred programs, there is a strong commitment on the increase of the cycling network (from 90km in 2018 to 200km in 2021), and the recent launch of GIRA - Lisbon Bike Sharing System (with 1420 bicycles, 2/3 electric) is contributing to integrate the bike as a mode of transport.

At the same time, an innovative and entrepreneurship ecosystem is contributing for a more flexible and sustainable urban mobility, with the implementation of an electric scooter-share system and several private car-share systems (partially electric).

Nevertheless this sector is highly dependent on individual transport (48% modal share for inner trips and 54% modal share for trips with origin on other councils of the metropolitan area, in 2011) with more than 370 000 vehicles coming into the city and getting out every day. [5] [6] The last available data shows that Lisbon present population increases, every day, by 70% (from 547 733 to 926 000) with people from other Municipalities of the metropolitan area that come into the city to work or study. [5]

Since 2012 Portugal and Lisbon have seen an increase in terms of tourists visiting the country and the city. In Lisbon from 2001 to 2012 there was a 51% increase in nights spent by tourists while in the next 4 years, until 2016, there was 63% increase making it 11 million-night stays in the latter. [7] With the increase of tourism and attractiveness of the city also the cruise tourism business grew. From 2002 until 2011 it grew 200% surpassing the 500 thousand passengers mark and sustaining this value, approximately, until now. [8] The increase of the number of cruise tourist and cruise ship calls, with the increase of the size of ships, pressed for the construction of a dedicated terminal for this line of business. It was opened in September 2017, located in the city centre of Lisbon in front of one of its oldest and traditional neighbourhoods, Alfama. New challenges will arise with the expected increase in the number calls, with the

location of the terminal in an already congested area and with the characteristics of this sector of tourism (e.g. short stays, touristic buses excursions, seasonality of cruises and easily changeable routes).

The Low Carbon Transport Plan (LCTP) aims to tackle these challenges with the objective of lowering its carbon footprint while also ensuring a better coexistence between locals and cruise passengers. Through gathering of data, both from studies and official sources and from participatory processes, a diagnosis of the situation was elaborated and actions to tackle identified challenges were built on the top of it. It is the objective of this plan that cases like Venice and Barcelona, where the resident population has been targeting cruise tourism (and tourism in general), due to its negative effects on the city (e.g. congestion, pollution, rise of the cost of life or decrease of quality of life), don't repeat themselves in Lisbon.

1. Context

1.1. Current cruise-related flows

Global tourism has grown steadily for the past two decades. The estimated total number of visitors in the world grew from 563 million in 1996 to 1322 million in 2017, a 135% increase. [9] Regarding global cruise tourism the increase has also been stable and continuous with the number of individual passengers increasing 62% from 2005 until 2015. In the case of Europe, the increase has been more visible with the number of passengers embarking in its ports more than doubling in the same period (Table 1).

Within Europe different regions can be identified namely the Mediterranean (Med), Northern Europe and Atlantic Islands. In 2015 the Mediterranean was the most active area, with a demand of 3,71 million individual passengers while in the Atlantic Islands it was 0,55 million and Northern Europe with 1,6 million passengers.

Table 1 – Global demand for cruise tourism (in million passengers) [10]

	2005	2010	2011	2012	2013	2014	2015	10-Year Growth
North America	9,96%	11%	11,44%	11,64%	11,82%	12,16%	12,08%	12%
Europe	3,19%	5,67%	6,15%	6,23%	6,39%	6,39%	6,59%	109%
Subtotal	13,15%	16,67%	17,58%	17,87%	18,21%	18,55%	18,77%	43%
Rest of the World	1,21%	2,40%	2,91%	3,03%	3,09%	3,49%	4,33%	266%
Total	14,36%	19,07%	20,49%	20,90%	21,30%	22,04%	23,10%	62%

Within the Med, the area with most volume of cruise passengers is the West Med. It has been increasing its share of passengers for the past 6 years, from 69% in 2012 to 76% in 2017 of the total in the Med area, as depicted in the graph of Figure 1. As for the absolute number of passenger movements² in the West Med it increased steadily until 2016 reaching a peak of 20 million and then having a slight decrease in 2017 (-2%). On the other hand, the rest of the Med areas (East Med, Adriatic and Black Sea) decreased their number of passenger movements by 25% in the same 6 years period (2012-2017).

² One individual passenger times the number of ports visited, e.g. one passenger that visits 4 ports counts as 4 passengers movements.

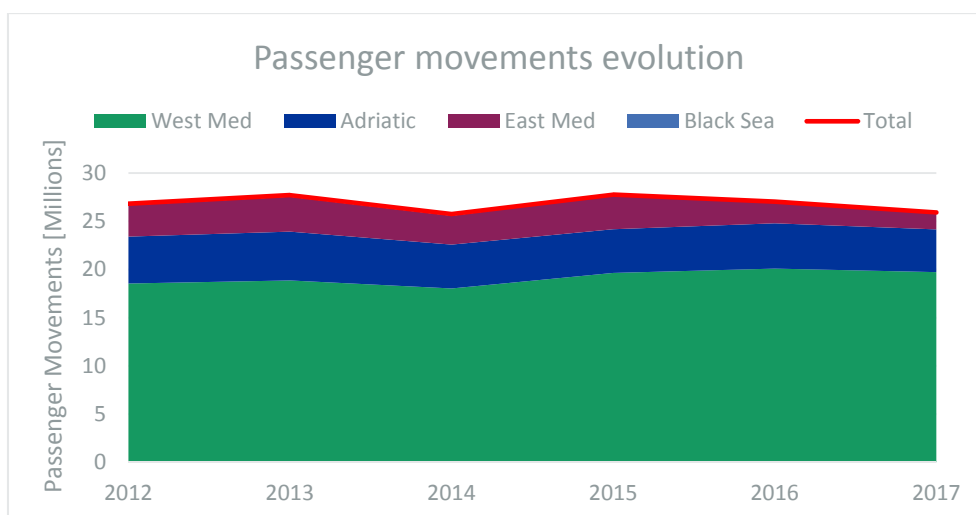


Figure 1 – Evolution of passenger movement in the different areas of the Mediterranean Sea. [11]

Portuguese Atlantic ports (Lisbon, Porto and Portimão) are included in the West Mediterranean area which puts them in the most relevant area of the Mediterranean Sea. This is crucial since many important cruise routes pass through Portugal or make call in ports close-by.

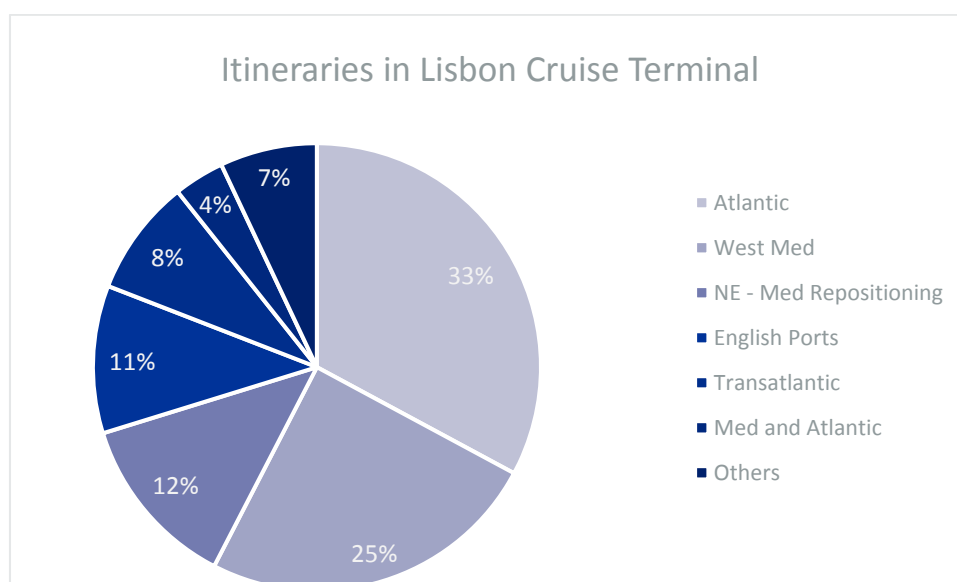


Figure 2 – Itineraries in Lisbon Cruise Terminal [8]

In the case of Lisbon, in 2015, as shown in the diagram of Figure 2, the most important route (accounting for 1/3rd of the calls) was the Atlantic Route which includes calls at Atlantic Islands (Canary and Madeira Islands), Gibraltar Strait, North of Africa, North of Spain and British Islands. The routes on the Balearic Sea (referred as West Med in the diagram), including calls at Barcelona, Cote d'Azur, Civitavecchia or Palma de Mallorca, among others, accounted for 25% of the calls. Other import routes passing through Lisbon are the England-Mediterranean routes (English Ports in the diagram), which includes cruises from Southampton or Dover to the Med area, and the transatlantic routes, which accounts for ships repositioning from the United States or Brazilian ports to Europe in the spring and going back in the fall. [8]

Like in rest of Europe there was a sharp increase in the number of passengers passing through Lisbon terminal as patent in the diagram of Figure 3. 2013 was the peak year with 560 000 passengers and from there onward the number of passengers (and ships) has stabilized near the 500 000 mark (always above it).

As previously stated, only in September 2017 was a dedicated cruise terminal opened to operations. This new terminal gives Lisbon Port new capabilities mainly in terms of handling cruise ships in turnaround operations, meaning that more (and bigger) cruises can now start and finish their trips in Lisbon. Because of the new terminal the importance of turnaround operations might increase whereas in the past transit operations, where Lisbon is just a stop in the middle of the cruise trip, have been predominant. Looking at the graph of Figure 3 it's evident that turnaround operations have always had a small share; though in 2017 it was the first time it surpassed the 10% share of total passengers (with 11%), has the New Cruise Terminal opened in November.

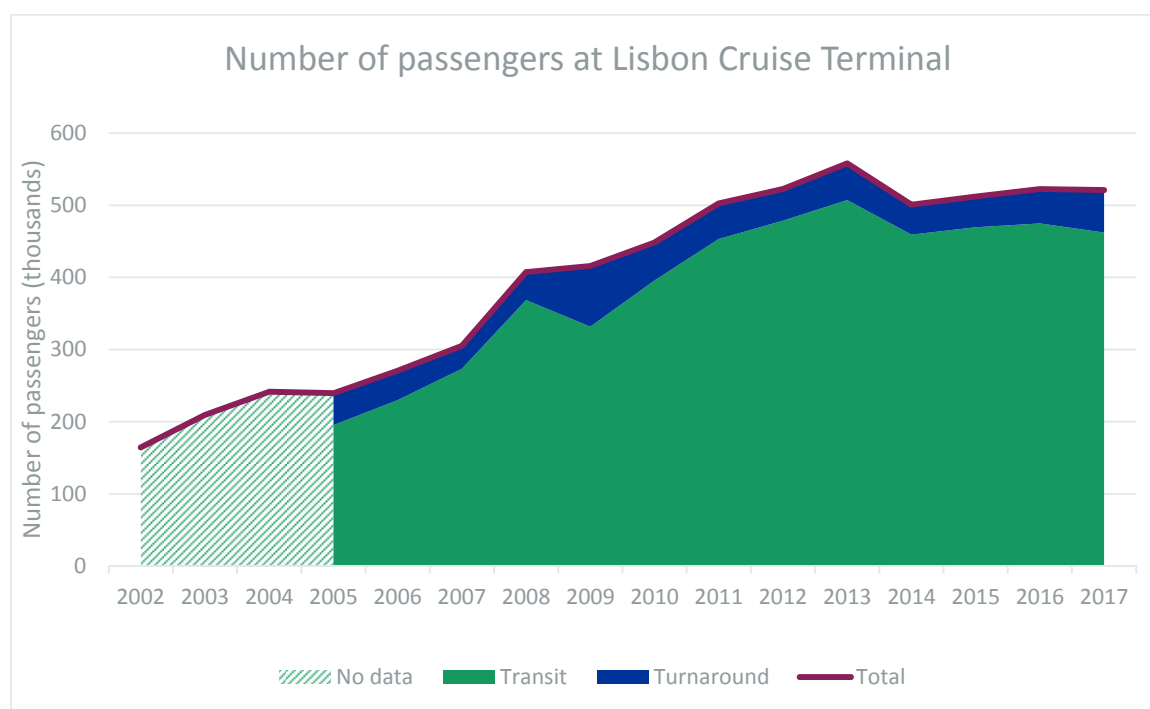


Figure 3 – Total passengers in Lisbon port and share of turnaround and transit operations. [8]

Lisbon's high season is traditionally in April/May and September/October as the graph of Figure 4 shows. This behaviour can be explained by the repositioning of ships to the Caribbean and United States, in the winter, and to the North of Europe in the summer months (only time when it's possible to cruise there). When relocating from the Med to these regions many of the cruise ships stop in Lisbon. The Med region also has a seasonal profile but with a longer high season, from April/May to October/November and with a low season in the rest of the months. It is evident that Lisbon has a lot of potential to increase its summer months passenger flow, especially in June, July and August.

As in other cruise cities the average time that cruise tourist spend in the city is less than a day. In 2016 the average stay was 11 hours and 21 minutes, an increase from the 10 hours and 12 min from 2014. [12] This is because the share of cruise passengers that spend the night in Lisbon increased a consequence of the increase in the share of turnaround cruises. The short amount of time that the passengers stay in the city means they'll only have time to visit the main attractions which results in big concentrations of people in these areas as later will be described. It also means that tourists must move fast from one place to another, meaning that walking and public transport may not be so convenient.

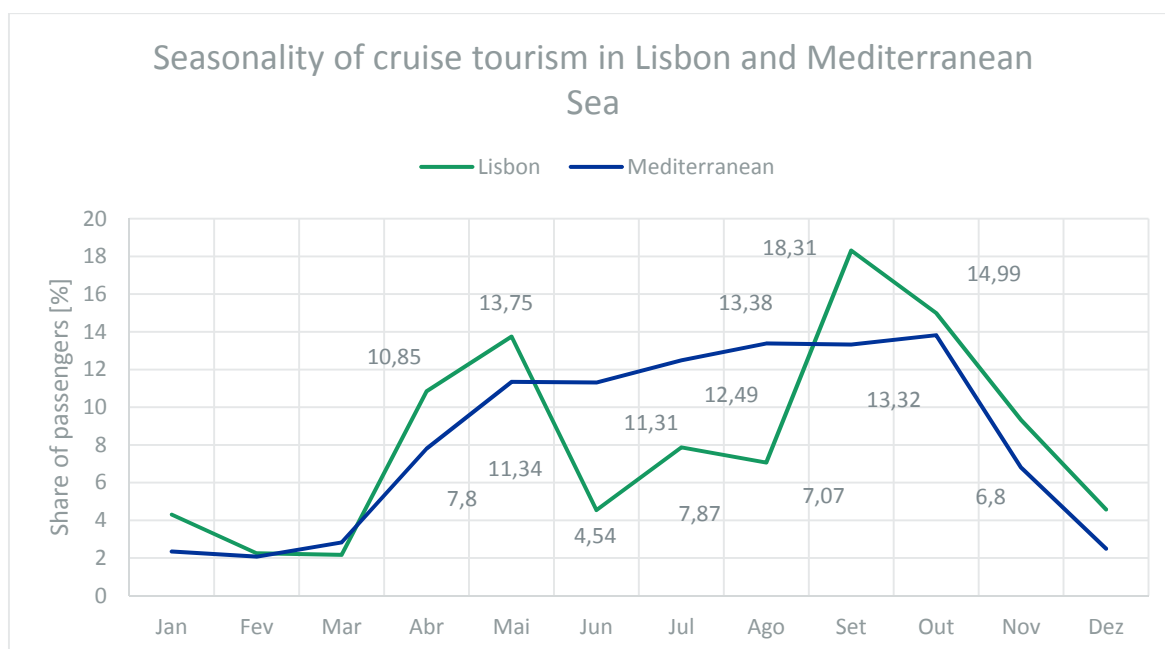


Figure 4 – Cruise passenger flow in Lisbon and Med area. [8] [11]

Furthermore, the ships typically arrive in the morning and depart in the end of the afternoon as shown by the graph of Figure 5. In this graph it is represented the arrival time and departure time of all the ships passing through Lisbon's terminal, in 2015. Quantitatively 73% of all ships arrive between 06:00 and 09:00 and 61% depart between 17:00 and 20:00. These times coincide with road traffic peak hour in Lisbon which normally affects traffic flow downtown. The overlap of both events can produce additional congestion in city traffic with resulting increased emissions due to movements of passengers from the cruise terminal to the touristic spots.



Figure 5 – Arrival and departure hours of cruise ships in 2015 in Lisbon. [8]

Knowing that turnaround cruises (which begin or end in Lisbon) should be much more significant in the future, as the New Cruise Terminal makes this possible, it is expected that part of the visitors spend more time

in the city, meaning better economic revenues, a spread of the positive impacts of tourism to areas that now are not so visited and tourists less rush in visiting and moving around.

Besides cruise ships operational features and statistics, it's relevant to know “who” are the cruise tourist that visit Lisbon. The Port Authority of Lisbon in association with the Lisbon's Tourism Association has conducted several enquires to the cruise passengers to determine their profile. The last one was published in 2018 with the data reporting to 2017. A sample of 1003 foreign passengers were enquired from 49 ships that stopped at Lisbon between April and November 2017. [12]

The most represented nationality was British, 41 %, followed by Spanish, 22% and Germans, 13%. This has been the trend of the last years with the British always being the most represented and the Germans gaining representatively in the recent years. In terms of age the passengers are younger when compared to the last years. While in 2011, 29 % of the passengers were over 65 years old, in 2017 this share decreased to 18% (and 15% in 2016).

The changes in the tourist cruise profile is also disclosed when analysed the people with whom they travel. In this context, married passengers (or with partner) have increased their share with 83 % in 2011 and 89 % in 2017. On this line, the data also shows that, of the married/partners passengers, 45% travel only in couple and 6% only with friends. Of the total amount of passengers 45% are accompanied by friends (not exclusively). 2% of people reported being accompanied by children.

A relevant information is that, in 2017, 9% of the passengers said they would not have taken the cruise if Lisbon was not part of the itinerary (38% in 2016). Furthermore, 89% of the cruise tourist enquired reported having visited Lisbon in the past which is an opportunity to explore destinations alternative to the traditional ones (in 2016 about half reported the same). This may help to counterbalance the fact that ships spend limited time in port helping to balance tourists fluxes in the city centre.

1.2. Mid to long-term cruise flows

According to CLIA 2017 Cruise Industry Outlook, it is expected that in 2018, 15 ocean cruise ships will enter service while in 2019 this number rises to 20. Moreover, in the period 2020-2026 a further 32 ocean cruise ships will be added to the global fleet. This accounts for 200 782 berths to be added increasing the capacity to respond to the growing demand. In the report ‘End of the beginning for Cruising’ by Tony Peisley it was estimated that in 2018 the 25 million cruise passengers mark would be surpassed while in 2024 this number would be as high as 30 million. Cruise Market Watch projects that in 2020 Europe demands for cruise tourism would reach 1 million passengers meaning a 7% increase from 2015. This puts Lisbon in a growing market and the belief is that Lisbon will also grow in terms of passengers. For 2018 a 18% increase in terms of passengers is expected bringing 617 000 passengers and 361 cruise ships to Lisbon terminal. [13] For longer projections it is difficult to make accurate projections, but it is a clear objective (declared by the Portuguese government) to increase passenger volume by 55% in the next 10 years (until 2027). [14]

1.3. City context

Population and mobility

Lisbon is a city located at the mouth of Tejo river with an administrative area of 100 km² and about 500 thousand residents. [15] It's incorporated in the wider Metropolitan Area of Lisbon which has a population of almost 3 million people. While Lisbon city population has been decreasing (-10% between 2001 and 2016) the metropolitan area population is increasing (+6% in the same period). The location of Lisbon within the metropolitan area can be seen in Figure 6.

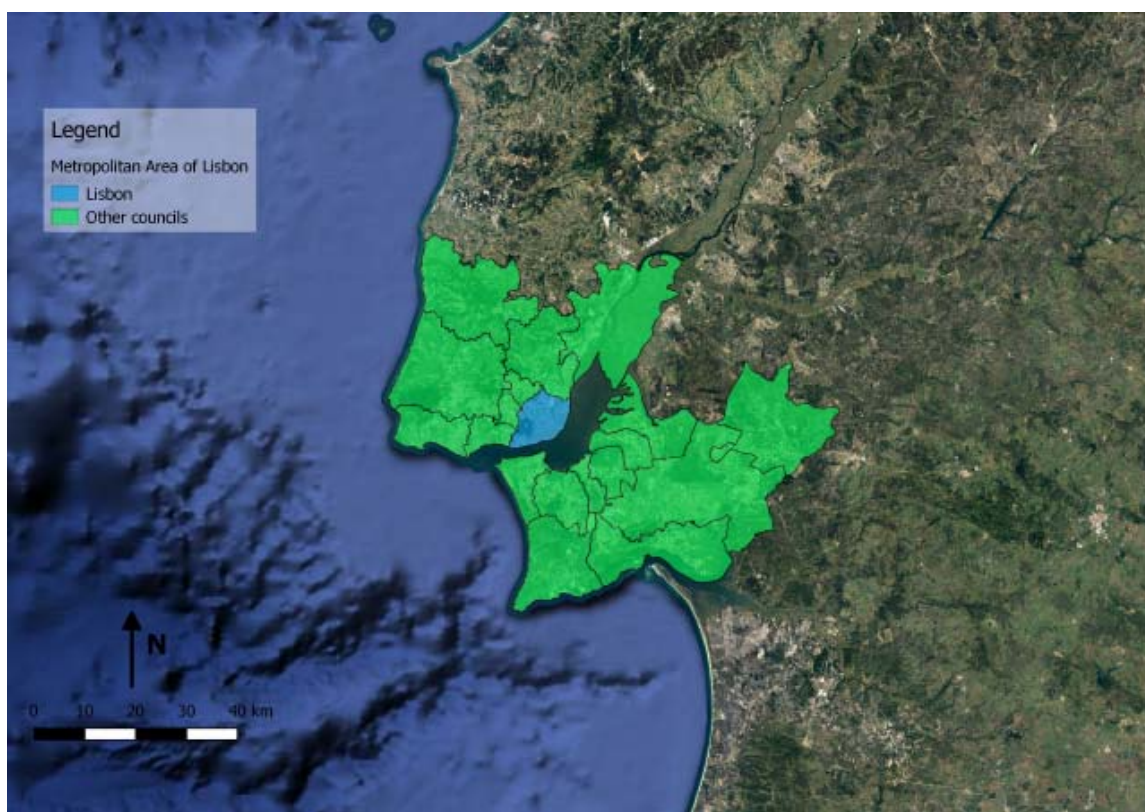


Figure 6 – Metropolitan Area of Lisbon (green) and Lisbon administrative limits (blue).

Lisbon, as the centre of the metropolitan area, concentrates many of the jobs available in the area and attracts an important share of the population in the area to go work there. From the 2011 census it is known that Lisbon had 548 thousand residents and that, every day, 425 thousand people entered the city and 47 thousand would get out. [16] This means that, every day, the population would rise to 926 thousand people. Furthermore, the census pointed out that 55% of the people in the region of Lisbon would use a personal vehicle for their pendular movements, an increase from the 43% of 2001.

A mobility study from 2015 [17] mentioned that, every day, 711 thousand vehicles would get in or get out of the city. Looking at the data it is possible to understand that Lisbon mobility system is highly dependent on personal vehicle though, although during the crisis period (2010-2014), its use has decreased slightly. Despite of this effect, the number of cars sold started to increase again (Figure 7) which points out to an increase of the use of the personal vehicles. This also happens because there was a relevant disinvestment on public transport during the crisis, and all the services have seen its offer and quality being reduced, while prices have raised.

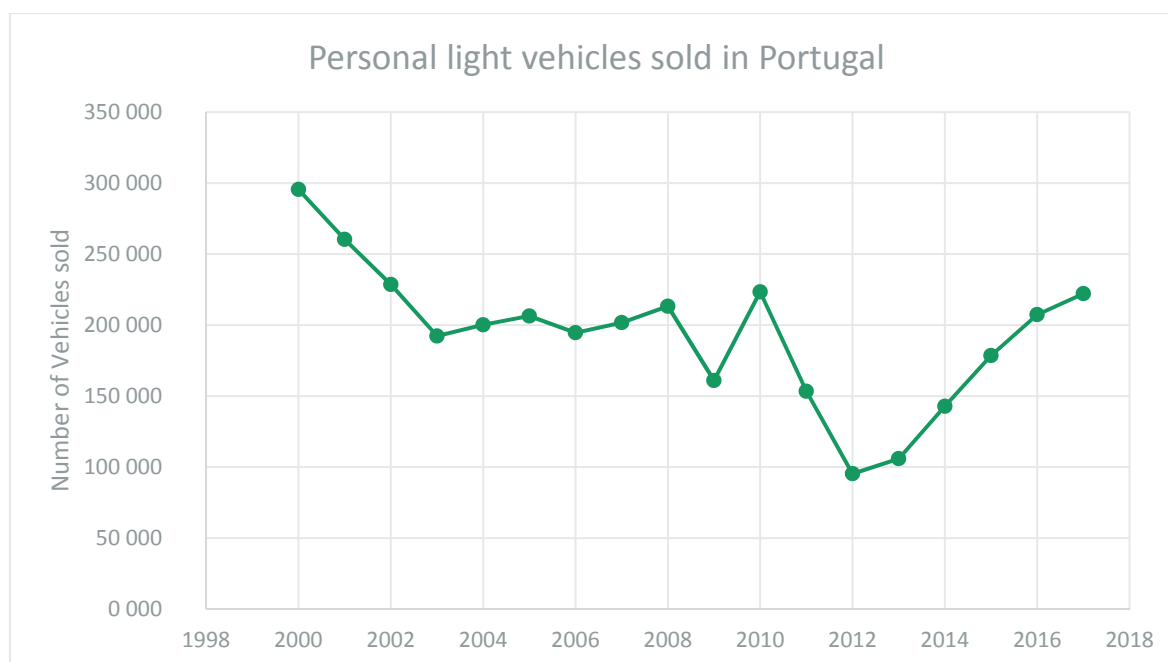


Figure 7 – Yearly number of light personal vehicles sold in Portugal. [18]

Therefore, public transport in Lisbon (mainly public bus) has seen a decrease of the number of users in recent years. As shown by Figure 8 from 2010 onwards the number of passengers transported by each of the three companies represented, CARRIS, Metropolitano de Lisbon and Comboios de Portugal (public bus, subway and train respectively), started to decrease. In the case of Carris the decrease was significant losing about 40% of the passenger transported between 2010 and 2014 and if we go further back to the 1980s, Carris would transport annually about 500 million passengers. Many of these passengers shifted to the subway since it has large expansions in the 1980s and 1990s. Despite this and as it has been shown (increase of the modal share of personal vehicle from 2001 to 2011) many have also shifted to the individual transport. The number of passenger transported by the subway (Metropolitano de Lisbon) and by the train lines (Comboios de Portugal) has also decrease although not so significantly as in the case of the bus. It has been argued that the disinvestment in the public (collective) transports during the crisis years is the reason for the decrease in their respective demand. The same argue that the decrease in regularity and quality have been the main reason for the loss of attractiveness of those means of transport. [19] [20]

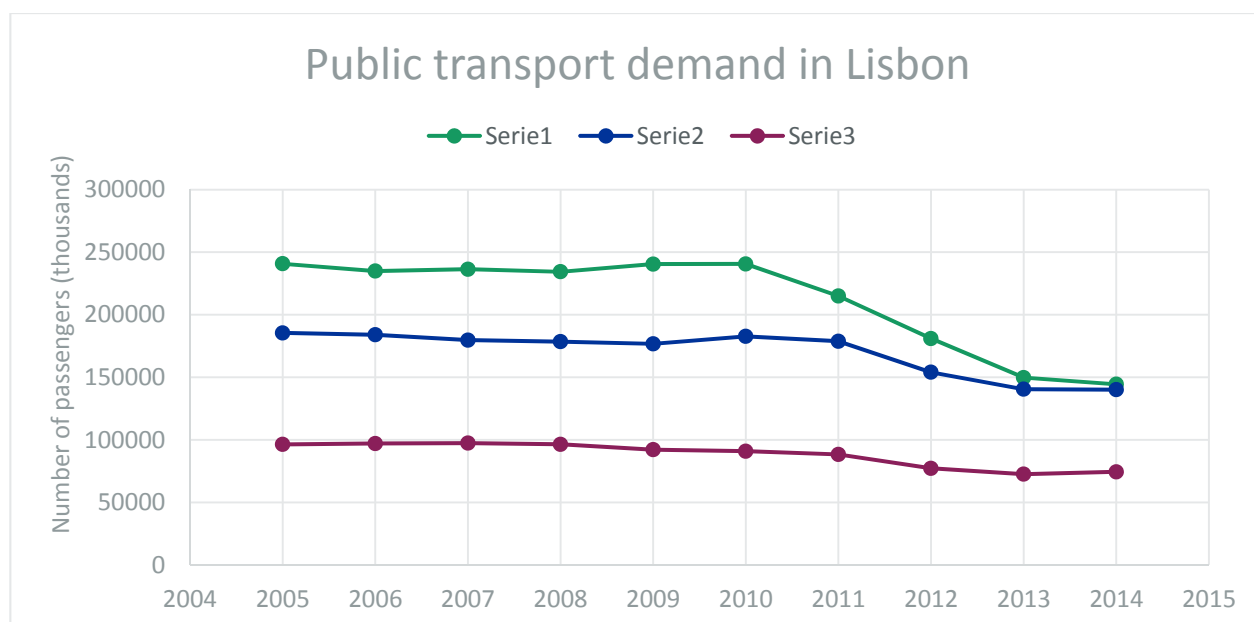


Figure 8 – Public transport demand in Lisbon. [21] [22] [23]

The current administration of the Lisbon City Council, elected in October 2017, has declared some objectives and strategies to try to invert this trend [24]. For example, regarding train lines, it intends to modernize one of the major lines which connects to municipalities to the west of Lisbon. Regarding the bus, dedicated road lanes for the bus are planned with the introduction of priority to the public transport at key intersections. Also, the extensions of both the tram and subway lines is being studied. Regarding soft modes, a relevant extension of the cycling network is underway (from 90 to 200km in 2021), the increase of parking spots for bikes is being implemented, the public bike sharing system is successfully nearing its full launch and the pedestrian infrastructures are being improved with the focus on an accessible and inclusive network. Lastly, there's a focus on the integration of all the services making it easier for multimodal connections.

City Policy

The Lisbon City Council has put into place various actions plans that intend to improve aspects of the city such as, quality of life, quality air, mobility, public space and many others. This path shows a clear ambition to transform Lisbon into a modern and sustainable city that meets the European standards and goals.

This effort is being recognized outdoors: Lisbon was one of the three finalists of the European Mobility Week in 2014 and 2015. Lisbon has been twice shortlisted as one of the three finalists for the European Green Capital for 2019 and 2020 - the most important European award for green city policies – being the only country from south Europe that achieved the podium. The winner for 2020 will be known during June 2018.



Figure 9 – Lisbon is currently one of the three finalists for the 2020 European Green Capital Award 2020. [25]

In what concerns the public space, three action plans stand out: *Uma Praça Em Cada Bairro* (One Plaza in Each Neighbourhood), *Pavimentar Lisbon 2015-2020* (Paving Lisbon 2015-2020) and *Plano Geral de Intervenções da Frente Ribeirinha de Lisbon* (Lisbon River Front General Intervention Plan). The first one, aims at creating meeting points for the population where employment and other activities are concentrated, where public space is prioritized and where active modes (walking and cycling) and public transport are the primary means of transportation. Among the originally 33 locations where renovations were going to happen, 17 have been concluded with the other 15 in progress or in project phase. The second plan, Paving Lisbon 2015-2020, aims at repaving the streets of the city to improve the infrastructures of both roads and sidewalks. The objectives of this plan are to create conditions that promote safety, comfort and better mobility. The projections were for 100 streets to be improved in the first two years of the plan.

On the third plan, interventions in several locations along the riverfront of Lisbon (19 km) are planned, including the area around the new cruise terminal of Lisbon. The objective is to eliminate the physical barriers that jeopardize the access of the population to the riverfront. The plan, partially implemented, contemplates new uses for that area of the city other than commercial activities (mainly related the harbour of Lisbon) including continuous pedestrian and cycle paths as well as green areas.



Figure 10 – Saldanha square current layout (image computed prior to intervention).



Figure 11 – Ribeira da Naus, downtown Lisbon with cruise terminal in the background.

Another important plan is the *Plano de Acessibilidade Suave e Assistida à Colina do Castelo* (Plan for Soft and Assisted Accessibility to the Castle Hill), which contains a series of proposals to improve the connection between the downtown of the city (where public transport can be found) and the top of the Castle hill. It includes five routes which have along the way mechanical equipment (i.e. lifts and escalators) that help climb the sections with largest slopes.



Figure 12 – Computerized image of the planned intervention regarding pedestrian accessibility (Mouraria, Lisbon).

Two of the routes have been concluded with the others in execution. Still on pedestrian accessibility, a plan was approved in 2013 with the objective of making Lisbon an accessible city. The plan, *Plano de Acessibilidade Pedonal de Lisbon* (Plan for Pedestrian Accessibility of Lisbon), proposes more than 100 actions to prevent the creation of new barriers to the pedestrian accessibility, to adapt the current infrastructure and to mobilize the population for the creation of a city for all.

Still with regard the improvement of walking and safety, there's a plan that is just starting to be scheduled: *Plano de Mobilidade para as Escolas* (Plan for safe and sustainable mobility to school). This plan will be made side by side with another one that is now gaining a new breath: *Plano de Zonas 30 para a Cidade de Lisbon* (Plan for the implementation of 30 Zones among the City of Lisbon). Although there are several 30 Zones already implemented, this issue has received less attention on the last years and is now again on the political agenda, has the compromise for a better environment and for safety streets becomes a priority.

Also relevant is the city government commitment in promoting cycling has a way of transport. As so, an ambitious cycling network is planned, and new cycle lanes are being built every day. The compromise is to pass from the current 90km of cycle paths to 200km by 2021. As a result, cycling is effectively becoming an alternative – and the launch of Lisbon electric bike sharing system GIRA (140 stations / 1420 bikes) has surely contributed to this new paradigm.

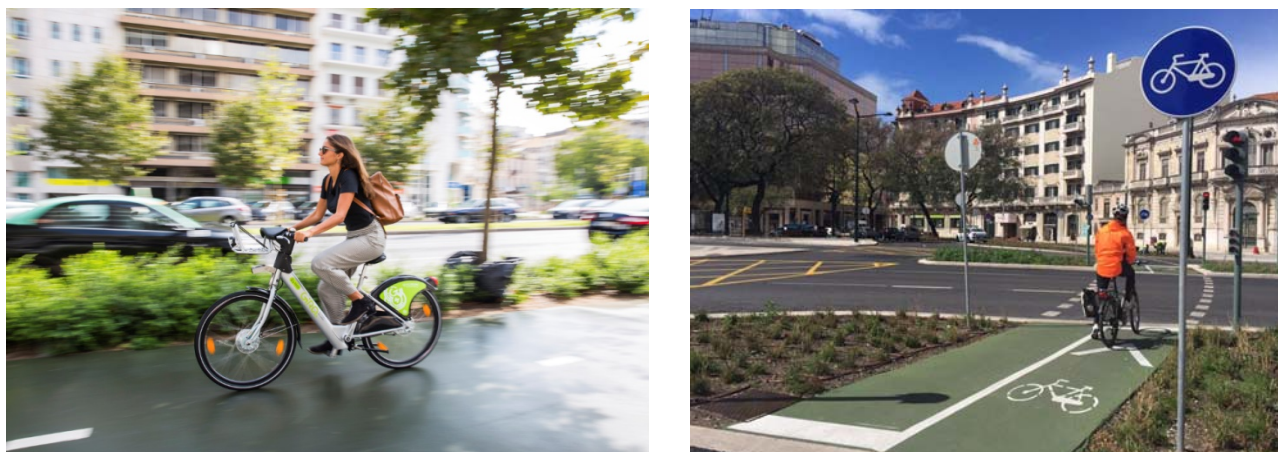


Figure 13 – Cycling initiatives in Lisbon.

Finally, Lisbon is involved in the European project PROSPERITY, which aims to bridge the gap between the local needs and demands of the cities that should develop and implement Sustainable Urban Mobility Plans (SUMP). As so, Lisbon will soon find all policies mentioned above and several others integrated and better developed in its Sustainable Urban Mobility Plan.

Cruise tourism in Lisbon

Since September 2017 that cruise passengers arrive at Lisbon only through the Lisbon Cruise Terminal (LCT). Before the opening of this new terminal, other, in distinct locations of the city, were used occasionally. Since they are no longer used the analysis is based on the arrival of all passengers through the LCT. As shown in Figure 14 the LCT sits close to the city historical centre bringing therefore both advantages and disadvantages. On one hand, it enables people to visit the closer areas using active modes (mostly walking) and, on the other, for touristic bus tours it is necessary to go to downtown to pick up people which can contribute to increase congestion in those areas. This is aggravated by the matching of local traffic peak hour and the arrival and departure times of the cruises.

The terminal itself brings new capabilities that enable the handling of bigger ships in turnaround operations, a higher capacity of cruises and passengers and a variety of shore services. There is dedicated car, bus and cab parking, and easy access to terminal by those. Also, the terminal has a commercial area where touristic packages can be sold and information about the city can be given.³ The terminal has a direct walking connection to Alfama neighbourhood (one of the most visited) and a new cycle path that passes alongside it and connects to the cycling network of Lisbon. Further ahead the public transport services available close to the terminal, that enable easy access to the city, will be listed in detail. Before, the locations where cruise tourist go and how they go there will be explored.

³ Information gathered during participatory process

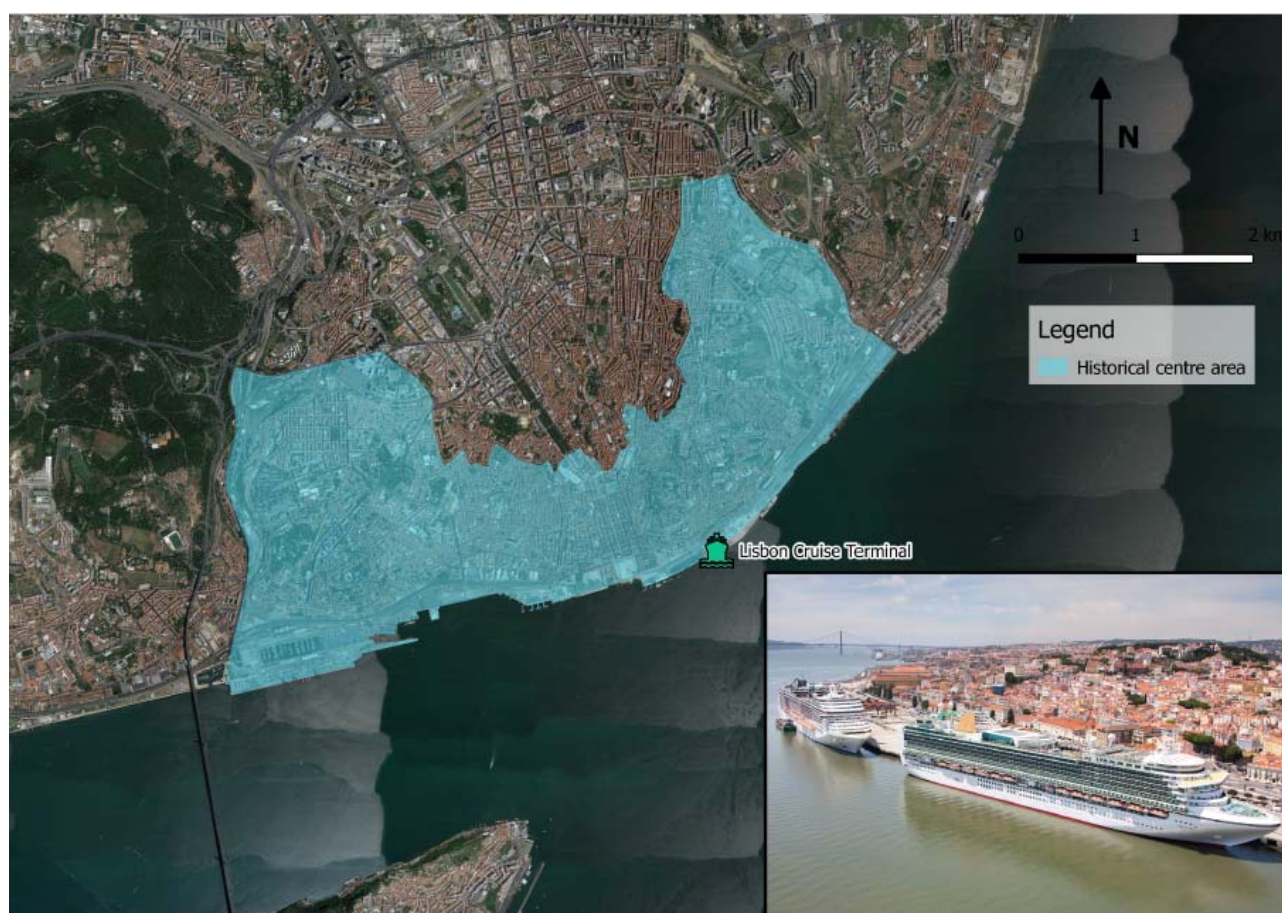


Figure 14 – Location of cruise terminal relative to city centre

From the previously mentioned enquiry to the cruise passengers [12] it is possible to have a clear idea of their habits when arriving at Lisbon. In Table 2 the transport modes most used by the passengers are presented. To assess this the enquiry asked which transport modes were used by the passengers and they could pick more than one transport mode. Touristic bus, walking and cab are the modes that have highest share while public transport option seems to be of less importance for the tourists. Nevertheless, it is important to notice that the use of public transport has been consistently growing since 2015 in all modes of transport (subway, train, tram, regular bus); cab users have significantly decreased but this may be a result of the implementation of serviced vehicles like Uber and not necessarily good news; the number of people walking has drastically dropped in 2017 while the use of touristic buses have grown; cycling hasn't even been considered an option on this statistic and other options has *tuktuk* vehicles aren't represent either. It is relevant to observe that the mobility patterns have changed a lot between 2015/2016 and 2017.

Since 70%, in 2017, (41% in 2016) of the people buy their excursions on board and 6,4% (14% in 2016) buy them locally it is natural that the touristic bus has such a big share since it normally sold onboard and a significant share of the cruise operator's revenue⁴. On the other hand, 13,2% of passengers affirm having visited the city by their own means (38% in 2016). This group of passengers is an important one to consider since there is the potential to influence them towards sustainable transport options.

⁴ Confirmed during participatory process

Table 2 – Modes of transport used by cruise passengers [%] [12]

Mode	2015	2016	2017
Touristic bus	54,8	56,0	78,5
Walking	54,1	53,4	14,2
Cab	48,9	48,4	15,4
Carris (public bus company)	6,1	8,2	11,3
Subway	4	9,6	11,4
Train	2,5	2,7	5,5
Tram	1,1	1,7	2,6

There are several locations that attract the cruise passengers, though most of them are inside the city of Lisbon, and close to the terminal, due to the limited time that the ships remain in port. Outside of Lisbon there are 3 major locations that passengers visited, as shown by Figure 15. Fátima, up north, (approximately one hour and half from Lisbon), was visited by 11% of the passengers and consists of religiously motivated trips to the sanctuary present there. The other two are Sintra (28 % of people reported going there) and Cascais (18 %), which are historical villages, the first one surrounded by a natural park and the other close to the sea. Trips to these places are traditionally done by touristic bus even though Sintra and Cascais are accessible by train as seen in Figure 17. The train lines connect directly to Lisbon downtown and in both cases, Lisbon is the first stop and Sintra or Cascais the last. Also, one can go from Cascais to Sintra and vice-versa by bus being thus able to make a circular route using only collective transport (e.g. take train to Sintra, then bus to Cascais and then train back to Lisbon) although the time spent in transport, in this case, may not be attractive (more than two hours). Since the train takes a long time to reach both destinations it makes sense that tourist prefer to embark on an excursion. Furthermore, the tourist might not be informed that the train connection exists and therefore don't even have the option to take it. Also, attractions in Sintra are quite spread and touristic buses may be helpful to reach them in a comfortable and uncomplicated way.

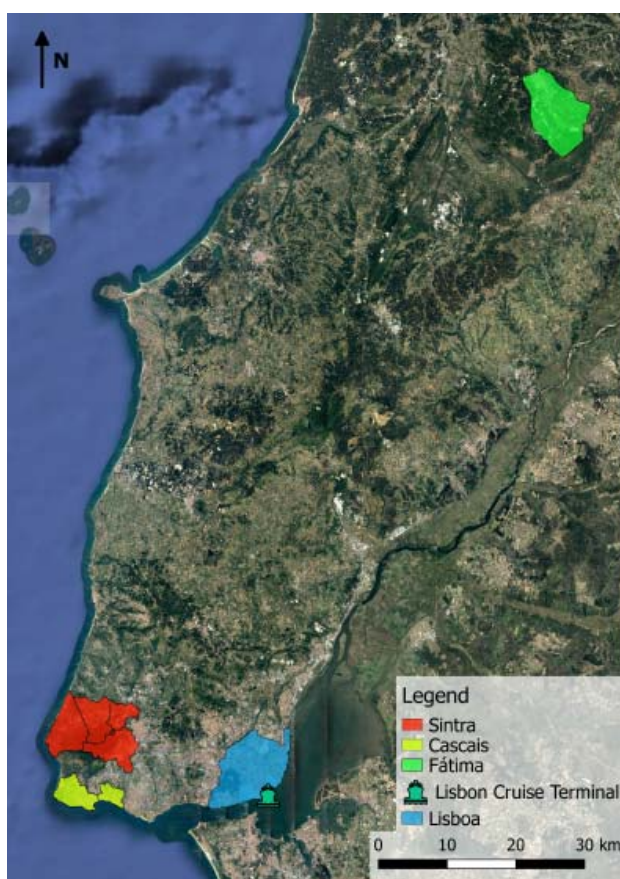


Figure 15 –Touristic destinations outside the city of Lisbon

Table 3 – Share of passengers that reported having passed through the indicated touristic areas in 2017. [12]

Destination	Share
Bairro Alto	91%
Baixa/Chiado	90%
Alfama/Castelo	90%
Belém	93%
Parque das Nações	85%
Sintra	28%
Cascais	18%
Fátima	11%

Within Lisbon, traditionally, the historical neighbourhoods near the river and around downtown are the most visited (about 90% of people report going there) with Belém (93%) and Parque das Nações (85%) attracting a lot of visitors as well. This last two are in the limits of the city one to the west and other to the northeast as shown in Figure 16. All the mentioned locations are easily accessible by public transport and even by foot (downtown area) or bike. Ensuring that the passengers, that stay exclusively in these areas, choose sustainable transport options is one step closer to reducing greenhouse gases and pollutants emissions.

For the two areas further away from the terminal, Belém and Parque das Nações, many options of public transport exist as shown by Figure 17. Regarding Parque das Nações subway, bus and train are options, though bus seems to be the most attractive one since it is the faster and the one closer to the terminal. Belém will soon be connected to the terminal by a tram line that runs along the river though there is no timeframe for when this will happen. Currently one can reach Belém, from the terminal or downtown, either by bus, by train or by the referred tram which currently stops about 1 km away from the terminal. By train it takes 7 minutes to get there while the other transport takes a bit longer but depart from locations closer to the terminal.

Between these two areas there is about 19 km of riverfront but, nevertheless, both will soon be connected by a cycle path which currently is only missing 2 km right in the city centre. The public bike sharing of Lisbon system will cover both these areas with the terminal in the middle. Here, close to the terminal, there will be three bike stations (one with capacity for twelve bicycles, another for twenty-seven and a third one for nine). The station that sits right in front of the terminal is the one with less capacity.

When fully deployed (during 2018) the system will consist of 1410 bicycles (with 2/3rd electric) and 140 stations.

Although the system may be used by tourists, it has not been planned to have them as a target. As so, the number of shared bikes available near the Terminal and other relevant touristic spots won't be able to respond the potential demand by cruise passengers.



Figure 16 – Location of touristic destinations within the city of Lisbon (1). [12]



Figure 17 -Public transport connections in Lisbon.

Regarding the areas closer to the terminal, three distinct ones can be identified (as defined by Tourism of Lisbon). [26] The three areas, identified in Figure 18, are: Bairro Alto/Bica/Príncipe Real (in red and hereinafter Bairro Alto), Castelo/Alfama/São Vicente/Graça/Mouraria (in dark blue and hereinafter Castelo/Alfama) and Chiado/Baixa/Carmo (in yellow and hereinafter Baixa). The first two areas are in two distinct hills where steep streets need to be climbed to reach the main attractions of the referred areas. The last one is placed in the valley between the previous and is mostly flat except for the west limit of it which includes a bit of Bairro Alto hill. The share of passengers that reported visiting these three areas are also reported on Table 3 and the high share demonstrate the importance of these in the touristic scenario.

The Castelo/Alfama area is the older one and typically has narrow streets which make it difficult for public transport to reach there and traffic is often chaotic, especially when there's a high concentration of tourists. This is the touristic area that is closest to terminal (as seen in Figure 18) although it is not the easiest to get to due to its orography. It has been mentioned that a plan (*Plano de Acessibilidade Suave e Assistida à Colina do Castelo*), for making it easier to move around the hill, is being implemented. The green arrows in Figure 19 represent the places where lifts and funiculars already exist. In terms of public transport only three routes (bus and tram) pass through there and none connects directly to the terminal. Nevertheless, it is possible to reach the referred routes walking (1 km) or by bus (4 lines). The area has some zones that are of vehicle restricted access (only to residents, shop owners, logistics and emergency services).

Bairro Alto area is also an old area, with streets not as narrow as Alfama and an urban orthogonal mesh, but also steep and of difficult access. Like Castelo/Alfama congestion is normally observed when there's a high density of tourists in the area. Here two funiculars and one lift bring people up to the hill. Unlike the lifts in Castelo/Alfama, those are, nowadays, mostly directed towards tourists since capacity is low and demand high. This area can be reached by bus or walking (1,7 km).

The third area, Baixa, is characterized by orthogonal and wide streets. Here there are some pedestrian streets which, during the day, normally get crowded due to touristic affluence. From the terminal it is reachable walking (1km) and it gives access to the other two areas. To go to the higher part of this area there's a lift which also takes people close to the top of Bairro Alto hill. The downside of this lift is that most of the time is crowded and takes a long time to be able to climb on it.



Figure 18 - Distribution of touristic destinations within the city of Lisbon (2) (Red circle: Bairro Alto; Yellow circle: Baixa; Blue circle: Alfama/Castelo)



Figure 19 – Public transport connection in historic centre. [27]

These three areas are a continuum with historical interest, being the Cruise Terminal in the centre of it, which means that, in fact, it doesn't make much sense to think about going from place to place in public transport. The more convenient way of exploring this part of the city will be walking and using lifts and funiculars. Also, bikes may be a good option, once the cycling network is well developed – something that

it's not easy on this part of the city, where streets are narrow, and slopes are sharp. By other hand, touristic vehicles (as tuk-tuks, side cars, h-on-hop-off buses and old converted cars) may seem attractive for tourists that want to see Lisbon in a glance, but those are, naturally, the less desirable modes of transportation for the city and its residents as they have a massive impact on the environment and congestion.

It is then advisable that active and collective modes of transport are promoted here in detriment of touristic or individual transport. The city council has taken some steps here by prohibiting the circulation of touristic buses in the two main arteries of the Bairro Alto and Castelo/Alfama hills. [28]

1.4. SWOT analysis

Based on the information gathered and the opinion of the stakeholders interviewed a SWOT matrix was developed. This is a valuable tool to help with the later planning stage since it enables the identification of *Strengths, Weaknesses, Opportunities and Threats*. The analysis will focus on the cruise passengers' mobility in the city with the objective of the plan in mind: decrease the negative impacts on environment and local population and potentiate the social and economic benefits.

The topics listed in the SWOT matrix, Table 4 – SWOT Matrix, are all related to the information presented in previous topics. It is built on that data but organised in a way that allows for better understanding of the context. A brief explanation and reasoning of the topics is also presented to put them in context.

Furthermore, a CAME analysis was made following the SWOT. CAME analysis is useful to help defining the strategy and actions after the SWOT analysis results. To the *Strengths, Weaknesses, Opportunities and Threats* correspond a strategy, respectively: *Maintain Change, Explore and Adapt*. This matrix is presented in Table 5.

The main strengths are related with public transport accessibility and infrastructure. Departing from the new cruise terminal walking, a passenger can reach any means of public transport in a 10-minute walk (subway, train, bus or tram) and from these ones, it is possible to reach the most important touristic spots in the city and even Cascais and Sintra. If we consider the public bike sharing service, it's even another means of transport that is available right outside the terminal with two close-by stations. Furthermore, the location of the terminal is close enough to three of the most visited areas of Lisbon for the passenger to simply walk there. Of course, this is also a threat since, for touristic excursions, the transports (bus, tuk-tuk and others) must come right to the city centre to pick-up the passengers. Regarding city policy, the current program aims for more sustainable transport and less GHG emissions to comply with European goals. This plan can, therefore, take advantage of these city goals to implement its actions and achieve its goals.

Despite all the public transport connections available, Lisbon has seen a disinvestment in public transport over the recent years, as shown before (a weakness). Furthermore, due to the limited amount of time that passengers spend in the city they tend to go only to the main attractions which are concentrated in the historical centre and in Belém. This causes high concentrations of people and buses in the referred areas. The less central touristic location that are accessible by train, such as Sintra and Cascais, are normally reached by bus since the train is not attractive due to the time it takes to get there.

Several opportunities have been identified regarding the cruise terminal itself being one of them its capabilities to influence the tourists that have not bought the excursions on board. These passengers account for about 50% of the total and can be led to choose sustainable transport option. Since many of them have already visited Lisbon in the past it might be positive to inform them of new alternative locations which will help to decongest the traditional ones. Another factor from which the plan can benefit

is from the municipal touristic Fund which is an available fund for the improvement of the quality of life of locals and of the tourists' experience.

The observed increase of tourists (from cruises and others) will rise the pressure on local quality of life and this could be a threat if measures and actions (some included in this plan) would not be taken to counteract the negative side associated to the tourism. The size and capacity of the ships is also increasing, and this will rise the number of tourists arriving simultaneously to the city. When planning and drafting the actions this factor must be considered. Has referred before, the information passed to the passengers at the terminal can be adjusted according to the city's (and operator's) objectives but before arriving to the terminal many of the passenger (about 40%) have already bought excursions on board and been given information about the city.

Table 4 – SWOT Matrix

Strengths	Weaknesses
<ul style="list-style-type: none"> ➤ Public bus connecting to main touristic attractions in front of terminal. ➤ Future tram line passing in front of terminal which takes you to main touristic attraction. ➤ Subway station 400 m from terminal. ➤ Train station reachable by bus/subway. ➤ Main airport 5 km and reachable by public transport. ➤ Possibility to know, months in advance, which cruises will be in port. ➤ Cruise Terminal located in city centre and with dedicated capabilities. ➤ New bike sharing system with two stations close to terminal. ➤ City Policy aligned with the increase of green and collective transport modal share. 	<ul style="list-style-type: none"> ➤ Disinvestment on public transport sector in recent years (less capacity). ➤ Limited amount of time to visit Lisbon. ➤ Tourists desire to visit the only main attractions. ➤ Arrival and departure times coincident with rush hour. ➤ High share of locals use car for commuting causing traffic congestions. ➤ Lack of touristic buses parking regulation. ➤ Centralized touristic destinations. ➤ Decentralized destinations accessible by train but not viable due to time constraint. ➤ Low quality pedestrian network. (lack of accessible infrastructure and touristic pedestrian routes). ➤ Increase of the number of non-sustainable touristic options (e.g. tuk-tuks and increase in the share of touristic buses excursions).
Opportunities	Threats
<ul style="list-style-type: none"> ➤ Possible to influence tourists before they enter the city through the terminal capabilities. ➤ Increase of turnaround cruises from 2018 forward. ➤ Profile of cruise tourist changing (younger and more diversified). ➤ High education level which allows for ICTs. ➤ Ongoing intervention in the areas around the new terminal. ➤ Multiple municipality programs from which the plan can benefit. ➤ Existence of a touristic fund from touristic tax. ➤ 50-60 % of cruise passengers don't buy excursions inside the cruise. ➤ Cruise high season does not match the touristic high season. ➤ Half of the cruise passengers have already visited Lisbon in the past. ➤ Cruise Tourism might become less seasonal (with increasing turnaround share). 	<ul style="list-style-type: none"> ➤ Cruise terminal located in city centre. ➤ Number of tourists increasing (cruise and otherwise). ➤ Size and capacity of ships increasing. ➤ Loss of identity and residents in the city centre. ➤ Lack of an integrated PT authority. ➤ Seasonal activity with 4 busy months (April, May, September and October) and the other eight quiet. ➤ Cruise operators and port agents possible defensive attitude. ➤ Change of cruise routes with resulting reduced flow. ➤ Climate change and natural disaster. ➤ Global economic-political instability. ➤ Unable to "control" information passed to the tourist before arrival to Lisbon.

Table 5 – CAME Matrix

Maintain	Correct
<ul style="list-style-type: none"> ➤ Keep public transport options in the proximity of the terminal connecting to touristic areas. ➤ Use the foreseen number of cruise passengers to predict impact on specific days. ➤ Continue with active modes and public transport promotion to operate a modal shift from individual transport 	<ul style="list-style-type: none"> ➤ Invest in public transport capacity and quality ➤ Diversify touristic attractions location and promote new ones. ➤ Develop touristic transport regulation ➤ Improve pedestrian network quality and accessibility. ➤ Promote sustainable mode of transport for cruise passengers.
Explore	Adapt
<ul style="list-style-type: none"> ➤ Make use of cruise terminal facilities to promote plan's actions. ➤ Explore longer stay of turnaround passengers ➤ Explore technological solutions such as web platforms and mobile apps ➤ Align plan's actions with city council policy and plans. ➤ Study funding through touristic tax funds ➤ Influence the passengers that don't buy excursions inside the cruise to use more sustainable transport options ➤ Promote alternative touristic locations among passengers that have already visited Lisbon 	<ul style="list-style-type: none"> ➤ Actions must consider that passenger will always arrive right in the city centre ➤ Increasing number of passengers and tourists in Lisbon must be considered when drafting actions and their expected impact. ➤ The plan's strategy must protect the identity of the city and its residents ➤ Many actions might have to consider that the activity is seasonal with quite busy months and other with few passengers. ➤ Cruise and touristic transport operators must be informed of actions to be implemented beforehand to increase likelihood of cooperation

2. Participatory process

As part of the diagnosis of the current situation regarding the mobility of cruise passengers a participatory process was carried out. The aim was to involve stakeholders that have a role in this industry both from the regulator side and from the operator.

2.1. Stakeholders identification

The project team was able to contact both sides of the cruise tourism business which enabled a broader view of the challenges at stake. The Lisbon City Council, a fundamental stakeholder for this project, participated as associated member of the project. Several meetings were held (described below) with all levels of the structure, from technicians to policy makers. This approach allowed for a glance at the vision and strategy of the city and for a practical view from the technicians who deal with the everyday challenges of the city life.

Furthermore, the public bus company of Lisbon was involved in the diagnosis phase to help the team understand how the cruise passengers affect their operations and how they could better profit from the business. Still from operators' side, the private company that runs the terminal gave their view on the challenges at stake and on their expectations towards this plan.

The Port Authority of Lisbon, gave a significant contribution in helping understand how the cruise industry works, their expectations and possible barriers towards the objective of the plan itself.

Bellow, in Table 6, all the stakeholders involved in the project are presented together with the project's team understanding of their main interest towards the cruise tourism and its relation to this project.

Table 6 – Stakeholders identification and categorization

Stakeholder	Potential Impact on the project	Main interest related to cruise
Lisbon City Council	High	<ul style="list-style-type: none"> ➤ Increase number of tourists; ➤ Increase income through taxes; ➤ Improve local economy; ➤ Improve quality of life; ➤ Sustainability assurance; ➤ Increase city attractiveness (for citizens and visitors).
Porto de Lisbon (Port Authority of Lisbon)	High	<ul style="list-style-type: none"> ➤ Increasing revenue (due to increasing number of passengers and ships); ➤ Better corporate image; ➤ Increasing competitiveness importance.
Lisbon Cruise Terminal	High	<ul style="list-style-type: none"> ➤ Increase of revenue; ➤ Improve opinion of public towards cruise tourism; ➤ Improve accessibility do the terminal.

Stakeholder	Potential Impact on the project	Main interest related to cruise
Turismo de Portugal (<i>National Tourism Authority</i>)	Medium	<ul style="list-style-type: none"> ➤ Foster development of tourism; ➤ The Strategy for Tourism 2027 clearly aims at sustainable tourism, and LOCATIONS can contribute to this.
Turismo de Lisbon (<i>Lisbon's Tourism Association</i>)	Medium	<ul style="list-style-type: none"> ➤ Improve Lisbon's image as a sustainable touristic destination of excellence.
Public transport Operators	Medium	<ul style="list-style-type: none"> ➤ Increased revenue; ➤ Better service offer for both tourist and citizens; ➤ More daily customers.

2.2. Participatory process design and implementation

To involve all relevant stakeholders in the entire process, two moments for participation were planned, an initial presentation of the project and a second one for gathering of information. In the first phase the objective was to present the project to potential partners and gather their support. In these meetings some information was gathered; other relevant partners were identified, and invitations were made for partners to participate in the next phase. The second phase consisted of individual interviews to key people within the organizations that were considered to have relevant information. These interviews intended to deepen the knowledge of the current situation and gather actions and measures that the interviewees found necessary to be included in the plan.

First Meetings with stakeholders

Stakeholders were first engaged through cell phone calls or email from which meetings were arranged. At these meetings the project was presented and the expected role and contributions from the stakeholders laid out. Information about the target organizations had been previously gathered to know what could be expected from them and what kind of information they would have available. This preparation was useful since it allowed the meetings to go beyond the presentation of the project to collection of resources that were used in the diagnosis of the situation. Table 7 summarizes the meetings that took place and the main outcomes.

Table 7 – Description of meetings with stakeholders

Participants	Main conclusions
Port Authority of Lisbon (Porto de Lisbon) – 2 representatives Lisbon Cruise Terminal – 1 representative LCTP Team – 4 Representatives	Identification of studies about cruise tourism activities in the Port of Lisbon. Clarification of typology of cruise tourism in Lisbon, the scale of the it, the area of influence of the terminal, the main season. The strategy of the Port of Lisbon for the cruises was presented to the LCTP team. Impacts of the new cruise terminal were discussed. Identification of further stakeholders to be involved.
Tourism of Portugal (Turismo de Portugal) – 3 representatives LCTP Team – 4 representatives	Identification of studies made by Tourism of Portugal relevant to the plan. Identification of areas of common interest between the LCTP and the Strategy for Tourism 2027 and how the LCTP can contribute to reach its goals. Identification of further stakeholders to be involved.
Lisbon Cruise Terminal – 3 representatives LCT Team – 3 representatives	It was a guided visit to the new terminal which allowed the team to understand better the project at its features. Clarification of data regarding cruise tourism and future scenarios. Better understanding of how the industry works, what are its

Participants	Main conclusions
Lisbon Tourism Association (Turismo de Lisbon) – 1 representative LCTP Team – 3 representatives	Explanation of purpose of the Association. Strategic Plan for the region of Lisbon explained. Identification of potential financial instrument of implementation of LCTP actions.
Lisbon City Council (Câmara Municipal de Lisbon) – 1 representative from Urban Planning Department LCTP Team – 4 representatives	Detailed description of the new cruise terminal of Lisbon and the neighbouring area was given. Mobility related features of the new cruise terminal project were clearly identified. Important stakeholders to consider were identified.
Lisbon City Council (Câmara Municipal de Lisbon) – 7 representatives from Mobility Management department LCTP Team – 4 representatives	This meeting was to present the project to the people that work directly on the “ground” and have more practical knowledge of the city. Many gaps were identified mainly related to touristic coaches. Gaps in the information and sources to fill them were identified.
Lisbon City Council (Câmara Municipal de Lisbon) – 2 representatives from Pedestrian accessibility team LCTP Team – 3 representatives	Relevant studies made by this department were identified. Layers of information were request regarding pedestrian mode. Articulation with other projects being carried by this team was also discussed.

Interviews with key people of stakeholder’s organizations

The interviews were intended to deepen the LCTP’s understanding of the impacts, positive or negative, that the cruise tourism has in Lisbon. Since the LCTP is a mobility plan, the interviews were focused mainly, but not exclusively, on this subject. Before preparing the questions for the interview, and after the first round of meetings, information regarding cruise tourism in Lisbon was gathered from published studies, surveys and resources made available by stakeholders. From here information gaps were identified and the questions for the interviews tried to cover these gaps. The number of participants in these interviews and the organizations which they represent are listed below:

- 8 people from different departments of the Municipal Directorate of Mobility and Transport.
- 1 person from the Institute for Mobility and Transports
- 1 person from Lisbon’s public bus company – CARRIS
- 1 person from Lisbon Cruise Terminal
- 1 person from Tourism of Portugal

The interviews were conducted in an informal manner where the question planned served as the script for the talk but always allowing for the talk to follow its natural course. The ideas generated by the interviews were sorted out depending on topic to which they corresponded and are described in Table 8. To preserve the anonymity of the people interviewed the ideas are presented in an aggregated way in

Table 8 - Outputs from interviews

Topic	Remark
Cruise Tourism	<p>Typology of operation doesn't imply accommodation (95% transit)</p> <p>Tourist arrive in large numbers in narrow window of time</p> <p>Seasonal activity for which seasonal measures should answer.</p> <p>Substantial changes in the industry foreseen for next 5 years</p> <p>Limited time (from dawn to dusk)</p>
Cruise Tourist	<p>No longer only the typical, low mobility, old user.</p> <p>The absolute number of this users has not decrease but been diluted in other user profiles.</p> <p>Normally wants to go directly to the highlights of the city (related with limited stay).</p>
New Cruise Terminal of Lisbon	<p>Gives the possibility to influence the tourists' choices before they enter the city.</p> <p>It's uncertain the impact it will have on the cruise tourist flux but:</p> <ul style="list-style-type: none"> ➤ It's expected turnaround will increase ➤ Number of cruises and tourists expected to rise <p>Cruise tourism might become less seasonal</p>
Areas of interest for cruise passengers	<p>Lisbon:</p> <ul style="list-style-type: none"> ➤ Downtown and historical neighbourhoods on the hills: Alfama, Castelo, S. Vicente and Bairro Alto, ➤ Belém, ➤ Parque das Nações. <p>Lisbon Metropolitan Area:</p> <ul style="list-style-type: none"> ➤ Cascais and Sintra. <p>Fátima</p>
Other potential areas	<p>The concentration of tourist in the typical areas can be alleviated by potentiating other areas:</p> <ul style="list-style-type: none"> ➤ Sintra and Cascais (even further) ➤ Palmela (wine area) ➤ Area around Fátima (Alcobaça e Batalha) ➤ Monsanto <p>This can be successful if aimed mainly at second time comers (about 50%)</p>
Information	<p>Most of the people interview believed that a crucial element is the information that reaches the tourist.</p> <p>How to inform them, where and when, will be crucial to influence their choices of transportation in the city</p>
Mobility Constraints	<p>Main constraints caused by touristic coaches are due to lack of regulated parking mainly in:</p> <ul style="list-style-type: none"> ➤ Praça do Comércio ➤ Rossio ➤ Sé ➤ Belém (Torre de Belém, Padrão dos Descobrimentos, Mosteiro dos Jerónimos)
Modes of transport	<p>Pedestrian</p> <ul style="list-style-type: none"> ➤ Improve walkability conditions ➤ Create and publicize urban touristic routes ➤ Complement this mode with Touristic Coached and public transport <p>Public Transport</p> <ul style="list-style-type: none"> ➤ Facilitate the access to tickets and have dedicated ones <p>Touristic Coach</p> <ul style="list-style-type: none"> ➤ Use this mode for longer trips to out of Lisbon ➤ Regulate parking and routes <p>Create mobility packages that include all these modes of transport</p>

3. Low Carbon Transport Plan

3.1. Current scenario and challenges

On the first chapter a comprehensive analysis of Lisbon mobility paradigm and its relationship with cruise tourism has been carried out. On this topic the aim is to summarize that information as an introduction for the strategies and actions proposed to tackle the challenges that are laid out on Table 9. Furthermore, the data gathered from trusted sources was crossed with the opinions and experiences from the people interviewed to have a broader understating of the situation.

Four main challenges were identified, each of them with causes and consequences associated. This structure allows for better understanding of the challenges and what can be done to tackle them. The first two are directly related to the transport mode used by the tourists to move around the city while the third one relates to touristic attraction's location and the last with touristic transports.

The first one deals with the areas closer to the terminal (therefore in the city centre) and how the tourists use non-sustainable transport options, such as taxis, light vehicles, touristic couches, non-electric tuk-tuks and minivans, to discover these areas.

The second case deals with medium distance destinations, such as Belém and Parque das Nações, which can be reached by public transport but, as the above case, the preferred modes of transport are less sustainable ones. Both cases have similar probable causes and clear consequences. Both challenges imply more taxis, light vehicles, touristic buses, non-electric tuk-tuks and minivans on the streets which cause more traffic. It was reported that these vehicles often stop improperly and travel at too reduced speeds to allow passengers to enjoy the view and observe distinct touristic attractions. Besides causing delays on the traffic, these behaviours cause perturbations to the circulation of public buses and trams. The case of the public bus is peculiar since when this transport is used by many tourists it causes further delays since the tickets are often bought on-board to the driver. While receiving payment, emitting ticket and giving back change the driver cannot resume march. The more tourists that use the public bus, the larger the delay will be. The causes of these challenges relate deeply with the information that is provided to the passengers beforehand which might induce them to choose non-sustainable transport options if no other choice/mode is presented to them. Also, despite being less preponderant nowadays, a considerable number of tourist are elderly or of low mobility which makes active modes and public transport less attractive. This also relates with big parts of the city not having inclusive sidewalks, though a big effort is being made in that direction. Lastly, the limited time to visit the city might lead the passengers to choose what they consider to be the safer choice instead of going out “independently”.

Another major challenge is the concentration of people (tourists) in certain areas which are considered as the touristic highlights. Since passengers have limited time to visit the city they will opt to visit only these highlights (many times through touristic tours), leaving out “secondary” points of interest. This will result in many people (and the transport modes chosen by them) heading to the same attractions adding traffic volume, at normally at local rush hour, and exhausting the parking capabilities near these attractions. Some places are critical in what this phenomenon is concerned and parking in the road itself is often seen (near *Torre de Belém* or *Padrão dos Descobrimentos*, and until recently near *Sé* and *Castelo de São Jorge* or in the axis *Cais do Sodré - Rato*). Obvious consequences are the decrease in the tourists' experience quality (due to big lines to attractions and loss of authenticity) and the decrease of the quality of life of inhabitants. On the other side, the probable causes relate, as in the first two challenges, with the information provided to the passengers: if only the traditional locations are promoted among them then they will tend to go to

those. Moreover, there is a lack of effort to potentiate other locations among cruise passengers aggravated by the fact that excursions offered on-board are concentrated in the same traditional spots.

The last challenge is the excessive use of non-sustainable transport options, by cruise passengers, with special attention for the high concentration of touristic buses. The added traffic volume aggravates the traffic in the touristic areas (mostly on the historical urban area) and the lack of regulated parking spots creates further congestion. Places like Belém and the city centre have a deficit of parking spots for buses which leads them to park in deficient conditions many times stopping traffic for several minutes. The consequences are not exclusively related to these challenges but also contribute to increase greenhouse gases (GHG) and pollutants emissions, noise pollution and worse quality of air.

Table 9 – Identified challenges and associated causes and consequences

Probable causes	Challenges	Consequences
Low quality of pedestrian network. Low density of cycling network and facilities. Insufficient offer of bike renting and bike sharing services. Limited time to visit the city. People with low mobility. Economic interest of touristic buses Operators in selling excursions. Lack of information regarding alternative options.	Tourists use of non-sustainable transport modes (coaches, taxi, tuk-tuk, minivan, etc) for short distances (Baixa, Alfama, Castelo, Bairro Alto, etc).	Higher number of coaches circulating in the city centre and Belém area. Increased congestion in road traffic.
Low use (offer) of public transport options. Only possible to buy tickets inside the buses (no office inside the terminal). Limited time to visit the city. People with low mobility. Economic interest of touristic buses Operators in selling excursions. Lack of information regarding alternative options.	Tourists use of non-sustainable transport modes (coaches, taxi, tuk-tuk, minivan, etc) for medium distances (Belém, Parque das Nações, etc).	Buses (when used) get delayed due to ticket being sold by the driver. Higher number of coaches circulating in the city centre and Belém area. Increased congestion in road traffic.
Few touristic attractions besides Belém and historical neighbourhoods. Insufficient effort to potentiate alternative attractions and redirect fluxes (of cruise passengers) there. Touristic tours offered at cruises concentrate in those areas.	Excessive concentration of people at touristic attractions.	Quality of tourists' experience decreasing. Quality of inhabitants' life decreased due excessive density of tourists. Congestion in road traffic in city centre and touristic attractions areas due to touristic coaches (circulating and parking).
Lack of parking capacity for touristic buses. High number of buses departing from cruise terminal and heading to same places. Arrival and departure hour of cruise coincides with rush hour.	Congestion in road traffic in city centre and touristic attractions areas due to touristic coaches.	Increase GHG and pollutants emissions. Lower velocity of circulation. Noise pollution.

All these challenges contribute to the increased touristic pressure on the city which has known consequences that must be tackled. The public space taken by tourists, the rise of prices in the touristic areas, the exodus from residents to suburbs, the degradation of air quality, the GHG and pollutants emissions, the noise pollutions, and the dominance of local commerce by gift shops (with consequent closure of traditional or craft shops) are among some of the most significant consequences.

3.2. Vision

“Lisbon should become a destination of excellence where the available options of mobility have a reduced impact on the environment and on the city residents’ quality of life, contributing to potentiate opportunities and balance the coexistence between residents and tourists.”

This vision is built on the specific objectives of the project and on the vision and ambitions that the current city administration (2017-2021) has for the city. This alignment is fundamental since the objectives and actions here included must contribute to the legislators’ goals and help achieve their vision of the city. The Lisbon City Council ambition is then to “seize the moment in which we now live to make Lisbon one of the best cities in world to live in.”

For Lisbon to achieve this it is imperative that tourism has a positive impact on the city and that its potential dangers and undesirable effects are minimized and possibly eliminated. The coexistence between locals and tourists is a must and sustainable and smart mobility options can help with this, always without neglecting the economic aspect of the issue. The plan’s actions are not intended to sacrifice the economic benefits of cruise tourism in favour of sustainable or social ones. The objective is the balance between all, to reach a true sustainable paradigm where all stakeholders, that are affected by this industry (including citizens), can prosper with it and, most importantly, not feel threatened by it.

Mobility options that contemplate sustainable transport modes, smart fluxes management, use of information technologies and many other novel ideas can contribute to achieve what we propose ourselves to do. They can contribute to a better quality of air, less traffic congestions, less time waiting to enjoy a touristic attraction, less crowd on some streets and public spaces, fostering of local businesses and an overall increased quality of life. The citizens of Lisbon will, therefore, look at this industry with a renewed positive vision encouraging in turn the further sustainable development of the cruise tourism industry with all the benefits it brings.

3.3. Strategy

From the Vision we established, the main objective of the project can be laid out. The plan aims at reducing the carbon impact of the mobility of the cruise passengers on the city of Lisbon. Furthermore, the plan must contribute to protect and increase the quality of life of inhabitants, potentiate economic and social opportunities and optimize the passengers’ experience. This general objective relates to all the challenges previously describe but to achieve it, distinct strategies must be carried out.

Therefore, for each of the four main challenges a strategy has been defined to tackle it. These strategies will be further developed into goals, necessary actions to achieve these goals and indicators that access the success (or unsucces) of the followed strategy. Furthermore, one cross-cutting strategy has been defined which will act on the information aspect and on the integration of different services.

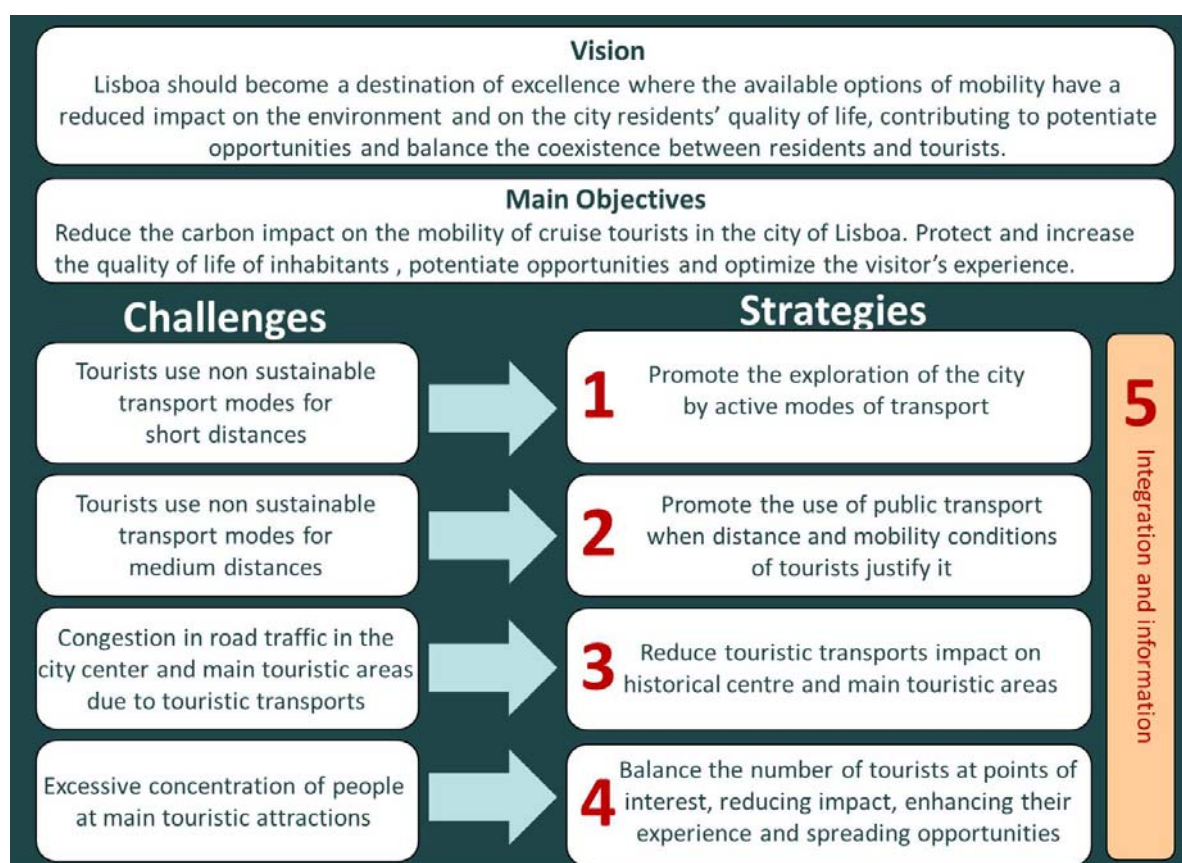
Since the causes associated with each of the challenge have been accessed it will directly reflect on the actions included in the respective strategy. On the other hand, the indicators will be associated with the

“visible” effects of the challenges, previously referred as consequences. Below, Figure 20, lays out the strategy that will be followed with the corresponding challenges to be tackled.

The first two strategies match the already described path that is being followed by the Lisbon City Council, by putting the focus on active modes and public transport. These strategies are intended to free the areas closer to the terminal, i.e. city centre, and the other two main touristic areas, Belém and Parque das Nações, from road traffic generated by the terminal. The actions should be focused on the offer side of the deal, providing infrastructure and suitable conditions for these modes to be attractive.

Encouraging the cruise passenger to choose those modes of transport will not only reduce carbon emissions and reduce road traffic congestions but also stimulate local commerce with more people walking on the streets. For the touristic bus tours associated with cruise tourism not to be economically affected the destinations further away from Lisbon should be left for these modes. The result would be that Lisbon should primarily be “discovered” by public transport and active modes while the other destinations should be explored by the touristic buses operators. Here we are already dealing with the third strategy by promoting alternative destinations to balance the fluxes evenly between distinct locations. This strategy aims at improving the passengers experience by reducing waiting times at attractions, reducing impacts on local’s quality of life by minimizing the interference of tourism and lastly allow these alternative locations to also profit economically from cruise tourism.

Figure 20 – Diagram laying out the challenges and the strategy to be followed.



The last strategy will mainly deal with the regulation aspect of touristic buses business. The objective is not to decrease the share of market or economic benefits but to reduce the negative impact on the city and introduce measures that will contribute to the economic, social and environmental sustainability of the business.

The information and integration strategy will support the other four strategies. On one hand it deals with promotion among passengers and information provided to them and on the other it pushes for integration of different services as means to boost more sustainable transport options.

3.4. Actions and indicators

For each challenge, a strategy has been determined. To prosecute each, several actions have been planned, responding to specific objectives. Activities were planned to achieve that objectives and the indicators that will ensure the monitoring of the actions and how successful they are. The quantifiable indicators have their target value set to be achieved in the year 2021. Furthermore, related actions will also be listed since none of it are isolated.

"Information and integration" was established as a **transverse strategy** (n.5), essential to guarantee that the other **four complementary strategies** (n.1 to 4) will be succeeded. This logic may easily be understood on the table below.

Figure 16 – Diagram laying out the strategy and related actions.



Once this strategy was established, the objectives, activities, indicators and targets of each action have been defined. The information sheet of each action may be seen below.

Complementary STRATEGY N.1

Promote the exploration of the city by active modes of transport.

Table 10 – Action 1 information sheet

Action 1
➤ Creation of accessible and signalled pedestrian routes that connect distinct touristic attraction areas between each other and with the terminal.
Objective
➤ Increase the number of people exploring the city by foot.
Activities
<ul style="list-style-type: none"> ➤ Map existing and planned accessible pedestrian routes. ➤ Identify gaps in existing pedestrian network in terms on missing connection and lack of accessibility. ➤ Identify touristic routes to be promoted / intervened. ➤ Development of solutions that tackle these gaps. ➤ Development of dedicated pedestrian signs. ➤ Propose mechanical equipment to aid pedestrians in hilly areas of the city (if not already in development through the Plan for Soft and Assisted Accessibility to the Castle Hill ➤ Improve connection with public transport
Related actions:
<ul style="list-style-type: none"> ➤ Action 2: Promote the creation of project with electrical wheelchairs ➤ Action 5: Improve public transport supply ➤ Action 6: Integrate the access of tourists to sustainable mobility options and cultural attractions ➤ Action 9: Develop intelligent systems for flux management
Indicators and target:
<ul style="list-style-type: none"> ○ Share of cruise passengers walking and/or using public transport: <ul style="list-style-type: none"> ○ Currently: 14% for walking and 3-14% public transport (depending on the mode) ○ Objective: 50% walking and/or using public Transport ○ Kms of pedestrian touristic routes connected to the terminal (directly or through accessible PT): <ul style="list-style-type: none"> ○ Currently: 0 ○ Objective: 12

Description:

The first action concerns with the walking aspect of the strategy aiming at the creation of pedestrian routes with accessible and inclusive sidewalks that facilitate the discovery of the city by the cruise passengers. These routes must be design as a network and should be connect to the terminal: directly in the city centre, or through accessible public transport when implemented in Belém or Parque das Nações. Touristic paths must be signalled in an easy and comprehensive way with destination, time, distance and attractions' information. The first task should be mapping existent routes already suitable for the purpose and identify new ones to be implemented. If the existing ones have gaps in terms of accessibility and need improvements, they should be addressed. After this work is done, new routes should be implemented and dedicated signalling installed. The routes should consider other plans already being implemented (e.g. Plan for Soft and Assisted Accessibility to the Castle Hill⁵). The connection with public transport (addressed in Action 5) should not be overlooked since both modes work better if in line with one another. Furthermore, transverse Action 11, which relates with the information aspect, should be implemented in the same timeframe.

⁵ Plano de Acessibilidade Suave e Assistida à Colina do Castelo

Table 11 – Action 2 information sheet

Action 2
<ul style="list-style-type: none"> ○ Promote the creation of project with electrical wheelchairs
Objective
<ul style="list-style-type: none"> ○ Facilitate the inclusion of passengers with low mobility
Activities
<ul style="list-style-type: none"> ○ Business model ○ Choose locations where to implement in coordination with Action 1.
Related actions:
<ul style="list-style-type: none"> ➤ Action 1: Creation of accessible and signalled pedestrian routes that connect distinct touristic attraction areas between each other and with the terminal. ➤ Action 6: Integrate the access of tourists to sustainable mobility options and cultural attractions ➤ Action 8: Regulate parking of touristic transports.
Indicators and target:
<ul style="list-style-type: none"> ➤ Existence of an electrical wheelchair project.

Description:

As previously reported there is a considerable number of tourist that have low mobility. To cope with this, shared wheelchairs (Action 2) can be placed in strategic points of the city to allow passengers to visit the area surrounding the place with minimal effort. The wheelchairs can work together with the touristic buses since they can be placed in a dedicated parking allowing the buses to stop away from the congested areas around popular attractions. This parking spaces should be close enough to allow the passengers to move there independently (for more details refer to Action 10). It will be important to define a business model to allow the project to be financially sustainable and to carefully choose the locations where it will be implemented.

Table 12 – Action 3 information sheet

Action 3
<ul style="list-style-type: none"> ➤ Continue with the implementation of the cycling network, considering the development of paths that are favourable to tourism.
Objective
<ul style="list-style-type: none"> ➤ Increase number of passengers cycling.
Activities
<ul style="list-style-type: none"> ➤ Map current cycling network. ➤ Identify touristic routes to promote. ➤ Identify gaps in the network (with attention to previously identified routes). ➤ Develop solutions to bridge these gaps. ➤ Development of dedicated cycling signs.
Related actions:
<ul style="list-style-type: none"> ➤ Action 4: Promotion of bike sharing schemes for tourists. ➤ Action 6: Integrate the access of tourists to sustainable mobility options and cultural attractions ➤ Action 9: Develop intelligent systems for flux management
Indicators and target:
<ul style="list-style-type: none"> ➤ Share of passengers cycling: <ul style="list-style-type: none"> ○ Currently: 0% ○ Objective: 5% ➤ Kms of cycling infrastructure implemented on touristic areas and linked to the terminal: <ul style="list-style-type: none"> ○ Currently: 0 ○ Objective: 18

Description:

This action aims at creating the necessary infrastructure to promote cycling among cruise passengers. The city council is currently building several new cycle paths and the objective of this plan is to evaluate the construction of new cycle paths that can also benefit cruise tourism. Starting by mapping the current and planned cycling network and by identifying desirable routes that are favourable to cruise tourism (or tourism in general), new routes can then be planned and proposed. Dedicated signs should be implemented with relevant touristic information like what is proposed in the case of the pedestrian routes (Action 1): destination, time, distance and attractions' information. Again, it is fundamental to coordinate with Action 11 to promote this mode among passengers.

Table 13 – Action 4 information sheet

Action 4	
➤ Promotion of the use of bike sharing schemes by tourists	
Objective	➤ Increase number of passengers cycling.
Activities	<ul style="list-style-type: none"> ➤ Study the expansion of the public bike sharing system with cruise tourist in mind. ➤ Promote the creation of bike sharing schemes dedicated to tourist. ➤ Consider the expansion of the cycle paths network and the touristic hotspots when carrying out these activities.
Related actions:	<ul style="list-style-type: none"> ➤ Action 3: Continue with the implementation of the cycling network, considering developing paths that are favourable to tourism. ➤ Action 6: Integrate the access of tourists to sustainable mobility options and cultural attractions ➤ Action 9: Develop intelligent systems for flux management
Indicators and target:	<ul style="list-style-type: none"> ➤ Share of passengers cycling: <ul style="list-style-type: none"> ○ Currently: 0% ○ Objective: 5%

Description:

With the same objective as Action 3, Action 4 aims at fostering the use of bike sharing services. The current public bike sharing system contemplates three stations close to the terminal but here it is proposed the study of incrementing the capacity (the closest station has capacity for nine bicycles) to accommodate the cruise passengers demand not only in the terminal but in the primary areas that they visit (city centre, Belém and Parque das Nações). Also, alternative bike sharing systems dedicated to tourism should be considered for them (the passengers of cruise ships) not to interfere with the use of the public bike sharing systems by the locals. For this action to be successful it is important to coordinate it with the current and future cycling network (Action 3), the touristic attraction locations and the promotion of this service among cruise passengers (Action 11).

Complementary STRATEGY N.2

Promote the use of public transport when distance and mobility conditions of tourists justify it.

Table 14 – Action 5 information sheet

Action 5
➤ Improve public transport supply
Objective
➤ Increase the number of people using public transport options when some transport is need.
Activities
➤ Enable the selling of tickets of public transport at the cruise terminal.
➤ Increase capacity of bus and tram lines that are overcrowded due to touristic interest of the location they connect.
Related actions:
➤ Action 1: Creation of accessible and signalled pedestrian routes that connect distinct touristic attraction areas between each other and with the terminal.
➤ Action 6: Integrate the access of tourists to sustainable mobility options and cultural attractions
➤ Action 9: Develop intelligent systems for flux management
Indicators and target:
○ Share of cruise passengers using public transport:
○ Currently: 3-12% public transport (depending on the mode); touristic buses: 79%
○ Objective: 20% using public transport; touristic buses: 50%
○ Availability of public transport tickets at the terminal

Description:

Naturally this action cannot be disassociated with Action 1, which concerns itself with promotion of walking. Here the objective is to increase the attractiveness of public transport either by increasing its capacity on the more important routes (important for cruise passengers in this case) or by simplifying the access to it. To achieve the latter, two actions seem to play a key role: enabling simple information and the selling of tickets inside the terminal thus bringing the public transport “closer” to the cruise ship and the integration of all the public transport modes, other mobility services and entrance in specific attractions into a single ticket (Action 11). Furthermore, the increase of capacity of the tram line number 15 should be considered along with the already planned expansion of the line itself. This action needs to be coordinate with Action 11, as most of the others, due to the need of informing the tourists about these options and convince them of it to be the best way to visit the city (at least the areas close to the terminal).

Table 15 – Action 6 information sheet

Action 6
➤ Integration of sustainable transport options and cultural attractions ticketing
Objective
➤ Increase the number of cruise passengers using sustainable transport options
Activities
➤ Create an advantageous package that includes mobility and cultural services.
➤ Study the integration of mobility and access to cultural attractions though ticketing and smart systems.
Related actions:
➤ Action 1: Creation of accessible and signalled pedestrian routes that connect distinct touristic attraction areas between each other and with the terminal.
➤ Action 2: Promote the creation of project with electrical wheelchairs
➤ Action 3: Continue with the implementation of the cycling network, considering developing

Action 6
➤ Integration of sustainable transport options and cultural attractions ticketing
paths that are favourable to tourism.
➤ Action 4: Promotion of the use of bike sharing schemes by tourists.
➤ Action 5: Improve public transport supply
➤ Action 9: Develop intelligent systems for flux management
➤ Action 10: Diversify the touristic hotspots
Indicators and target:
➤ The main indicator will be if the related actions are successful or not (therefore, indicators of related actions are measure)
➤ Existence of the described package

Description:

This action is intended to foster the creation of a multi modal package that includes distinct mobility services along with entrances to cultural attractions. Services here include can be bike sharing, touristic transport, public transport, walking apps (such as the one proposed in Action 6) and even access to monuments and museums. Touristic transports can play a key role here since they might help fill gaps in the mobility network of the city (e.g. a passenger uses public transport in the city centre and then takes a touristic transport to a location outside the city such as Sintra or Cascais). Coordinated with Action 12, this package should be promoted among tourists and made available at the cruise terminal for maximum success.

Complementary STRATEGY N.3

Reduce touristic transports impact on historical centre and main touristic areas

Table 16 – Action 7 information sheet

Action 7
Regulate flow and fleet of touristic transports
Objective
➤ Minimize impact of touristic transports on traffic flow, noise, air pollution and CO2 emissions.
Activities
➤ Update regulation: <ul style="list-style-type: none"> ○ Evaluate the existing routes and propose necessary modifications. ○ Study where the ban of circulation of touristic transport should be imposed. ○ Promote the replacement of fossil fuel by electric powered vehicles or other low carbon solution ○ Provide necessary infrastructure
➤ Reinforce oversight to the flow of touristic transport considering regulation.
Related actions:
➤ Action 8: Regulate parking of touristic transports.
➤ Action 9: Develop intelligent systems for flux management
➤ Action 10: Diversify the touristic hotspots.
Indicators and target:
➤ Number of buses crossing downtown. <ul style="list-style-type: none"> ○ Objective: 0.
○ Share of touristic fleet powered by electricity <ul style="list-style-type: none"> ○ Currently: unknown ○ Objective: 50%

Description:

Prohibition of the circulation of touristic transports on certain areas of the city is already being enforced in the city. A study of where it would be more advantageous to extend this prohibition is necessary. The objective is to minimize the impact that the touristic transports have on the traffic flow of the city by defining alternative routes. One of the proposals is to find an alternative route around the historic centre for the buses that want to go from the cruise terminal, on the east side of historic centre, to the areas at west of it. This should be done in coordination with the touristic transports operators to find the best solution for all parties. When the final solution is put into practice it is important to enforce it through oversight by municipal police force. The preferred routes to be used by the touristic transport should consider the locations where the attractions are, the capacity of those locations to receive tourists and the parking space location and availability.

Of all the touristic transports present in the city of Lisbon, the tuk-tuks are the only that are moving towards an electric powered fleet. It is important to encourage this trend to be accepted by the other touristic transport operators to cut down emissions. The shift in the technology should be phased (e.g. 5 years until mandatory) to allow operators to adjust to the new reality and not arm their financial sustainability. This should be done through regulation and financial incentives can be considered to promote a faster change. Dedicated infrastructure to support an electric fleets (i.e. charging stations) needs to be considered. The cruise terminal and the touristic bus parking spaces around the city (in coordination with Action 9) should be optimum places to install charging stations.

Table 17 – Action 8 information sheet

Action 8
➤ Regulate parking of touristic transports
Objective
➤ Decrease congestion caused by the drop off and pick up of passengers at touristic locations
Activities
➤ Update regulation <ul style="list-style-type: none"> ○ Create short stay areas for pick up and drop off close enough to attractions (museums, monuments, etc.) for people with reduced mobility to access them. ○ Create prolonged stay parking areas for buses to wait after dropping off passengers. ➤ Reinforce oversight of parking regulations.
Related actions:
➤ Action 2: Promote the creation of project with electrical wheelchairs ➤ Action 7: Regulate the flow and fleet of touristic transports ➤ Action 9: Develop intelligent systems for flux management and access to attractions
Indicators and target:
➤ Number of parking areas dedicated for buses <ul style="list-style-type: none"> ○ Currently: <ul style="list-style-type: none"> ▪ 0 prolonged stay parks ▪ 49 parking areas for drop off and pick up of passengers (not exclusively dedicated to tourism) ▪ 23 parking areas for tuk-tuks ○ Objective: At least two prolonged stay parks (Belém and City Centre)

Description:

To regulate parking of touristic transports it is necessary to create a strategy that meets their needs and minimizes their impact on traffic flow. Regarding touristic buses, a system of short stay parking spaces, only for drop-off and pick-up of passengers, associated with prolonged-stay parking spaces can meet those requirements. The short-stay parking spaces should be close enough to attractions so that even passengers with low mobility can reach them easily. After dropping off the passengers, buses can park at the prolonged-stay spaces, which should serve strategic touristic areas (e.g. Belém, historic centre and Parque das Nações), and return to pick-up the passengers when they finish visiting the area. Action 2 can be associated with this one since electric wheelchairs can be provided to the passengers that require them at the target areas. The wheelchairs can be provided either at the prolonged stay area, in which case the bus drops off those passengers in that area, or at the short stay parking area. The flux management system proposed in Action 6 must take the parking capacities into consideration and both need to be coordinated so that the right amount of parking spaces is made available. If Action 9 is to go forward, then charging stations for electric buses must be installed at the prolonged-stay parking spaces.

Table 18 – Action 9 information sheet

Action 9
○ Develop intelligent systems for flux management
Objective
○ Balance the number of tourist at each touristic location
Activities
○ Create an integrated system used by operators of touristic buses and by touristic attractions which regulated the access of buses to distinct parking areas according to the capacity of the public space around.
○ Create a mobile app which facilitates the “discovery” of the city through active transport modes
Related actions:
➤ Action 1: Creation of accessible and signalled pedestrian routes that connect distinct touristic attraction areas between each other and with the terminal.
➤ Action 3: Continue with the implementation of the cycling network, considering developing paths that are favourable to tourism.
➤ Action 4: Promotion of the use of bike sharing schemes by tourists.
➤ Action 5: Improve public transport supply
➤ Action 6: Integrate access to sustainable modes of transport and cultural attractions ticketing
➤ Action 7: Regulate the flow and fleet of touristic transports
➤ Action 8: Regulate parking of touristic transports
➤ Action 10: Diversify the touristic hotspots
Indicators and target:
➤ Existence of the described platform
➤ Existence of the described mobile app

Description:

It has been referred that the cruise passengers mostly visited the same touristic areas which are also visited by tourists in general. The objective here is to create a balance in the number of tourists in each area to allow a better experience by them and decrease the impact on the residents’ quality of life. The first activity is a system that regulates the access of touristic buses to certain touristic areas based on the capacity of the latter. The capacity should be determined based on the number of attractions, mobility services available, public space area, number of restaurants and other relevant parameters. After this capacity is defined, a limited number of parking spots (based on the capacity of the area) for touristic buses should be made available and the operators would be able to book their spot through a common platform.

To complement, an app, directed at passengers that discover the city by their own means (i.e. public transport or active modes), should be created. This app should encourage the “discovery” of the city by their own means by suggesting routes according to the profile of the user and considering the current fluxes of tourists, waiting times at attractions and current occupation of touristic areas. Options such as access to public transport, shared services and attractions’ tickets or services should be included also (Coordinated with Action 10).

Complementary STRATEGY N.4:

Balance the number of tourists at points of interest, reducing tourists’ impact on the places and, enhancing their experience and spreading opportunities.

Table 19 – Action 10 information sheet

Action 10
➤ Diversify the touristic hotspots.
Objective
<ul style="list-style-type: none"> ➤ Balance the number of tourists in each place. ➤ Promote economic benefits in other parts of the city.
Activities
<ul style="list-style-type: none"> ➤ Promote alternative spots inside the city of Lisbon: Paço do Lumiar, Feira Popular, Monsanto, and others. ➤ Promote alternative spots outside the city: Sintra, Cascais, Palmela ➤ Consider the passengers that are visiting Lisbon for the second time.
Related actions:
<ul style="list-style-type: none"> ➤ Action 6: Integrate access to sustainable modes of transport and cultural attractions ticketing ➤ Action 7: Regulate flow and fleet of touristic transports ➤ Action 9: Develop intelligent systems for flux management
Indicators and target:
<ul style="list-style-type: none"> ➤ Share of tourists that visit locations outside Lisbon: <ul style="list-style-type: none"> ○ Currently: 18% Cascais and 28% Sintra ○ Objective: 30% for both and 10% for new locations ➤ Share of tourists that visits alternative locations inside Lisbon: <ul style="list-style-type: none"> ○ Currently: n/a (very few) ○ Objective: 15-20% ➤ Share of tourist that visit traditional locations inside Lisbon: <ul style="list-style-type: none"> ○ Currently: 85-93% depending on location ○ Objective: 75-80% depending on location

Description:

If many passengers start visiting Lisbon by their own means it could mean less revenue for touristic bus operators and in turn for cruise operators which could lead to an economically less attractive city at their eyes. This would reduce the number of ships and spoil the economic sustainability of the industry. Therefore, it’s important to provide alternative locations and the proposal here is that touristic bus operators focus on alternative locations outside Lisbon, such as Cascais, Sintra, Palmela or Fátima. Due to the considerable number (89% in 2017 and 49% in 2016) of passengers that report having visited Lisbon before it is possible to explore these locations among those passengers that might want to visited alternative sites to the ones visited before. Furthermore, inside the city alternative locations should be potentiated such as Paço do Lumiar, Feira Popular or even Monsanto. This will always be more effective

among the referred passengers that have already visited the city since they've probably already been to the highlights of Lisbon.

Transverse STRATEGY N.5:

Integration and information

Table 20 – Action 11 information sheet

Action 11
➤ Provide relevant information to tourists
Objective
➤ Ensure the successful outcome of related actions
Activities
<ul style="list-style-type: none"> ➤ Enable easy access to information regarding active modes network through maps, apps, on street signs, etc. ➤ Promotion and awareness rising towards active modes and public transport. ➤ Coordinate with cruise operators to promote alternative destinations reachable by coach to leave city centre to public transport and active modes. ➤ Use the terminal capabilities to inform tourists of where to go and how to get there.
Related actions:
All complementary actions
Indicators and target:
<ul style="list-style-type: none"> ➤ The main indicator will be if all the complementary actions are successful or not (therefore, indicators of related actions are the measure)

Description:

Most of the actions presented before will only be successful with an effective promotional strategy among cruise passengers. Here it is included promotion and information before and after the passenger arrives to Lisbon. Dedicated apps to cruise passengers and coordination with cruise and touristic buses operators will be key activities. The full strategy of the plan should be shared with the latter and adapted if necessary to encompass their needs. Special attention should be given to the strategy of focusing touristic transport in destinations outside the city to free the city centre of associated road traffic. The terminal itself will be a key asset to influence the passengers by making information and mobility services available. Therefore, the cruise terminal operator must be involved in this action together with the Lisbon Tourism Association.

3.5. Development of future scenarios

As described in the diagnosis chapter, Lisbon is a city where tourism is prospering and each year more tourists visit it, either arriving by plane, by car or by cruise ship. The future scenarios account therefore for the expected increase in the number of tourists. Since the actions described before have a focus not only on low carbon transport but also on the peaceful coexistence of tourists and inhabitants this analysis will focus on those two paradigms. On one hand, the effect on pollutants and greenhouse gases emissions will be predicted and, on the other hand, the effect on the pressure put on the locals' quality of life. The analysis will be qualitative to avoid making predication that are too uncertain to be reliable since these, are fast changing scenarios, that depend on external events, such as tourist and cruise fluxes, and on internal politics, that can support the actions or put a halt to it.

To account for possible deviations from the plan in terms of objectives, ambitions or duration three potential scenarios were developed: Worst-case scenario, best-case scenario and most likely scenario.

In the worst-case scenario none of the LCTP's actions are implemented and tourism continues its steady growth. No modal shift will take place and passengers will maintain their current preference for non-sustainable transport options. No balance on the number of tourists at each location will be reached, increasing therefore the pressure on the touristic locations and consequently on the quality of life of the locals. The image that the latter have of tourism (and cruise tourism) will decrease with probable negative economic consequences on the cruise business. Emissions of greenhouse gases (and pollutants) and the coexistence between locals and tourists are expected to worsen due to the described outcome.

If all the LCTP's measures are implemented, then we face ourselves with the best-case scenario. A modal shift will take place with passengers opting for more sustainable ways to move around the city. New transport options will be developed with integrated solutions that account for the passengers', the operators' and the locals' needs. A balance of the number of tourists will be reached easing the pressure on the touristic locations with the expected improvement of cruise tourism reputation. Furthermore, new locations will be explored enabling an economic profit from those and better distributions of profits. Since more passengers will choose active modes as their means of transportation, local commerce will prosper as it has been demonstrated. [29] Emissions of greenhouse gases (and pollutants) and the coexistence between locals and tourists are expected to improve due to the described outcome.

Midway between the two described scenarios lies the most-likely scenario where some of the actions are implemented and other are not. The most likely to be implemented are Actions 1, 3, 7, 8, 10 and 11 since they don't require private funding or support being under the sole authority of the city council. Obviously, these actions will be much more successful with the support of the operators and probably are the ones they will most easily support. Despite a likely modal-shift and better balance of touristic fluxes the increase in the number of tourist will counteract the improvements that the former would bring. Furthermore, actions that would have significant impact such as the change of technology on the touristic transport fleets would not contribute to the objectives. If this scenario is achieved there should be some degree of improvement in the greenhouse gases and pollutants emission and on the coexistence between locals and tourists but no as high as in the best-case scenario.

It's also predictable that some actions (ex: 1, 3) are only partially implemented and/or its targets only partially achieved. This hypothesis would configure a midway scenario and we should say that it's the most likely one.

Table 21 summarizes the information regarding the three presented scenarios enabling an easy comparison between each scenario.

Table 21 – Different scenarios and foreseen impacts

Scenario	Pollutants and Greenhouse Gases	Coexistence between locals and cruise passengers
Worst-case scenario	With increasing number of cruise passengers and with current modal share, the number of touristic couches will increase and with it GHG and pollutants emissions	As the cases of Venice and Barcelona show if no measures are implemented the locals will start to question the benefits of tourism over the negatives. Normally cruise tourism is one of the main targets since its characteristics make it more visible (e.g. big packs of people and size of cruise ships)
Best-case scenario	Despite the increase of cruise passengers, there will be more tourists using more sustainable option (e.g. public bus, walking, cycling and others). This means that less GHG and pollutants will be released.	Touristic sites will not be overcrowded since there will be a balance between the different touristic areas. Also, local commerce will prosper with more people cycling and walking in the streets. This will benefit the image that the local population has of the cruise passengers.
Most likely scenario	The modal shift to low carbon options might not be enough to reduce the GHG and pollutants emissions (due to increase of total number of tourists) but could be enough to maintain the current levels.	There might be some decongestions of touristic sites with the creation of alternative ones and better balance between the touristic areas. Despite this and with increased number of tourists if the results are not visible to the locals, their image of cruise passengers will unavoidably worsen.

4. Monitoring and Implementation

The successful implementation of the actions will contribute to define the future scenario for the city of Lisbon along with all the external and internal factor that affect it. To access how successful the measures are a monitoring strategy is also necessary based on the indicators previously presented. Important aspect to consider are the timeframe, actors involved, responsibility for monitoring and funding all of which will be covered in the following sections.

All the actions were elaborated with the period 2019-2021 in mind to account for the political cycles (the current one ends at end of 2021) and to have time from the conception of the Low Carbon Transport Plan until political actors support it and promote its strategy. Therefore, actions are to start being implemented in the beginning of 2019 with the first visible effects expected to be felt during 2021.

Monitoring the implementation of the actions will be a key aspect since only this way the success of the plan can be accessed. Furthermore, only these way corrective actions can be design in case of a lack of success in the originally planned actions. As in all plans the process is a continuous one that should follow the plan, do, check, act cycle.

To keep the same format as in previous sections, this one will also be structured according to the developed strategies.

Beside from that, it was concluded that it would be important to establish a global indicator, pointing the main objective of the project, which is, as known, the reduction of CO2 emissions.

4.1. Strategy 1 – Promote the exploration of the city by active modes of transport.

The first action of this strategy deals with public space and its conception. Therefore, the Lisbon City Council should be the key actor since it falls under its responsibilities. More specifically this action meets the competences found in the EPAP (Team of the Plan for Pedestrian Accessibility) department which has extensive experience in this field. This action even crosses some of the proposed measures of the plan conceived by this team and several common aspects can be found [30]. Lisbon Tourism Association should also be involved since the routes to be implemented should have touristic interest and be promoted among tourists. Since the Association already does a yearly enquiry that accesses the modal share of people walking there's no need to put into place a specific monitoring strategy since that data can be used to do just that. Nevertheless, it is proposed that the Lisbon City Council accesses the implantation of the routes mid-way which would be June 2020. These way corrective actions can be implemented, or a different path taken depending on the situation found at that moment.

Regarding the second action it is clearly a business idea proposition that can be embraced by private companies or start-ups. Currently in Lisbon there are several start-up competitions that can boost a project like this of which Smart Open Lisbon (SOL) is an example. Here, the start-up's, are challenged to develop a business idea that can contribute positively to the city with a focus on open and shared data. Another option is for touristic bus operators to implement it as a complementary service to the one they already provide. Furthermore, the Lisbon City Council should be involved in the definition of the spots where the project will be implemented. It would also fall under its responsibilities to access the state of the action in June 2020 to check if the different approach should be considered.

Like Action 1, Action 3, deals with public space and both are very similar in its essential conception. What changes is the transport mode which in this case is the bicycle. The city council is already pursuing a strategy of expansion of the cycling network and this action can contribute to this by considering the touristic flows from the cruise terminal. Again, the Lisbon Tourism Association can help with definition of the routes, promotion of them and with the monitoring through the same enquiry.

Dealing with the current public bike sharing services, it is proposed that this action fall on Lisbon City Council, as we shouldn't expect that Lisbon's bike sharing system operated by EMEL to be the solution. It may be only a small part of it.

Other private sharing systems exclusively dedicated to tourism may be under EMEL (Mobility and Parking Municipal Company of Lisbon) since the system is operated by them. Lisbon Tourism Association must also be involved in the promotion of the system among cruise passengers. Monitoring can be done through the enquiry to cruise tourists. Table 22 summarizes the proposed implementation and monitoring of the actions included in this strategy.

Table 22 – Implementation and monitoring summary of actions 1 to 4

Promote the exploration of the city by active modes of transport.				
Action	Actors	Indicators	Responsibility for monitoring	Monitoring schedule
1	Lisbon City Council Lisbon Tourism Association	Share of cruise passengers walking and/or public transport.	Lisbon Tourism Association	Yearly through the enquiry already done.
		Number of touristic routes starting and finishing at the terminal.	Lisbon City Council	Access mid-way: June 2020.

Promote the exploration of the city by active modes of transport.				
Action	Actors	Indicators	Responsibility for monitoring	Monitoring schedule
2	Privates/Start-ups Lisbon City Council	Existence of an electrical wheelchair project.	Lisbon City Council	Access mid-way: June 2020.
3	Lisbon City Council Lisbon Tourism Association	Share of passengers cycling.	Lisbon Tourism Association	Access mid-way: June 2020.
		Number of touristic routes starting at finishing at the terminal.	Lisbon City Council	Yearly through the enquiry already done.
4	Lisbon City Council EMEL	Share of passengers cycling.	Lisbon Tourism Association	Access mid-way: June 2020.
	Privates/Start-ups Lisbon Tourism Association	Capacity of station close to the terminal.	Lisbon City Council	Yearly through the enquiry already done.

4.2. Strategy 2 – Promote the use of public transport when distance and mobility conditions of tourists justify it.

It is proposed that Action 5 should be the responsibility of CARRIS and Lisbon City Council since it focuses on public transport. The increase in the capacity of public transport is already a strategy being followed by the City Council alongside CARRIS and here it is proposed that cruise passengers' fluxes are taken in consideration when doing so. Nevertheless, cooperation with the Lisbon Cruise Terminal operator is essential since one of the activities is enabling the selling of tickets inside the terminal itself. Furthermore, Lisbon Tourism Association can play a fundamental role in promoting this transport mode among cruise passengers, at the terminal itself or through internet platforms. The enquiry that the Lisbon Tourism Association performs every year should serve as the tool to monitor Action 5 alongside a verification by CARRIS (or Lisbon City Council) of the tickets being available inside the terminal in June 2020. Below, Table 23, presents the summary regarding this action.

Action 6 proposes the creation of a mobility package with the integration of public transport, shared mobility services, touristic transports and cultural attractions entry fees, and must involve the most relevant actors. This means that all the actors of the listed fields must be involved, including all transport operators (touristic and otherwise), EMEL, Cultural attractions operators and others. Lisbon City Council would have the responsibility of pushing this idea forward enabling the cooperation of all the parties. For promotion of the package, Lisbon Tourism Association would have a key role along with the cruise and cruise terminal operators. Lisboa E-Nova would assume the responsibility of overseeing the successfulness of the action (in coordination with partners that monitor individual actions) and report back to Lisbon City Council. Of course, this action will benefit many of the previous such as the increase of public transport and active modes modal share.

Table 23 – Implementation and monitoring summary of actions 5 and 6.

Promote the use of public transport when distance and mobility conditions of tourists justify it.				
Action	Actors	Indicators	Responsibility for monitoring	Monitoring schedule
5	Lisbon City Council CARRIS Lisbon Cruise Terminal Lisbon Tourism Association	Share of cruise passengers walking and/or public transport.	Lisbon Tourism Association	Yearly through the enquiry already done.
		Availability of public transport tickets at the terminal.	CARRIS	Access mid-way: June 2020.
6	Lisbon City Council EMEL All transport operators Cultural attractions	Related actions are successful.	Lisbon E-Nova	Access mid-way: June 2020.
		Existence of the described package.	Lisbon City Council	Access mid-way: June 2020.

4.3. Strategy 3 – Reduce touristic transports impact on historical centre and main touristic areas.

All the actions contained in this strategy concern the touristic buses operators which means they should always be involved. Furthermore, all actions propose changes in regulation which is the responsibility of Lisbon City Council meaning that there should be cooperation between both parties to attend to the needs of the city and of the operators. Action 7 concerns with the routes and the technology used by the buses while Action 8 concerns with the parking aspect and so municipal police will be a key actor to enforce both regulations. On both cases Lisbon City Council, with feedback from touristic buses operators, should elaborate the routes and choose the locations for the parking areas.

Flux management is a responsibility of the Lisbon City Council and, as such, it makes sense that it oversees the follow-up of Action 9. The platform that regulates the access to touristic areas should be managed by the City Council but cooperation to define its parameters is necessary. Entities to be involved are the tourism operators (touristic transports, cruises, attractions), Lisbon Tourism Association and EMEL. For the mobile app, as in the case of the electric chairs project, private entities or start-ups can develop and explore it with the support of city council, of Lisbon Tourism Association or through competitions such as the already referred SOL. Monitoring should be the sole responsibility of Lisbon City Council as the main beneficiary of this action.

Table 24 – Implementation and monitoring summary of actions 7 to 9

Promote the exploration of the city by active modes of transport.				
Action	Actors	Indicators	Responsibility for monitoring	Monitoring schedule
7	Lisbon City Council Touristic Buses Operators Municipal Police	Number of buses crossing downtown.	Lisbon City Council	Periodic counts in loco or through sensors.
		Share of touristic fleet powered by electricity	Lisbon City Council	Access mid-way: June 2020.
8	Lisbon City Council Touristic Buses Operators Municipal Police	Number of parking areas dedicated for buses.	Lisbon City Council	Access mid-way: June 2020.
9	Lisbon City Council Tourism Operators Privates/Start-ups Lisbon Tourism Association EMEL	Existence of the described platform.	Lisbon City Council	Access mid-way: June 2020.
		Existence of the described mobile app.	Lisbon City Council	Access mid-way: June 2020.

4.4. Strategy 4 – Balance the number of tourists at points of interest, reducing, enhancing their experience and spreading opportunities.

Regarding action 10, the Lisbon City Council along the Lisbon Tourism Association must cooperate with cruise, terminal and touristic buses operators for it to be successful. Promotion of new destination needs to be on-board of the cruises or through internet platforms while bus operators must develop these new locations and provide the necessary connection to it. New destinations inside the city should be of interest to Lisbon City Council while outside Lisbon, the Cascais and Sintra City Councils should coordinate with the operators to gather interest. The enquiry done by the Lisbon Tourism Association should be enough to evaluate the successfulness of this action. As before, below, in Table 25, the summary of these actions is presented.

Table 25 – Implementation and monitoring summary of action 10.

Balance the number of tourists at points of interest, reducing tourists impact on the places and, simultaneously enhancing their experience				
Action	Actors	Indicators	Responsibility for monitoring	Monitoring schedule
10	Lisbon City Council Lisbon Tourism Association Cruise Operators Lisbon Cruise Terminal Touristic Buses Operators Other city councils	Share of tourists that visit locations outside Lisbon.	Lisbon Tourism Association	Yearly through the enquiry already done.
		Share of tourists that visit alternative locations inside Lisbon.		
		Share of tourist that visit traditional locations inside Lisbon:		

4.5. Strategy 5 – Information and integration

Action 11 focuses is a transverse one and focuses on the information and promotion level of the previous action contributing to the awareness by cruise passengers of the novel solutions proposed on the 10 complementary actions. As so, it must involve most of the actors relevant for the previous actions.

Lisbon City Council and Lisbon Tourism Association are the main drivers of promotion and information campaigns but in this case coordination with operators is paramount for a single message to exist increasing, therefore, the effectiveness of an information campaign. Like Action 6, this one will be successful if the ones it supports are also, and Lisboa E-Nova can, again, be responsible for aggregating the monitoring information from the individual actions to access this one. Table 26 presents the summary of the last two actions.

Table 26 – Implementation and monitoring summary of transverse action 11.

Information and integration.				
Action	Actors	Indicators	Responsibility for monitoring	Monitoring schedule
11	All previously mentioned actors	Related actions are successful.	Lisbon E-Nova	Access mid-way: June 2020.

4.6. Global Monitoring

Assuming, as dictated by all the predictions, that the number of cruises and passengers will continue to grow significantly, the plan success can't be measured having absolute CO₂ values as a reference. Also, because there will always be other factors influencing the results.

As so, a global indicator should be built, considering:

- Medium number of Km made by each cruise passenger in Lisbon
- Modes of transport used
- CO₂ emissions of each mode by Km, by passenger
- Number of cruise passengers per year

Since, currently the information regarding the distance that the passengers travel when in Lisbon is not available. Furthermore, one cannot associate a specific mode of transport with the destination of the passengers. (e.g. it is known that 28% of the passengers go to Sintra but it is not known if they go by bus or train or other transport mode). Nevertheless, efforts should be made to bridge this gap of information to evaluate the true impact of cruise tourism in CO₂ emissions. The success of the plan should then be measured having this indicator has a reference.

5. Funding

As seen in the previous sections, responsibility for the actions lies in the public and in the private sphere. Funds for concretization of the actions can therefore come from public or private investments. Furthermore, European funds (i.e. co-financing) should also be considered since many of the actions may fit in open or forthcoming calls.

Public funds can come from direct investment by the city council on infrastructure and promotional activities or from the touristic fund. The latter is created with the revenues that come from the touristic tax, which is charged to the tourists for every night a tourist spends in the city (until a maximum of 7

consecutive nights). Until 2019 a total of 33.7 million euros are planned be invest in the city. The strategy for this fund is to invigorate the touristic offer through fluxes management and themes diversification, which contribute to improve the quality of life of the residents. Actions included in the present plan like the creation and improvement of touristic pedestrian routes (Action 1), electric wheelchairs project (Action 2) and creation of mobile apps (part of Actions 9 and 11) can apply for this fund. Other actions like creation and improvement of cycle paths (Action 3), promotion of the use of bike sharing schemes (action 4), improve public transport supply (Action 5), diversify the touristic hotspots (Action 10) and the three actions related with touristic transport regulation (Actions 7 and 8) can all be funded by City Council funds since they are in line with the City Council strategy and therefore can contribute to its objectives for this term.

The main responsibility of the Lisbon Tourism Association is the promotion of Lisbon as a touristic destination. Therefore Action 12 can be incorporated in the Associations objectives and be funded with its budget which originates primarily from the Lisbon City Council.

Some of the actions may require private initiative and can generate revenue by themselves, possible being attractive projects for private organizations or start-ups. Action 2 with the electric chairs project fills these requirements with the touristic buses operators being a possible interested party. Bike sharing services focused on tourists like the one described in Action 4 can also be carried out by private initiative just like the mobile app included on Action 11 or the mobility package of Action 6. All these actions can be promoted by the City Council but carried out by private entities in collaboration with the relevant stakeholders.

The last, but also important source of funding can be the European funds that have several topics aiming at sustainable mobility. As example bellow is a list with some of the forthcoming topics for H2020 programme for the year 2019 that are potential matches to the strategy here devised:

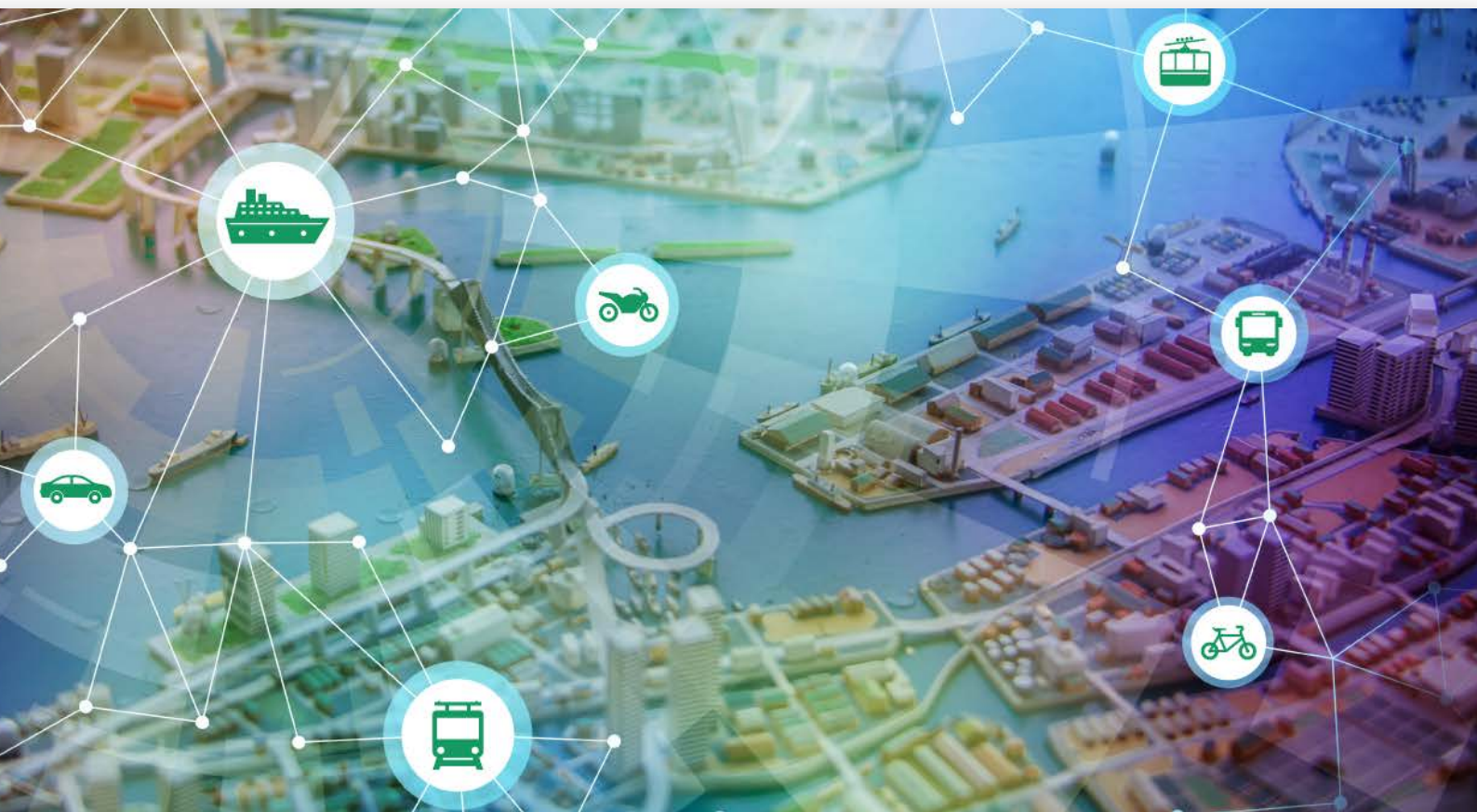
1. Upgrading transport infrastructure to monitor noise and emissions
2. Innovative approaches to urban and regional development through cultural tourism
3. EGNSS applications fostering green, safe and smart mobility
4. An inclusive digitally interconnected transport system meeting citizens' needs

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LCTP Malaga

Version 0B. Draft

LOCATIONS - Low Carbon Transport in Cruise Destination Cities

WP3 – Testing

Activity 3.5 Mid-way stock-take

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Low Carbon Transport Plan

Step 0: Work plan and team

The city of Malaga, one of the largest cities in Spain (more than 500.000 inhabitants) and among the most relevant ones in terms of tourism impact, has experienced years of profound changes in many aspects. The economic and financial crisis suffered by the whole country has been deeply felt in Malaga and its impacts are still present at some stage.

However, already before the financial crisis, the city council started a new line of development for the city, based on promoting progress, culture, tourism and sustainability. The creation of the Urban Environment Observatory (OMAU as its Spanish acronym) - which motto is 'towards a sustainable society'- or the large investment devoted to open art and cultural museums are some of the good examples of the referred approach.

The focus towards sustainability can be seen in many programs and initiatives undertaken by the city council, but one document is especially relevant in signalling the direction chosen for the future, as well as the main objectives to tackle the present challenges. The referred document is the *Agenda 21* published in 2015, and it is an essential source of information to understand what the city intends to become in the long run.

Specifically focused on urban mobility, the city council published also in 2015 the Sustainable and Safe Urban Mobility Plan (SUMP), which collects and analyses all relevant factors and relations concerning the mobility within and around the city. This comprehensive document states the main lines of work for the future, as well as its implications at three levels: economic, environmental and social.

Regarding tourism, the city has also devoted resources, long term plans and innovative measures which have had an immediate success in terms of visitors and revenues. One of the most relevant infrastructures, by instance, is the City Port, which has traditionally been isolated in terms of accessibility from the rest of the city (despite its close distance). In this sense the construction of a new dock, some terminals for passengers, as well as the measures placed to architecturally open the port to the rest of the city have totally changed the area, making it not only more efficient and profitable space, but also turning it into an attractive area for tourists willing to visit the city.

In this sense, the issue raised in Malaga as well as in other cruise destinations cities is:

“How can cruise tourism increase economic benefits in coastal regions, thus reducing its negative environmental impact?”

Cruise tourism represents an appealing way to visit coastal areas providing a significant boost in their economy and international reputation. Facing the need to increase income from cruise tourism and to preserve territorial natural assets, cities are called to use existing low carbon transport systems and multimodal connections.

LOCATIONS project specifically addresses MED territories where the cruising phenomena highly impacts the local economy. Such fast growing specific sector is dramatically driving a wide range of impacts and externalities (both positive and negative) on destinations, affecting, among others, the natural

environment, urban mobility and accessibility, and sometimes triggering significant multifold repercussions on cultural heritage and local communities. Departure ports and ports-of-call are indeed impacted by sudden, often seasonal, heavy traffic of cars and coaches in connection with incoming and outgoing flows of passengers embarking or disembarking cruise ships, and with deliveries of goods, waste collection and provision of a range of other services.

As low carbon economy is a key issue for the territorial sustainable development as well as for achieving the EU2020 targets, it is necessary to assist public policy makers and private operators in setting up respectively innovative coordinated programmes and effective tools, able to better manage the urban mobility and improve attractiveness of cruise ports. Steps forward in that sense have been already put in place in the MED area: for example, some of the involved public project partners have already developed SEAPs (for Sustainable Energy Action Plans) and SUMPs whereas other partners have been involved in international initiatives to put in place positive territory spill-over effects. It must be mentioned that a wide range of EU project have tackled with most of the elements mentioned above, the need is to integrate them in a single approach tailored to the needs of MED cities.

LOCATIONS' main objective is to increase institutional and operational capacity to foster the use of existing low-carbon transport systems and multi-modal connections for cruise-related passengers and freight flows in the frame of wider sustainable traffic and mobility policies in MED cruise destinations. It promotes sustainable growth and low-carbon strategies in MED cruise destination cities by acting on the capacity of port, local and regional authorities to jointly develop planning tools for sustainable mobility of people and goods related to cruise flows, integrated with the mobility chapter of SEAPs or the cities' SUMP.

This document makes part of a methodology tested to respond to specific mobility-related issues in the countries involved. The sequence of defining a replicable Operational Model, a capacity building technical model, and a set of modular packages for every city, paves the way for transferability in new MED area countries by means of international capacity building actions and mutual learning activities for new sustainable mobility concepts. Involvement of citizenship and cruise passengers and encouraging participation and responsibility is essential in enhancing cities' quality of life.

This document therefore, corresponds to the **Low Carbon Transport Plan for Malaga (LCTP)** aiming to support authorities to adopt and implement the necessary measures to progress towards a sustainable and healthy urban mobility in the city. In other words, the LCTP intends to offer support and advice to the authorities in what regards cruise related mobility, in the framework of the plans and strategic lines already adopted and in place in Malaga.

"In a long term perspective, an LCTP fosters the use of low carbon transport systems and multi modal connections for cruise-related passengers, goods and services flows in the frame of wider sustainable traffic and mobility policies (SUMP and SEAP/SECAPs)"

WORK PLAN

The **Work Plan** adopted to produce this document is based on two main blocks, devoted to present the general and local context, especially in what regards to urban mobility and cruise related mobility, and the methodology used and results obtained through the participatory process. After the contextualization and

the citizen's consultation, the actual Low Carbon Transport Plan (LCTP) is proposed, under the premise of making it adaptable and coherent with the existing and foreseen measures adopted by the city council through the referred plans. A second stage of the participatory double-checks the suitability of measures proposed with stakeholders' feedback. Finally, the LCTP is constructed after a modular approach so as facilitate their implementation and their replication to other cities or territories. The next table describes the work plan within the given timeframe:

Table 1 – Initial work plan

Block	Task	Timeframe	Deviation?
Present the general and local context	Gathering of available data especially in what regards to urban mobility and cruise related mobility	Mar/17-Aug/17	No
Present the general and local context	Representation of results obtained through the participatory process	Jul/17-Sept/17	No
Develop a participatory process	Identification of Stakeholders	Dec/16-Mar/17	No
Develop a participatory process	Engage Stakeholders	Mar/17-Jul/17	No
Develop a participatory process	1 st phase of participatory process	Jun/17-Sept/17	No
Develop a participatory process	2 nd phase of participatory process	March/18-Apr/18	No
Writing LCTP Malaga	Draft version	Jul/17-Nov/17	No
Writing LCTP Malaga	Definitive version	Apr/18-May/18	No

After the contextualization and the citizen's consultation, the actual Low Carbon Transport Plan (LCTP) is proposed, under the premise of making it adaptable and coherent with the existing and foreseen measures adopted by the city council through the referred plans. The LCTP is constructed after a modular approach so as facilitate their implementation and their replication to other cities or territories.

WORK TEAM

The **Work Team** for the project in Malaga is formed by MalagaPort (active partner of the project), Fundación CIRCE (Research Centre and technical partner of the project), and the Urban Environment Observatory (OMAU, as an associate partner). As an associated partner as well, the Tourism and Mobility areas from Malaga City Council are as well involved in the project. The teamwork's synergy merge the innovation and technical experience of identical scale projects developed already by CIRCE in terms of Urban Mobility and Sustainable Development as well as the local experience and support provide by MalagaPort and OMAU, being key partners in the accurate development of the LCTP. Thus, the next table describes the complete teamwork of Malaga LCTP development:

Table 2 – Teamwork during the elaboration of the LCTP

Name	Entity	Function	Tasks
Ana Allué Poc	Fundación CIRCE	Project Manager	Coordination Expert in Participation Production of LCTP
Breogan Sanchez	Fundación CIRCE	Project Manager	Urban Mobility expert Production of LCTP
Miguel Marco Fondevila	External expert (ex. Fundación CIRCE)	Sustainability Expert	Coordination Sustainability expert Production of LCTP
Technical Staff	Fundación CIRCE	Technician	Co-organization Database collection
A. Manuel Gutiérrez Ruiz	MálagaPort	Managing Director	Coordination & assessment Local expert
Ana Marín	MálagaPort	Business Development	Coordination Local expert Production of LCTP
Technical Staff	MálagaPort	Technician	Co-organization Database collection
Pedro Marín	Urban Environmental Observatory (OMAU)	Director	Council representation Assessment on initiatives
Nieves Fernández	Urban Environmental Observatory (OMAU)	Architect	Council representation Assessment on initiatives

Step 1: Initial assessment

Context analysis

The next set of chapters will resume the context in which the Low Carbon Transport Plan is developed. That is to say, the multi-scale frameworks of reference, the current cruise-related flows features, trends in the city/port as well as the cruise sector mid to long term development trends among others.

EU, NATIONAL, REGIONAL AND LOCAL FRAMEWORK OF REFERENCE.

The European Context

As the new century began, the European path towards sustainable mobility progressed with the publication of the 2001 White Paper, titled 'European transport policy for 2010: time to decide', and the launch of the CIVITAS Initiative in 2002. Until today, CIVITAS has served as hub to test over 800 measures and urban transport solutions as part of demonstration projects in more than 80 cities Europe-wide. While the 2001 white paper set the medium-term, sustainable transport objectives, established to break the link between economic and traffic growth and combat the unequal growth among modes of transport. Especially, it highlighted the relevance of intermodality as a solution to the increasing demand for transport that cannot longer rely on the continuous construction of transport infrastructure.

In 2006, the European Commission (EC) submitted a mid-term appraisal of the White Paper called 'Keep Europe moving – sustainable mobility for our continent'. New concerns arose with regard to the challenges stemmed from the increase of energy prices, the international efforts to mitigate climate change and the fast-pace of globalization.

Similarly, in 2007, the EC published the Green Paper on Urban Mobility - 'Towards a new culture for urban mobility'. This document identified the top-five challenges faced by cities: congestion, dependence on fossil fuels, increase in freight and passenger flows, accessibility to the urban mobility system and safety. As a result, the Action Plan on Urban Mobility was adopted in 2009. This plan intended to support regional and national authorities in their implementation of sustainable measures and SUMP's between 2009 and 2012. With the Action Plan, the EC presented for the first time a comprehensive support package for urban mobility.

Today, most of the related policy is based in the 2011 White Paper, entitled 'Roadmap to a Single European Transport Area — Towards a competitive and resource efficient transport system', with over 40 initiatives designed to generate growth and jobs, reduce dependence on imported oil, and cut the sector's carbon emissions by 60% by 2050. Specifically, with the 2013 Urban Mobility Package - 'Together towards competitive and resource-efficient urban mobility', the EC reinforced its support to local implementation of measures by: sharing experiences, show-casing best practices, fostering cooperation, providing targeted financial support, focusing research and innovation on delivering solutions for urban mobility challenges, involving the Member States and enhancing international cooperation.

One key aspect of the current strategy is innovation for the future, drawing on new technologies and encouraging changes in behaviour in order to make mobility more sustainable. Two great examples can be found in the H2020 CIVITAS' projects PORTIS and DESTINATIONS. In one hand, PORTIS will test innovative solutions in five European port cities, supporting their multifunctional role and increasing social cohesion between city centres and ports. The project aims to enhance governance and cooperation between cities

and ports, create sustainable and healthier city-port environments, integrate transport infrastructure and mobility systems and improve efficiency of urban freight transport. On the other, DESTINATIONS builds up an integrated approach to address mobility and tourism to achieve sustainable development and a better quality of life in six touristic island cities. The objective is set to offer intelligent sustainable transport solutions for tourists and residents alike through innovation and cooperation with all major stakeholders, especially by switching to less polluting transport modes in order to reduce emissions and energy consumption.

The LOCATIONS' LCTP development pursue the path of European initiatives related to environmental enhancement, in general, and sustainable mobility specifically, contextualizing the need of finding solutions to the cruise phenomena. The LCTP has been created taking into account the following European frameworks of reference:

- White Paper 'Roadmap to a Single European Transport Area - Towards a competitive and resource efficient transport system' (2011)
- Urban Mobility Package 'Together towards competitive and resource-efficient urban mobility' (EC, 2013)
- Delivering on low-emission mobility: A European Union that protects the planet, empowers its consumers and defends its industry and workers (COM/2017/0675)

The National (Spanish) Context

In the same time, over the last decades, Spain has been doing important efforts to enhance transport services and infrastructures, although there are still some inequalities within the transport system framework the country is nowadays trying to overcome.

In this sense, the car-dominance model, which has been increasing until the current decade, is starting to change due to the implementation of new concepts willing to evolve towards a more sustainable mobility such as public transport promotion measures, environmental-friendly goals integration or a better awareness for the citizenship in what sustainable mobility is. Last but not the least, during the past years, the functional dependency on urban outskirt areas has been reduced, directly affecting public transport efficiency, and public health.

Nowadays Spanish society (as well as many other European countries) is challenging a new mobility era, switching to a more sustainable transport system, with a wider level of transport alternatives and an increasing offer (+2.3% of network growing in the last 10 years in the five largest cities) as stated goal. On the other hand, Spain has highly invested in railway network in order to compensate the car-dependency.

As a result, public transportation commuting in Spanish cities is constantly increasing as well as the legislative measures does, which affects the transport modes (emissions, air quality and other indicators). The following measures support the creation of local and regional plans aiming to boost "*pull & push*" measures in order to enhance the citizens' quality of life.

Despite in the current year (2017) there is no yet a Sustainable Mobility Law in Spain, the Spanish Strategy for Sustainable Mobility (EEMS for its acronym in Spanish) approved by the Council of Ministers in 2009 is taken into consideration in current on-going plans development. This strategy integrates the necessary coordination tools (48 measures structured in land planning, climate change, energy, air quality, security

and transport demand among others) in order to coordinate policies towards a low carbon and sustainable mobility system.

This strategy follows the ones made 2 years before (2007) regarding the Spanish Strategy for Climate Change and Clean Energy, the Spanish Strategy for Sustainable Development and the Spanish Strategy of Air Quality containing important measures to achieve related goals.

As a basis of the EEMS, air pollution is, for Spanish government, an important issue directly affecting citizens' health (Healthy Cities Network Project or Movea Plan, 2017), which must be considered within the urban area level in general and in the traffic congestion scale specifically, boosting less polluting transport alternatives and developing cleaner technologies. The Noise Law has been signed in 2003, being an important topic in following mobility plans in several municipalities in Spain.

Thanks to the national and supranational policies, the number of Spanish cities and companies that have developed their Sustainable Mobility Plans is increasing, containing clear and well-defined strategies aiming to minimize their environmental impact through measures towards the reduction of transportation-based pollution, e-mobility, car-sharing, last-mile policies, etc.

Sustainable Mobility actions are exponentially growing as well as the “green jobs” do, generated via the creation of new last mile companies, e-scooter and e-bike production, etc. All stakeholders are conscious on how important coordination and awareness is during urban transformation processes and with more than 450 cities involved in the last (2017) European Mobility Week, mobility innovation is on its way in Spain.

Bathed with the waters of the Mediterranean with an increasing number of cruise tourists, Spain welcomes initiatives like **LOCATIONS' LCTPs development** aiming to improve local economic development as well as reducing the negative impacts that Cruise tourism can cause on traffic and saturation. Mobility enhancement initiatives already taken place in Spain are in line and complementary with the LCTP, being a great opportunity to integrate it into the Local Mobility Plans as well as a standard for a common national framework.

Thus, the LCTP has been created taking into account the following Spanish frameworks of reference:

- The Spanish Strategy for Sustainable Mobility (Council of Ministers, 2009)
- Noise Law (signed in 2003)
- National Plan on Air Quality 2017 - 2019
- The Spanish Strategy on Climate Change and Clean Energy – Horizon 2007 – 2010 - 2020
- Non-ETS emissions road map to 2020

The Regional (Andalusian) Context

At regional level, Andalusia relies on a specific Transport Infrastructure Plan towards 2020, *Plan de Infraestructuras para la Sostenibilidad del Transporte en Andalucía* (PISTA 2020), which recalls sustainability objectives. It has been conducted as a revision of previous Plan 2007-2013, a strategic tool for sectorial policies coordination related to Andalusian transport infrastructure. Furthermore, transport policy is articulated within the Territorial Planning Strategy (*Plan de Ordenación del Territorio de Andalucía* (POTA))

in order to develop a comprehensive and consistent regional development plan. POTA defines territorial planning strategy and establishes the framework for infrastructure arrangement. In fact, PISTA is a programme prescribed in POTA planning and has implications on land management. Hence, both programmes are aligned and share final objectives regarding mobility issues. In addition, Andalusian Urban Sustainability and Energy strategies rely, among others, on urban development and mobility management criterion.

Specifically, PISTA 2020 aims to structure internal and external transport system in the Andalusian region considering sustainability criteria. Furthermore, infrastructure improvement is in line with regional development and is adapted to Mediterranean particular urbanism. However, the strategy clearly dissociates economic growth from transport requirements since the construction of infrastructure is not considered as an index of economic growth. In this sense, it promotes current infrastructure exploitation and non-motorized sustainable means of transport, as well as, intermodal and public transport. As an example, a specific plan for bicycle commuting has been developed (*Plan Andaluz de la Bicicleta 2014-2020*) which fosters every-day and touristic cycling.

PISTA 2020 approaches transport issues from a double point of view. On the one hand, evaluates means of transport and different transport infrastructures available and/or required, such as port infrastructure available for freight, cruises and the so-called Straits of Gibraltar Passage Operation. It has to be highlighted that Andalusian freight maritime transport has grown since 2007 at a higher rate than Spanish average. On the other hand, it evaluates particular local features, such as specific Malaga necessities. As an example of challenges and priorities addressed, it fosters intermodal transport with regard to maritime transport and promotes citizens' transport card integration, proposals in line with LOCATIONS project initiative.

That being said, the LCTP is developed within the following regional frameworks of reference:

- Andalusian Transport Infrastructure Plan towards 2020 (PISTA, 2016)
- Andalusian Territorial Planning Strategy (POTA, 2006)
- Andalusian Plan for bicycle commuting (2014)

The local (Malaga) Context

As one of the largest cities in Spain, the development approach and dynamics present in the country along the last decades have fostered a fast and disperse model of urbanism, dramatically increasing the need for transportation of goods and citizens around the city. In parallel, new infrastructures such as highways and roads have been developed so as to vertebrate the outskirts of the city and its environment, thus encouraging citizens and retailers to move to the suburbs and use extensively the private car. Sustainable transport modes, such as collective public transport, biking or walking, are notably penalized by the long distances and dispersion of equipment and services. As a consequence, the transport means and, particularly, the motorized modes, have acquired huge relevance in Malaga day-a-day life.

The trends followed by Malaga during those decades regarding urbanism and mobility were focused by the search of solutions which would support the increase in number and use of motorized vehicles, thus creating more spaces for parking, larger avenues and streets and distant large commercial centers. Although the inertia of this sort of development is rather strong, the city council approach as changed significantly during the last few years, looking for a new long term strategy based on transforming the

current model of mobility into a sustainable one, reducing the relevance of motorized vehicles, addressing the problem of disperse urbanization and expansion of the city, fostering the use of electric vehicles and public transport modes, and developing the use of renewable sources electricity in public buildings and equipment.

From the environmental point of view, the metropolitan development has also caused an increase in air pollution and GHG emissions which not only impacts in the Climate Change, but does also affect the health and wellbeing of Malaga citizens. Although caused by different agents such as industry, electricity generation or heating, the increase in carbon emissions due to motorized transport rise over the years is both evident and worrying. The city council, through the Covenant of Mayors engagement, has committed to reduce by 20% the volume of carbon emissions in year 2020. As shown in the 2015 Malaga SUMP, the number of days exceeding the established limits for particles and Ozone in the city are the following:

Table 3 – Number of days in which the concentration of PM10 PM2.5 and O3 is higher than the recommended by the WHO

Averaging period	PM ₁₀		PM _{2.5}		O ₃	
	24 hours	1 year	24 hours (WHO)	1 year	8 hours	8 hours (WHO)
	Concentration (µg/m ³)					
	Permitted					
exceedances	EU: 35	EU: 40	WHO: 3	EU: n/a	EU: 25	WHO: 25
	WHO: 3	WHO: 20		WHO: 10		
Monitoring Site Campanillas	0	24	-	-	20	85
Monitoring Site Carranque	4	23	-	11	9	62
Monitoring Site El Atabal	3	28	-	-	16	-

Traffic and continuous presence of motorized vehicles has been highlighted by the citizens as the major cause of noise and acoustic pollution in Malaga. Indeed, the impact of the motorized vehicles transport model goes far beyond the strict concept of transportation, and requires a more comprehensive approach, linking mobility to accessibility and wellbeing. In this respect, accessibility is not just taken into account with extensive transport infrastructures but also planned with a sense of proximity and efficiency, so as to promote sustainable and autonomous moves.

In 2015, two key initiatives led by the city council were presented: The *Agenda 21* for the period 2020-2050, and the 2015 SUMP for Malaga. The analysis undergone in both documents, which serve as base for the current initiatives regarding sustainable mobility in Malaga, made it clear the motorized transport model had become a threat to the city in areas such as air and acoustic pollution, uncontrolled growth, congestion and waste generation.

The 2015 SUMP proposed roadmap stresses the importance of promoting a new culture of mobility, environmentally sustainable, based of public participation and strengthen through citizens' awareness and commitment. The planning strategies must therefore look to reduce the role and presence of motorized vehicles, understanding transport and mobility as means to access goods and services, thus incorporating concepts such as proximity and compact city.

Through this holistic approach, the city council addresses mobility from a double perspective: as the activity generated by the social and economic needs, as well as the origin of new socioeconomic trends, caused directly or indirectly by the mobility model. The social, education or health policies, for instance, influence and are influenced by mobility. The prominence of pedestrians in this new model of city is considered as the main axis to plan a friendly urban environment for all inhabitants. Promoting walking and pedestrian spaces favours social cohesion and a good widespread use of public areas.

The LCTP model presented in the document **answers** the general tendency of the development of the necessary measures to answer some of the urban mobility related problem. Actually, the current concept of urban mobility undertaken in Malaga is based on the idea that all transport means used by the different segments of the population must be considered, analysing the urban, economic, cultural and social determinants required and generated by those transport means, so as to globally respond to the citizens' needs through proximity, accessibility and wellbeing policies. From this perspective, the urban mobility related to cruises and port activities as a whole, is not only relevant but strategic, since it may be source of mobility issues as well as socioeconomic opportunities. Therefore, a specific analysis of the cruise mobility context in Malaga is presented next, highlighting trends in the sector, existing infrastructures, passengers' behaviour and demands, and main critical points related to this activity in what concerns traffic, public transport, integration with closer neighbourhoods, etc. In other words, LCTP has been created taking into account the following local frameworks.

- Agenda 21, for the period 2020-2050
- SUMP for Malaga

Frequently, a correct and timely monitoring of the proper implementation of a Plan is the best way to grant its success, avoiding deviations and unwanted obstacles. **The 2015 SUMP and the Agenda 21 present in Malaga include a whole set of indicators, which fit to LCTP initiatives.** Together with the indicators proposed in the previous chapter, the SUMP and A-21 indicators will be used, so as to take advantage of an already existing scheme for proper monitoring.

CURRENT CRUISE-RELATED FLOWS FEATURES, TRENDS, ETC., IN THE CITY/PORT

Malaga province has been one of the most popular areas for national and international tourists, matching with the sun-and-beach tourism “boom” during the 60’s and 70’s in the whole country. Cruise tourism, however, was not as relevant as in some other cities in Spain, mainly due to the insufficient port infrastructures and facilities of Malaga city. This situation has been reversed along the last few years.

From 2001 to 2012 however, a new dock and three terminals for mega-vessels were built, allowing the largest vessels (such as the Oasis Royal Caribbean class) to enter the city. The terminals are operated by the company *Cruceros Málaga*, from Global Ports Holding Group, which counts with terminals worldwide such as Lisbon and Ravenna. Both, the new infrastructures and the strategic management have turned Malaga into a main cruise destination in Spain, second in relevance in mainland, only behind Barcelona.



TERMINAL A. Specialized in Base Cruises

- Two levels
- Passengers’ capacity up to 4.000.
- 46 counters, commercial area, VIP lounge and bar



TERMINAL B. Several Cruisers at a time

- Up to 3 vessels at a time in transit and/or base
- Passengers’ capacity up to 4.000.
- 40 counters, commercial area and bar



TERMINAL EL PALMERAL DE LAS SORPRESAS

- Visiting area of El Palmeral de las Sorpresas
- Historic centre of the city
- Small and medium cruise vessels, and luxury vessels

Figure 1 – Passengers’ terminals in the Port of Malaga

90% of Malaga cruise passengers come from Europe. (The 2015 extensive survey showed a majority of German passengers)

The average expenses in Malaga of a passengers’ cruise is over 62€/day

90% of passengers recommend Málaga as destination and would come back.

Together with the port infrastructures, Malaga is connected to the main cities of Spain by High Speed railway (AVE), connecting Madrid in less than 3 hours. The city does also count with an International Airport, registering 17 million passengers in 2016 and being the fourth most important Spanish airport in volume of operations (85% international). The airport offers more than 130 direct destinations, mostly to European countries (UK, Germany and France accounting for 65% of them).



Figure 2 – View from the sea of the Port of Malaga / Flight direct connections with international cities

The following figures and data show how important cruise tourism has become for the city and the province in terms of business and economic opportunities, while suggesting some of the challenges which may bring in in what concerns mobility, cohabitation and sustainability.

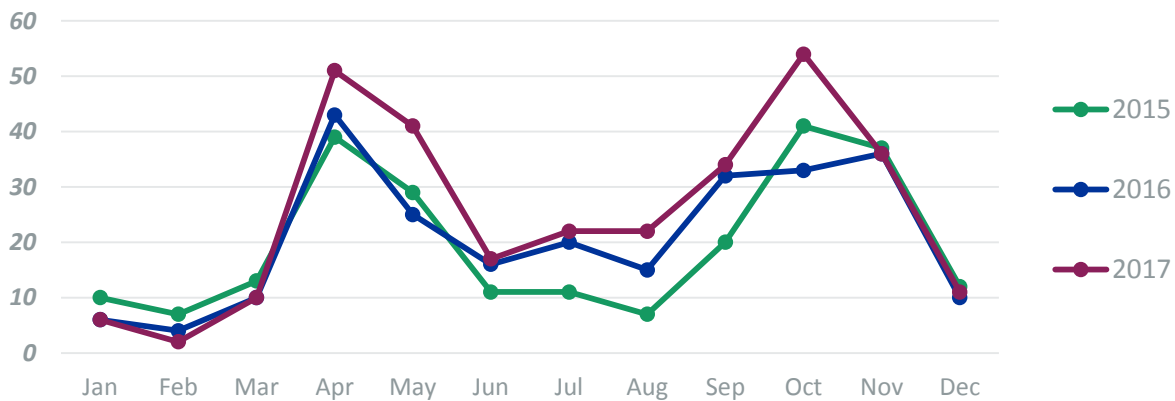


Figure 3 – Distribution of the number of stops in the Port of Malaga

Cruise traffic in Malaga has its **peak seasons** in spring and Autumn. This is also a time with traditional tourism visiting Malaga. Although the highest season takes place in summer.

As we can appreciate in the figure below, the distribution of the number of cruise passengers in the port of Malaga has not been equal during the years, reaching its maximum during 2010 and 2012. This fact can be explained since in 2012, one of the cruise sector biggest operators shifted its operations from Malaga to other destinations, causing a huge drop in the number of passengers. From that year, the city has encouraged more stable and long term agreements with cruise operators, reaching a steady but solid yearly increase of passengers. The Port Authority has also worked to decrease the seasonality factor, promoting Malaga as a base port for other inland destinations.

Year	Cruise Calls	Passengers
2007	240	290.558
2008	268	352.875
2009	301	487.955
2010	321	659.123
2011	311	638.845
2012	293	651.517
2013	248	397.098
2014	227	407.870
2015	238	418.503
2016	251	444.000
2017	299	510.607

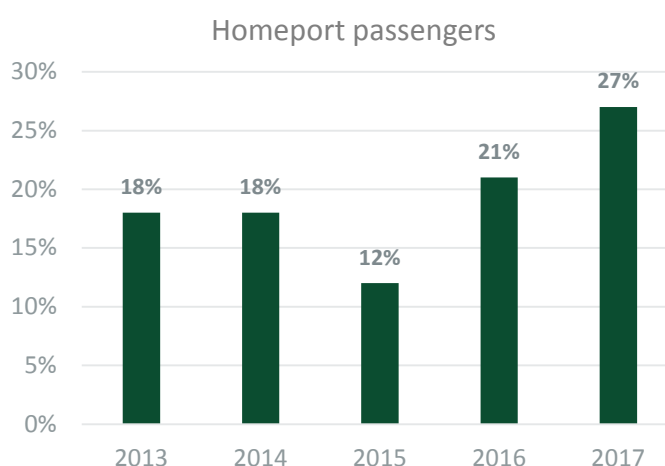


Figure 4 – Cruise tourism trends in Malaga until 2017

One of the most important factors influencing the growth or decline in number of cruises visiting a given destination is linked to the passengers, their experience, demands and expectations. In 2016, the University of Malaga (UMA), together with Málagaport, undertook a deep research about the city as destination for cruise passengers. Through the report, the UMA analysed the effects of the passengers' experience over the city reputation as touristic destination, as well as the effect of such a reputation over the passengers' expectations.



The study was based on a large survey conducted in 2016 addressing cruise passengers in Malaga, and the data provided by the financial and accounting department of the University and by Málagaport. At a glance, the sample shows a **larger number of men**, predominantly **over 50 years old** and with more than **50 000€ of yearly income**. The first results of the experience/reputation study are presented in the next table:

Table 4 – Study of experience/reputation of Malaga (left) & Passengers' experience during their stay (right). By average.

Attribute	Avg
Personal safety	8.85
Quality/price ratio	8.21
Variety of things to do	8.48
Quality in food & beverages	8.54
Souvenirs & gifts	7.67
Inhabitants hospitality	9.03
Restaurants service quality	8.63
Variety in stores & boutiques	8.69
Trips around the city	8.24
Availability of organized city trips	8.29
Service of tourist information centres	8.58
Variety of gastronomy	8.64
Availability of touristic leaflets	8.22
City traffic	7.60
Port facilities	8.57
TOTAL	8.42

Attribute	Avg
Malaga reputation as destination	8.59
Willing to visit Malaga next year	7.82
Willing to visit Malaga within the following 3 years	7.73
Willing to recommend the destination	8.91
Willing to start or end a cruise trip in Malaga	6.19

The marks for passengers' experience during their stay are mostly high, translated into satisfaction and contentment. However, the City Traffic gets a lower mark than average. In fact, the lowest of the survey, suggesting a potential issue related to mobility. As for reputation:

The Touristic Observatory of Malaga, on the other hand, in its report for November 2015 – December 2016, reflects a similar survey rating the degree of tourists' satisfaction with the city. The following figure shows notably high marks in most factors.

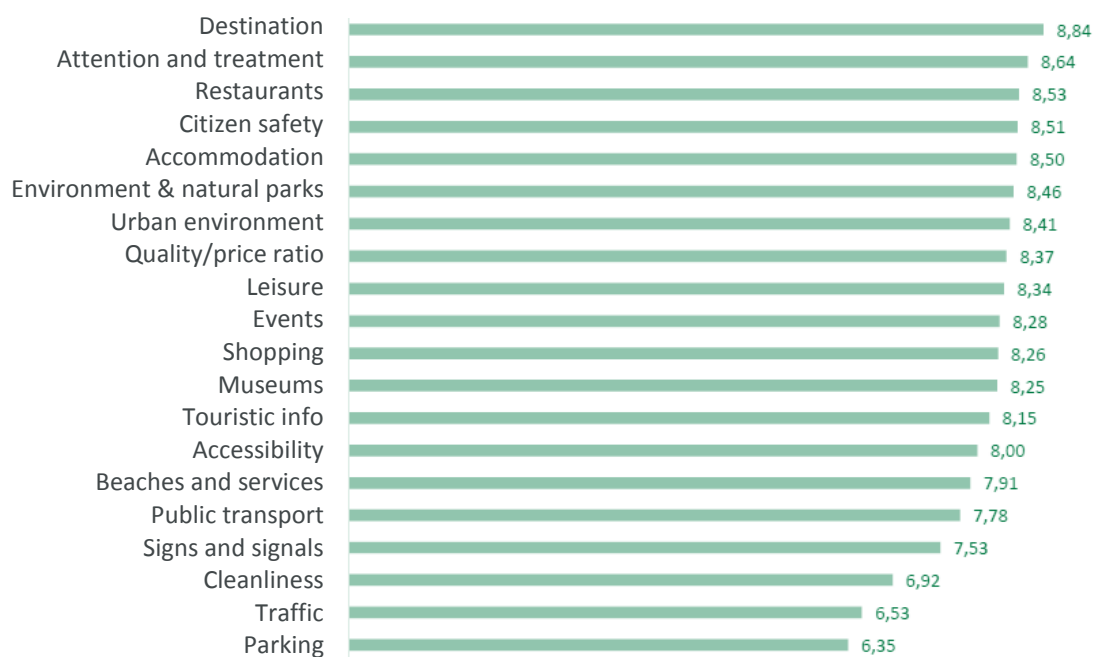


Figure 5 – Degree of tourism satisfaction with the city

The average mark *–destination–* presents a very similar mark to the previous study, confirming the good outcome. The factors related to urban mobility, however, are among the worst of all, especially for traffic and parking, but also for public transport and signs, bringing the attention to potential problems of urban mobility.

CRUISE-SECTOR MID- TO LONG-TERM (5 TO 10 YEARS) DEVELOPMENT TRENDS

Although it is difficult to know the future data for cruise calls in Malaga, since cruise lines itineraries are planned in 1 to 2 years in advance, it is predictable that in 2018, the number of stops would be around 300. In the same way, the city expects around half a million passengers offloading cruisers during 2018. However, the strategic management in the Port of Malaga considers as one of its main goal the development of its traffic. The facilities have the capacity to grow its numbers, and so does the destination.

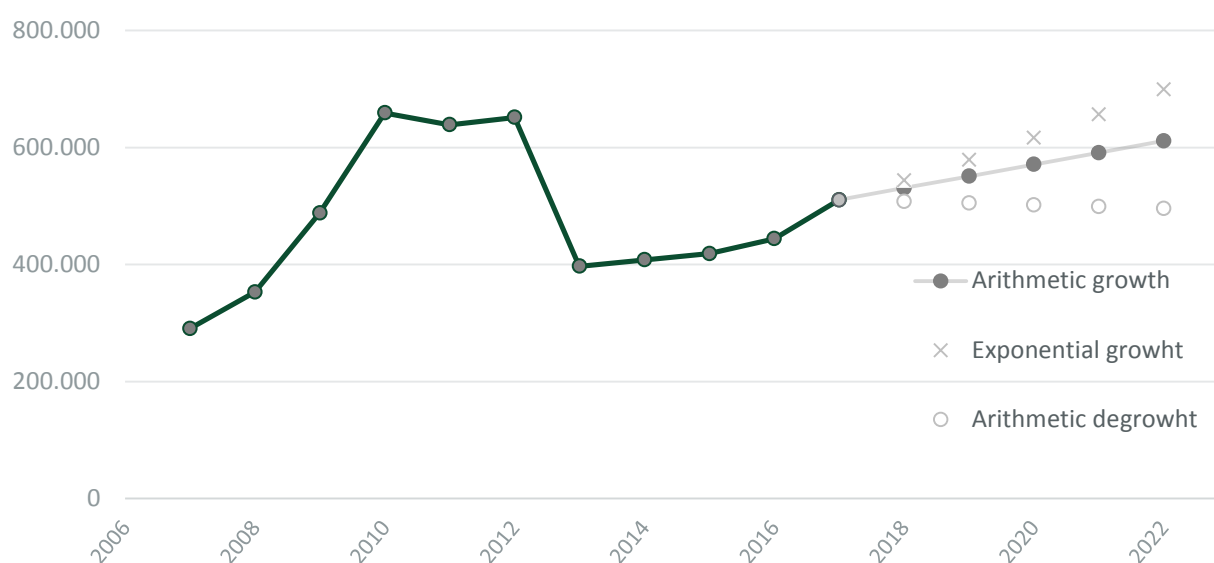


Figure 6 – Annual cruise passengers and future trends

The latest data show that, in fact, Malaga has become a relevant destination for both purposes, as base to other destinations areas in Spain (Granada, Seville, Cordoba, etc.) and as touristic attraction by itself. The council initiatives towards promoting culture in the city, identifying Malaga with renowned art museums, historic sites and good gastronomy, have made the city attractive and demanded as tourist destinations for cruises.

Cruise industry, on the other hand, is growing with **80 new ocean vessels** to come between **2017 and 2026**. Although new destinations are entering the industry, there is still place to grow. The Mediterranean is the second world biggest cruise sailing area, after the Caribbean.

CURRENT CRUISE-RELATED MOBILITY AND TRANSPORT MANAGEMENT POLICIES AND PUBLIC & PRIVATE INITIATIVES ADDRESSING THE EXISTING FLOWS

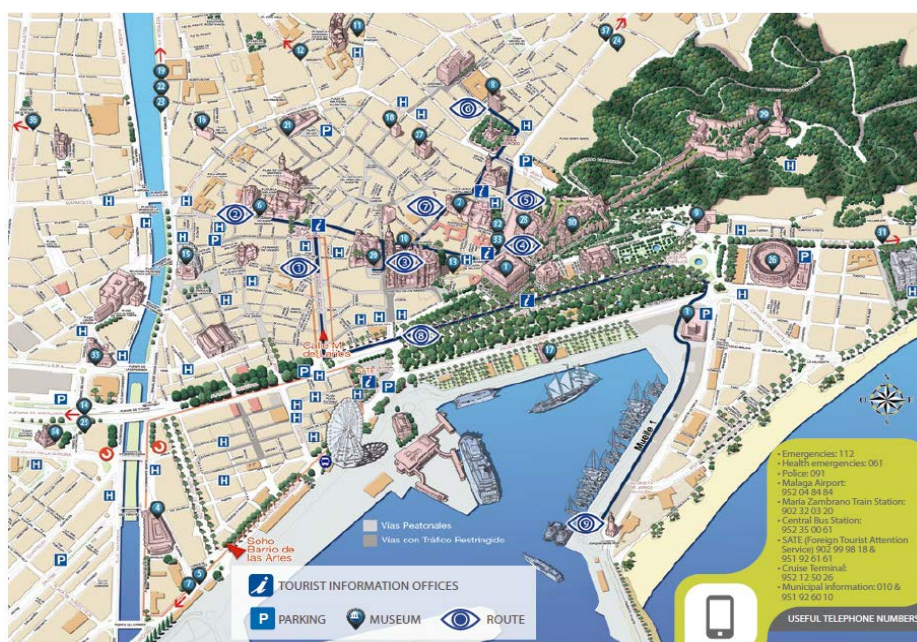
The Port of Malaga has nowadays no significant levels of congestion. On days with several cruise ships in port, the Port Authority, the private operators and the City Council work together to make sure everything runs smoothly.

The data for 2016 provided by the tour operators managing cruise activities in the city, state that:

- Around 16% of passengers organized the excursion with the cruise service. From this 16%, some 14% went outside the province, 30% visited the province outside the capital, and the remaining 56% stayed in the city.
- Around 84% did not organize their activities with the cruise, and so they visited the city or province on their own, or stayed in the vessel.

Although it is hard to know how many of the passengers going on their own leave the city, it can be estimated that from 65% to 80% of passengers (from 285.000 to 350.000 in 2016), stay in the city, in most cases, just for a few hours visit. Consequently, a large number of movements and circulation takes place in relatively short periods of time (mostly at daytime), creating traffic congestion, long lines, and inconveniences for both, tourists and inhabitants.

Malaga Tourist Office offers a possible structure to visit the main attractions and relevant places of the city by foot in just 8 hours, which fits quite well the needs of cruise passengers.



“Malaga in 8 hours is a recommended visit to Malaga city centre, designed for 8 hours with no need of other means of transport but walking”

Figure 7 – Malaga in 8 hours initiative

The following figure shows the different movements around and in the port, shared by buses, taxis, electric train and pedestrians in the city of Malaga.



Figure 8 – Routes within and around the port

In summary, the port facilities and the city approach to cruise tourism are adequate and well planned not only to absorb the flow of passengers, but also to attract larger numbers in the future. The passengers do find the experience rewarding and the expectations fulfilled, although some aspects appear to be concerning. Specifically, traffic, congestion and parking are the factors worse rated by tourists, and the ones causing more inconvenience to Malaga inhabitants, both as pedestrians and as drivers.

The congestion and jams which tend to happen around the port are already a matter of concern for the city council, which has put in place some measures to ease the problem. The electric tourist train installed to facilitate the cruise passengers' movement along the port or the recent presentation of locally made electric tricycles; are measures undertaken with this purpose. Nevertheless, the increasing number of cruise vessels visiting the city, as well as the harmful impact of mobility in the environment and the quality of air; make it advisable to develop an integrated, holistic and long term strategy to include the cruise

vessels flows and effects, into the Sustainable Urban Mobility Plan of the city, promoting a Low Carbon perspective.

WEIGHTED LIST OF NEGATIVE IMPACTS LINKED TO CRUISE-RELATED FLOWS

The Port is located in the city centre, which presents a challenge when a high number of passengers are arriving at the same time. Shuttle buses leaving for excursions in the city or beyond usually use one road, and it is a one-lane road, which may cause some traffic jams.

Roads entering and leaving the port were built at the beginning of the century and are adequate for current and future flows -with 2 lanes on each way-, and so are the parking areas in the port: one in front of each terminal and a big one next to both.

The city centre in Malaga is not very big it is mostly pedestrianized, which brings a challenge as for bus stops, which are shared by bus from traditional tourism and sometimes are crowded.

Regarding the perception of cruise tourism. Cruise tourists cause a more invasive perception and they appear to residents as less careful with the city. Passengers do not spend the night in the city and their expenditure is concentrated in trade and restoration, within a limited area and with very limited time. Therefore, the general belief is that they generate a minor economic impact on the City. It is also noted that most of the services are offered on the boat itself, so the impact on the City is even lower.

EXISTING ROAD NETWORK, TRANSPORT SERVICES AND INFRASTRUCTURE IN THE CITY/PORT

- The port facilities and the city approach to cruise tourism are adequate and well planned not only to absorb the flow of passengers, but also to attract larger numbers in the future.
- The passengers do find the experience rewarding and the expectations fulfilled, although some aspects appear to be concerning. Specifically, **traffic, congestion and parking are the factors worse rated by tourists, and the ones causing more inconvenience to Malaga inhabitants**, both as pedestrians and as drivers.
- The congestion and jams which sometimes happen around the port are already a matter of concern for the city council, which has put in place some measures to ease the problem. **Coordinated planning** among the Port, the city and the private operators takes place on days with a higher number of cruise passengers. **Alternatives** such as the electric tourist train for cruise passengers to move along the port or the recent presentation of locally made electric tricycles are measures undertaken, that nowadays don't have a big number of users, but which should grow in the future.
- Nevertheless, the increasing number of cruise vessels visiting the city, as well as the harmful impact of mobility in the environment and the quality of air; **make it advisable to develop an integrated, holistic and long term strategy to include the cruise vessels flows and effects, into the Sustainable Urban Mobility Plan of the city, promoting a Low Carbon perspective.**

SWOT/CAME analysis

SWOT ANALYSIS

INTERNAL CONTEXT		STRENGTHS	WEAKNESSES
INTERNAL CONTEXT		<ul style="list-style-type: none"> Public transport use has remained stable over the years (in contrast with similar cities where it has decreased), and there is a sense of good management by the responsible entity (EMT). Around 10% of travels are made by bus. 	<ul style="list-style-type: none"> Among motorized means, that represent 50% of travels, car is currently the dominant mean of transport in the city (31% of total trips in Malaga). An extra 6.7% of trips are done using motorcycles.
		<ul style="list-style-type: none"> Pedestrian mobility has been consolidated over the last years, reaching 50% of the global mobility within the city. Travels by foot increased 2.3% from 2008 to 2014. 	<ul style="list-style-type: none"> The city centre keeps on being the main mobility attractor area, creating congestion, jams and inconvenience. The centre attracts 17% and generates 8% of total travels, plus trips crossing by it. While 60% of centre residents walk (only 13% drive), 40% of people going to the city centre use private means.
		<ul style="list-style-type: none"> Malaga possess a highly valued reputation among tourists (8.6 out of 10), and trends show a gradual increment on cruise passengers visiting the city. Those visiting the city recommend Malaga as a good destination (8.9 out of 10). 	<ul style="list-style-type: none"> Cruise passengers identify traffic and mobility related issues in Malaga as the weakest factors of their visiting experience. Satisfaction degree is set around 6.5 over 10 for traffic and parking, and 7.8 for public transport.
EXTERNAL CONTEXT		OPPORTUNITIES	THREATS
EXTERNAL CONTEXT		<ul style="list-style-type: none"> During the period 2008-2014, city traffic has decreased due to the effects of the financial crises, as well as to the actions developed by the city council. This trend could be reinforced and extended. From 2008 to 2014, private car use decreased 4.2% and traffic has decreased 32.5%. 	<ul style="list-style-type: none"> Emissions caused by vehicles, although not being the largest in volume, are likely to be more harmful to citizens due to the proximity of actual emission. Pollutants concentrations of Particulate Matter and Ozone are above the recommendations of the WHO.
		<ul style="list-style-type: none"> The use of bicycles is experiencing a significant increase during the last few years, reflecting a higher awareness by citizens and a positive trend for sustainability actions. Bike trips have grown four times (2008-2014), but still represents only 1.7% of trips. 	<ul style="list-style-type: none"> Cruise liners may consider other destinations preferable to Malaga and shift their vessels to those other destinations.
		<ul style="list-style-type: none"> The use of motorbikes has gained weight in the overall vehicle fleet, reducing the problem related to parking space in the city. From 2006 to 2014, number of motorcycles has increased 63.8%. 	<ul style="list-style-type: none"> Malaga citizens feeling of cruise tourists being a source of inconveniences and discomfort could grow if they are not engaged in strategy and plans linked to mobility.

The study of the SWOT makes clear that Malaga population is an essential actor in progressing towards a more sustainable sustainability model. Most opportunities and threats are linked to citizens being actively engaged in the process of planning and deploying sustainable initiatives, as well as to promoting already on-going trends such as the use of bicycles in the city or the pedestrian approach for city centre. In this sense, after the analysis made during the SWOT process, the different highlighted topics shall be directly related with a series of actions to answer them. In this sense, a CAME analysis for Correct (the Weaknesses), Adjust (the Threats), Maintain (the Strengths) and Explore (the Opportunities) is described.

CAME ANALYSIS

		MAINTAIN	CORRECT
INTERNAL CONTEXT		<ul style="list-style-type: none"> Public collective transport to be the backbone of the intermodal and clean mobility system. Measures should be taken for: reduce travel times for mid/long distance trips; facilitate modal transfer; and technological shift towards a low carbon and intelligent transportation system. Citizens' perception should be exploited both with the provision of high quality services/information and the increment of the sense of belonging. 	<ul style="list-style-type: none"> Adopt strategies PUSH-PULL to foster the shift from private modes to non-motorized or low carbon ones. This is, the development of better conditions for sustainable mobility (PULL) while reducing the attractiveness to use private cars (PUSH).
		<ul style="list-style-type: none"> District level spatial and mobility planning should spin around walkability. Neighbourhoods should: increase the road bed space for pedestrians, limit vehicles speed, guarantee comfort and accessibility, and so. Walking for travels within districts, while public transport and cycling for travels among districts. 	<ul style="list-style-type: none"> City centre congestion should be reduced by two ways. First, reduce the necessity to travel to it by offering services and job opportunities in other districts. Second, fostering the use of public transportation and bicycles to reach city centre while limiting the possibility to access/cross the centre for cars and motorcycles.
		<ul style="list-style-type: none"> Continue the cross-sectorial coordination to provide pleasant experiences to visitor, including cruise passengers. City council should achieve alliances with the private sector and involve social collectives to guarantee a sustainable exploitation of Malaga's touristic potential. 	<ul style="list-style-type: none"> Establish specific measures to facilitate the mobility around the port and the city main touristic areas. Solutions to be envisaged within the Locations project should be developed.
		EXPLORE	ADAPT
EXTERNAL CONTEXT		<ul style="list-style-type: none"> Economic reactivation should not be accompanied by an increment in the use of private modes and traffic. New transportation services based on sharing schemes should be introduced to reduce the demand for infrastructure and parking. 	<ul style="list-style-type: none"> Gradually, the city should make the shift to (1) local and renewable energy generation and (2) electric mobility. The combination of both measures will improve the city's air quality, reduce the emission of greenhouse gases and cut off the dependence on fossil fuels.
		<ul style="list-style-type: none"> Malaga should take advantage of its cycling potential. Cycling infrastructure development should keep in mind the expected increase of electric personal transportation vehicles uses, such as kick and self-balancing scooters. Transit rules should be established in order to promote safe conditions on shared spaces with people and other vehicles. 	<ul style="list-style-type: none"> Consolidate Malaga as a touristic destination for cruises by: offering tailored services to cruise passengers, achieving partnership with cruise liners, and providing direct connections with other destinations (operating as a hub).
		<ul style="list-style-type: none"> Shared mobility should be foster in order to avoid an unsustainable increment on the motorization rate. Also, Public-private coordination is mandatory to avoid unfair competition with existing public services and the oversupply of sharing alternatives. 	<ul style="list-style-type: none"> The tourist sector should not operate without the involvement of local residents. The city must work to promote participation in decision making process.

Step 2: Participatory process

Since its conceiving, LOCATIONS project considered participatory processes as part of a wider strategy to involve the populations in awareness-raising activities. Therefore, one of the main goals of the Capacity Building Seminar that took place in April in the City of Malaga was to ensure an even distribution of know-how and skills among partners and to provide a range of tools for the participatory processes to involve stakeholders and local populations in the development of plans.

The goal of the participatory process is the involvement of relevant stakeholders, including public administration, cruise business and citizenship. The activities were specifically designed to collect crucial data for the development of the LCTP. By retrieving information of expectations and needs of all agents involved, the project aims at achieving a higher level of social acceptance in the measures proposed for the LCTP implementation.

For this purpose, a two-phase process was designed and implemented, aiming at:

1. First phase (June- September 2017): the goal was to elaborate a participated diagnosis of the current situation regarding mobility aspects of cruise tourism in the City.
2. Second phase (March- April 2018): a broader sample of stakeholder representatives was invited to provide feedback on the measures included in the LCTP plan, to fine-tune the technical aspects with the most updated and complete insight of relevant agents in the field.

During the first phase period, the first milestone for the launching of the participatory process was the identification of relevant stakeholders, which interests were interconnected and strongly linked to cruise tourism.

Stakeholders' identification

Stakeholders were identified analysing all actors taking place in the process, both directly and indirectly. Most of these stakeholders included have a high impact in our project, and their involvement is essential for its success. As a result of this task, main categories to take into account for the process were:

- City Council
- Regional Government
- City Port
- Local Police
- Cruise Lines and Tour operators
- Transport services
- Local Community (residents)
- Commerce and Hostelry
- Cultural attractions

Participatory process design and implementation

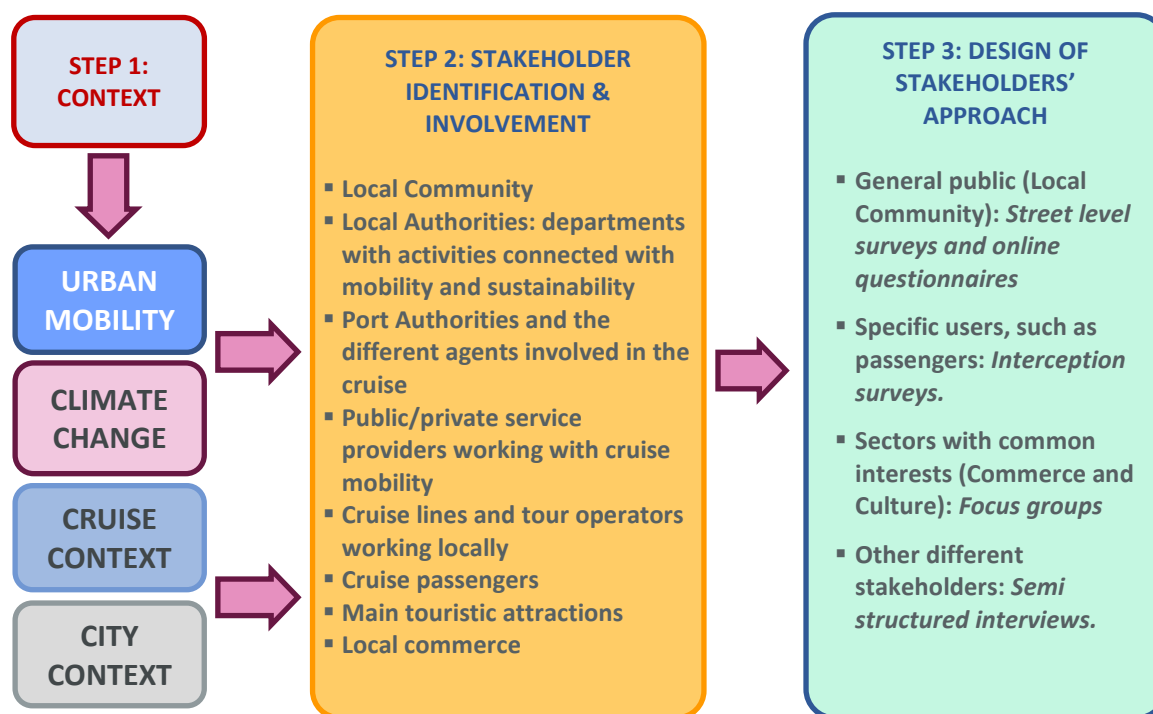


Figure 9 – Diagram of the participatory process in LCTP Malaga

Several participation techniques were implemented to approach different stakeholders and collect relevant information about their perception and expectations.

- **Initiatives involving sectors and agents with common interests:** a **focus group** allows the interaction of entities that could discuss about common challenges, looking for achievable solutions that could benefit all the integrating parts of the dialogue. Different entities belonging to the same sector were invited to share their common concerns and potential solutions for a more sustainable mobility. This technique was devoted to address local commerce and cultural attractions sector.
- **Initiatives involving other different stakeholders:** **semi- structured interviews** allow a more in depth conversation with the agent to reach a deeper understanding of its main concerns. A specific template was elaborated for this purpose, but the interviews went deeper in the particular experiences, needs and expectations of the agents involved in the participatory process.

- **Initiatives involving Cruise Passengers:** **interception surveys** are conducted in person and interviewers approach all participating passengers at the same spot, the terminal, right before the boarding, after they have already visited the City. The questionnaires included topics such as the traffic situation, available transportation options and the importance that these factors may have for tourists, among other questions related to their experience in Malaga.

- **Initiatives involving Local Community:**

- **Street level in-person questionnaires:** three campaigns were designed according to the areas with more cruise tourists visits and addressed different target groups according to the characteristics of the touristic attractions offered in the particular spot (recreational, cultural, shopping activities...). Local commerce workers were included in order to find out the effects on obligated mobility



Figure 10 – Localization of visitors and residents survey areas

(working purposes).

- **Online survey:** launched by the end of July, more than 200 surveys collected brought information from the general public, including the same questions as the face-to-face questionnaires. Promoted by the City Council and Málagaport, as well as relevant neighbourhood associations.

Table 5 – Techniques applied to each stakeholder category

STAKEHOLDER	TECHNIQUE		RESULT
LOCAL COMMUNITY	Street in-person survey		180 surveys answered
	On-line survey		+200 surveys
	Semi-structured interviews		Neighbourhood association
CRUISE PASSENGERS	Interception surveys		20 (and ongoing)
RELEVANT SECTORS	One focus group with local commerce associations, public cultural agencies and OMAU		
SERVICES SECTOR	Semi-structured interviews		Restaurant service sector association
RELEVANT AGENTS	Semi-structured interviews		City council (Dept. Environment, Tourism, Mobility)
			Local Police (Planning and Communication Depts.)
			City Port (Port Authority, Port Police, Cruise Terminal)

		Cruise Liner and touroperators.
		City transport facilities for tourists (Electric Bikes, Panoramic train, Public Shuttle, Renting vehicles association, Cycling association, Red parking, touristic bus)

The **main conclusions** obtained through the participatory process are presented and analysed next, under three chapters: **(1) urban mobility, (2) impact of cruise tourism in the city and tourism circuits and (3) alternative transport options**. Nevertheless, the overall summary of how urban mobility linked to cruise vessels is perceived by Malaga inhabitants responds to the following sentence:

“Urban Mobility in Malaga, regarding cruise activities, is not perceived as a problem to be solved but as an opportunity for the development of the touristic sector in the City.”

URBAN MOBILITY

More than the 80% of interviewees believe that minimizing the environmental impact and, thus, improving the quality of life, can boost an improvement in the image of the City for cruise tourism, potentially resulting in new employment opportunities. The excess of private road traffic in the city center is the main challenge to tackle as identified by 30% of the respondents. In this sense, the use of low carbon vehicles, the wider use of public transport, and the setting of limitations to private traffic within the city center; are seen as the best options to solve the current issue. These measures would allow increasing the provision of pedestrian zones for citizens and cruise passengers.

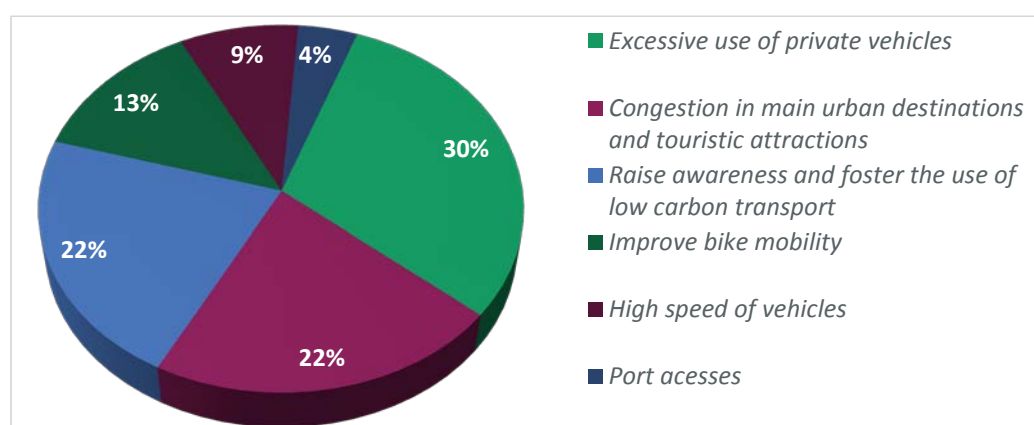
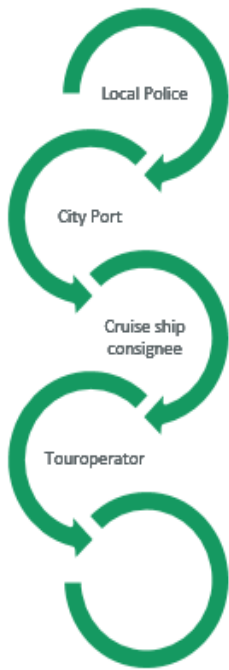


Figure 11 – Main challenges for sustainable urban mobility.

Traffic congestion in areas directly linked to the port could be alleviated by regulating the different transportation means and their authorized operators. The recent opening of the port to the city has brought great opportunities for the city and the citizenship, but a reordering of accesess, timings and coordination related to cruise arrivals could avoid congestion and inconveniences.

As there is a wide variety of actors involved in the transport and traffic of cruise vessels, each entity holding different interests in the matter, the coordination and decision-making process can sometimes be difficult,

preventing the reach of the required consensus for investing in infrastructures. Due to this diversity of involved institutions, interviewees state that it is necessary to look for transportation and mobility experts' support, so as to state potential alternatives.



A solid communication channel exists among City Port, Local Police and the City Council to ensure a smooth implementation of cruise tourism related activities and City events, guarantying the integration of the port and the City interests. Coordinating planning with tour operators and cruise liners allows the resolution of incidents that could difficult the stay and visit to Malaga. City actors still work to keep and reach more agile communication routines.

The interaction of different commercial interests is at the core of the cruise business, occasionally colliding with the smooth operation of the terminals, since private shuttles offered by cruise liners provide a slower less efficient and more expensive service that the public ones.

The lack of environmental awareness among citizens makes it difficult to ensure the long-term sustainability of in-place or foreseen initiatives. For example, the limitation of private vehicles circulating within the City centre could face a strong resistance by citizens. Besides, it is advisable to deploy a more sustainable and radial public bus service allowing the cruise passengers to move through the City to the most emblematic sites from the port quickly, also means of transport for people with reduced mobility.

Figure 12 – Communication flow among actors involved

covering the lack of

Commerce and tourism sector also mentioned the lack of information to the cruise vessel with regard to the touristic, gastronomic and commercial offer available in the City, and that better signalling would contribute to making traffic and circulation in general more efficient and effective.

Regarding non-motorized means of transport, a significant number of interviewed agents stated that they normally use bicycles as means of transport through the city in which they live and would do so in Malaga if only infrastructures and facilities were adequate to do so. The narrow streets, obstacles and fast traffic, together with the lack of connections among the different touristic attractions; are the main barriers discouraging cruise passengers to cycle in the city.

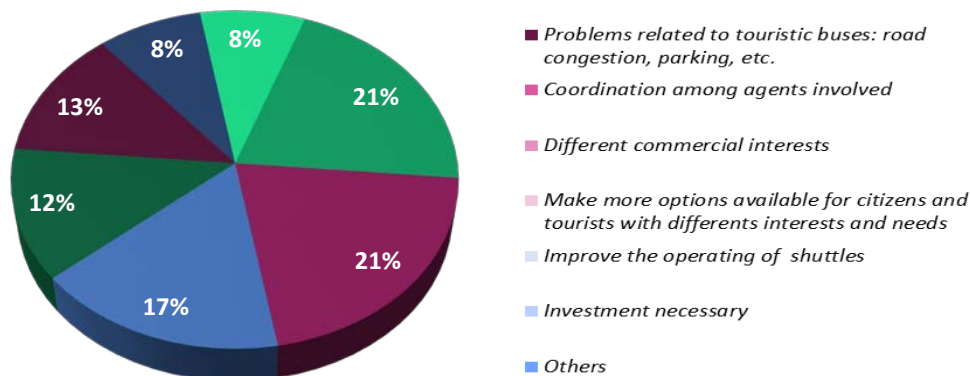


Figure 13 - Main challenges in designing more sustainable transport alternatives that integrate cruise passengers in urban mobility

IMPACT OF CRUISE TOURISM IN THE CITY

Interviewees agree that there are significant differences between intensive standard tourism (spending one or more nights in the city) and cruise tourism (large groups of tourists spending from 4 to 6 hours in the city). Intensive tourists, as seen by interviewees, have more time to plan the visits, are more careful with waste, and spend more money. On the contrary, cruise tourists cause a more invasive perception and they appear to residents as less careful with the City. Passengers do not spend the night in the city and their expenditure is concentrated in trade and restoration, within a limited area and with very limited time. As most of the services are offered inside the boat, they generate a minor economic impact on the City.

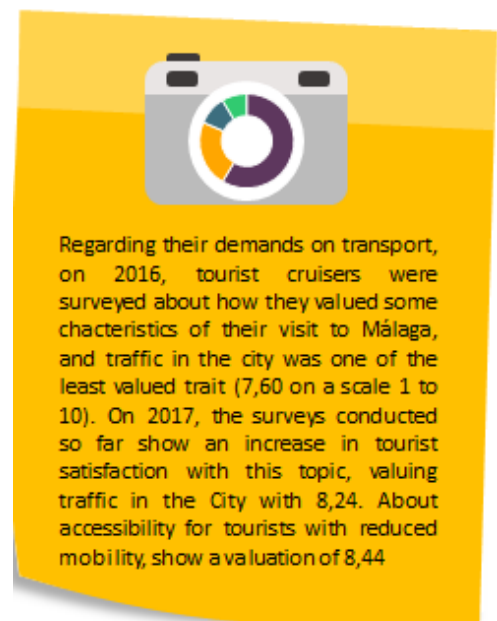
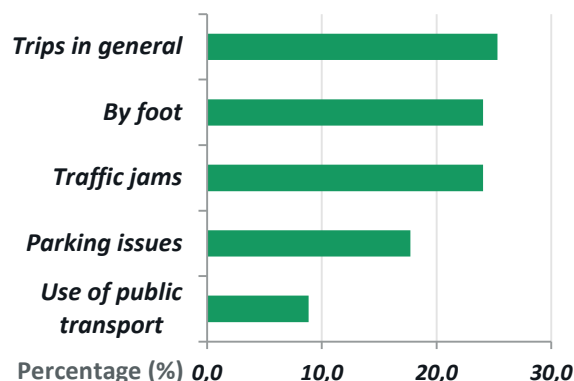


Figure 14 – Advantages and disadvantages perceived by interviewees about the main features of cruiser tourists

Mobility requirements are also different since cruise passengers demand promptness and efficiency in transportation services, due to the short time available to meet their expectations on the destination. This type of tourist is perceived as more culture-oriented and less likely to cause trouble for the City security authorities

Nearly of 90% of the interviewees think that cruise tourism has a positive impact on the City, since foster a more dynamic and vivacious life to the City as well as employment creation. However, the need to keep balance



with citizens' needs is also stressed, addressing both tourist and citizens' interests.

For nearly 80% of interviewees, the effect of cruise vessels on the citizenship is beneficial for the City in general, since it has positioned Malaga as a touristic



attraction by itself, not dependent on the visitors will to visit nearby destinations.

Figure 15 – Residents mobility aspects influenced by the presence of cruise tourists.

The port is in the centre of the city. In this sense, more than 60% of residents in the city centre claim that their daily trips are totally or partially influenced by cruise tourists, particularly, by congestion in pedestrian areas and traffic jams. Thus, the design of alternative interesting points for cruisers throughout the city were suggested. Occasional problems occur when buses leave the city due to the narrow streets around the port.

Restoration, culture, commerce and transport sectors are positively affected. Other specific sectors are also benefited since they satisfy operational and business demands from the vessel crew and staff. As an example, pharmacies benefit because the price of medicines in Spain is comparatively lower to many other countries.

During the **focus group**, that took place with main stakeholders of the cultural and trade sectors, agreement was reached on the following ideas:

- Small groups or individuals visiting on foot are preferred by the tourist and commercial sector, since they are the ones that spend the most money.
- Different means of transport and facilities should be designed according to the different tourist profiles visiting Malaga.
- Potential synergies with tourism related projects should be exploring and promoted (i.e. Alter Eco).
- The electric vehicles appear as a good way to foster different alternatives of transport for tourists.
- Distant touristic attractions receive fewer visits. Enabling direct and sustainable means of transport would be beneficial for the attractions operators and would help to reduce centre congestion.
- The current state of signs and signals indicating routes and destinations in Malaga is too complex and unfriendly, especially for tourists. Signals improvement, with especial attention to walking routes, informing about timing, attractions and alternatives, as well as making the walking routes streets more suitable and attractive to pedestrians, were proposed.
- The flow of cruise tourists visiting the city centre tends to cause congestion. Different potential solutions suggested by local commerce and cultural centre are:
 - Provide information to tourists about the tourist attraction points, routes, available means of transportation, prior arrival.
 - Develop downloadable apps for tourists to know about Malaga offers and info on how to get around. The app should be advertised and available before arrival.
 - Diversification of walking routes from the port so that not only the main streets receive most of the flow of tourists. Alternative routes and circuits, showing the



Cruise tourists interviewed in 2017, expressed that more than 76% did not look for any information about the City before arriving, and the rest, looked for information about it on the boat. Confirming the perception of the interviewees about information not being timely received. When asked about their spendings in their trip to the City, most of cruise tourists surveyed on 2017, declared that they spent more than 50 € in their visit to Málaga (more than 40% spent between 50 and 100 €, and more than 35% spent between 100 and 200 €).

different attractions, could be disseminated by the Council in the tourist information leaflets and Web.

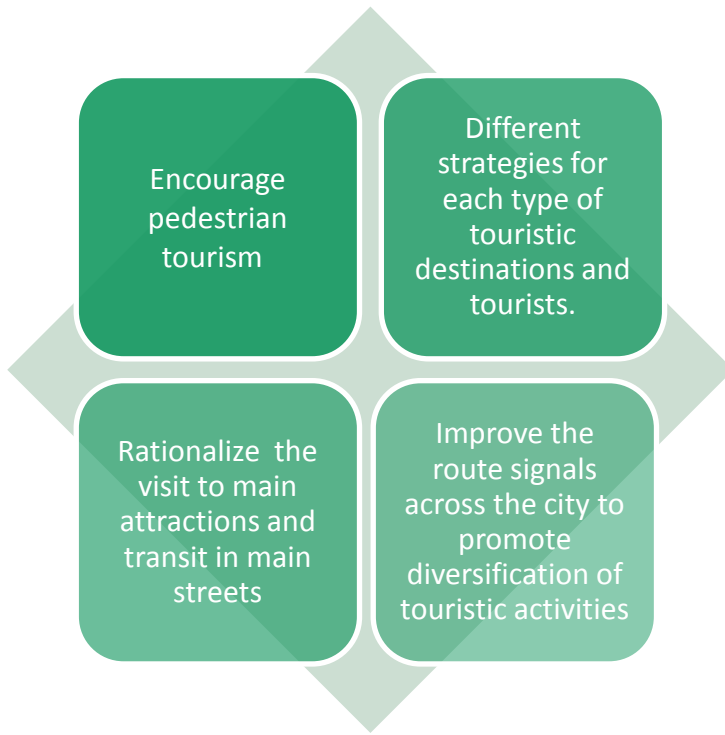


Figure 16 - Main demands of the cultural, hostelry and commerce sector.

Affected neighbourhoods and touristic areas:

From a local point of view, in-person questionnaires collected on the most visited neighbourhoods of the City reveal a general positive perception of cruise tourism for the City of Malaga, being the conservation of the City the main concern.

In specific case, different affected neighbourhoods' express higher dissatisfaction than others, possibly due to the cruise tourism impact they receive in terms of traffic congestion (negative) or support to local commerce and retailers (positive).

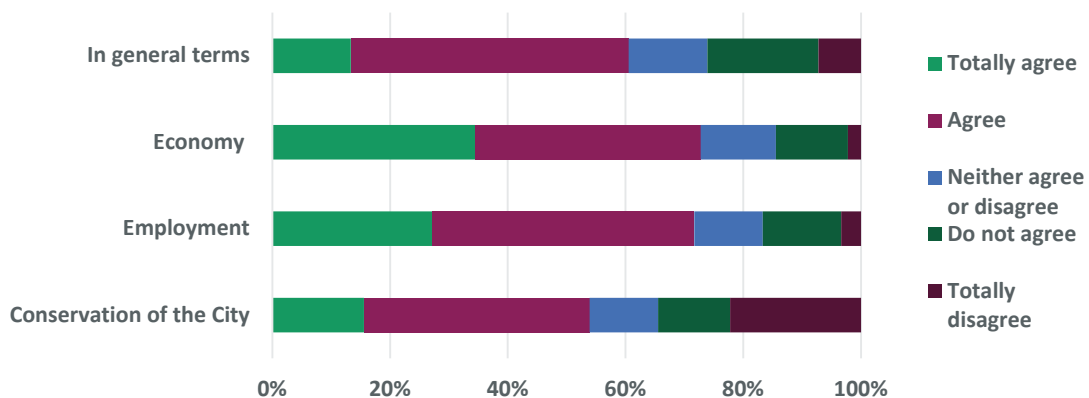


Figure 17 - Citizens' perception on different topics influenced by cruise tourism

Environmental sustainability and noise pollution: the impact caused by cruise tourism is not that relevant since the number of cruises arriving so far is acceptable, however, some interviewees mention that cruise tourists tend to be less careful and clean with the environment than standard tourists. Over 75% of interviewees indicate that some activities related to the cruise tourism cause impacts on the environment, as the mooring and cleaning of boats, the transport of cruisers, the use of collective transportations that work on fossil fuels (mainly buses), etc. Noise pollution linked to cruise tourists appears not to be a relevant

problem for more than 80% of interviewees, however, they point out that the more people in the City the more noise is generated overall, potentially causing discomfort in crowded touristic attractions.

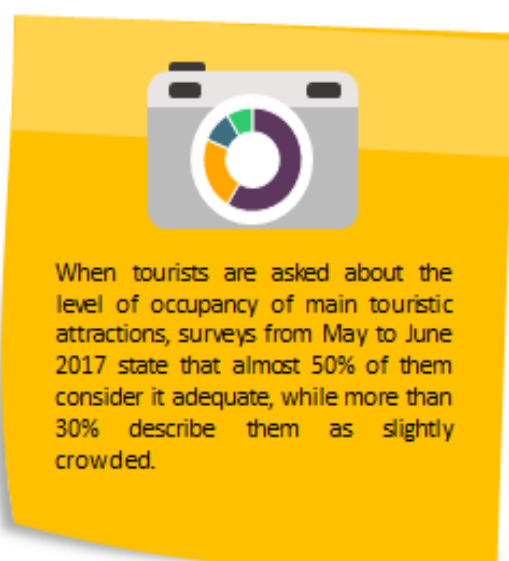
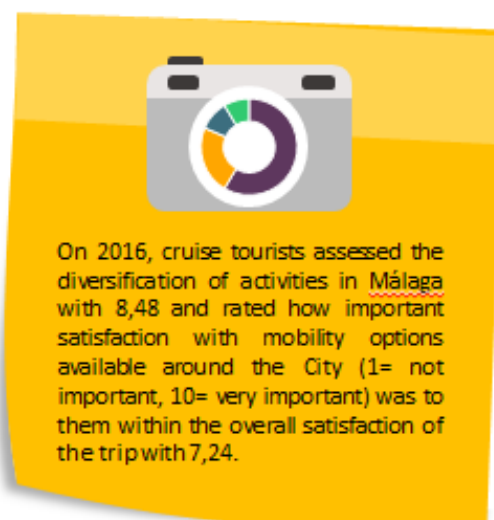
TOURISTIC ATTRACTIONS AND TRANSPORT ALTERNATIVES

The City is currently adapted for receiving cruise tourists. However, the majority of the visitors move to the centre as it offers the best options to visit a series of cultural attractions in a short time and on foot. The inevitable crowd congestion is being handled adequately and has not become a worrying issue so far. The great majority of interviewees agree that it is necessary to come up with a solution to avoid uncomfortable future situations as those harming other touristic destinations (Barcelona).

In fact, nearly 75% of interviewees think that Malaga provides tourists with a wide variety of activities and attractions to enjoy in the City but and throughout the region. Nevertheless, there are still entertainment and landscape options that are not currently being offered to tourists. Cultural offer is keeping tourists in the City when, just a few years ago, most tourists would leave the city and go to Granada.

The offer to tourists is channelled through tour operators, and sometimes, they do not provide updated information to the cruise line regarding routes, local events or places that could result in an increased interest for the City as destination. For instance, Malaga Easter festivities are not promoted since it would need a strong effort to coordinate celebrations in the City with a prompt transportation service for tourists.

Therefore, diversification is highly driven for the tour operators' commercial interests: providing the cruise line with satisfying experiences for the tourists (including easy transport services without any incidents). Anyway, it would be interesting to diversify the areas of attraction so that the impact of the tourist spread to other peripheral areas.



Malaga citizens' in-person questionnaires included questions related to the level of occupancy of both, services and touristic spots. Around 60% of surveyed residents considered that the occupation of services was adequate. When asked to precise the term "adequate", more than 47% described it as "medium" and more than 45% as "high" (being a higher share, more than 50% in some areas).

It is worth mentioning that a higher satisfaction with the occupation of the street was shown in Larios area. More than 70% stated that the level of occupancy is adequate. Aside from the main services (hostelry and transport), Larios area mention parking issues in its proximities, while

Malagueta and la Merced Square highlight the congestion of hospitals and health services in their areas.

Concerning touristic spots, the perceived level of congestion increases. More than 55% of surveyed citizens claim that they are saturated, and more than 23% believe that they are, at least, partially saturated. Over 40% describe the level of occupation as “high” and more than 50% as “very high”. Main touristic spots become saturated frequently (nearly 40%) or very frequently (more than 50%).

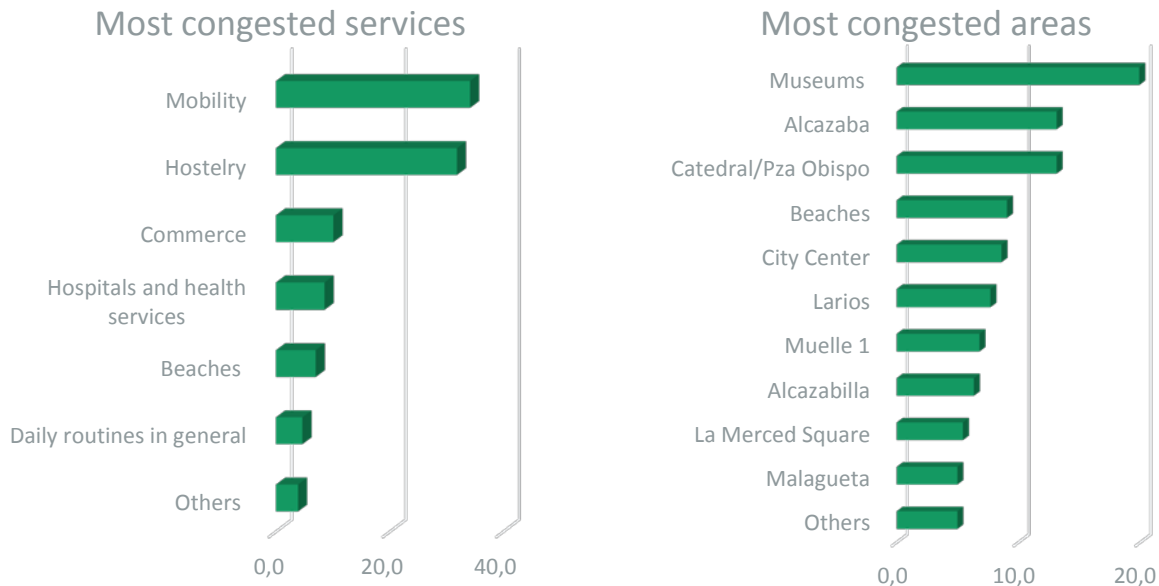


Figure 18- Most congested services and touristic areas according to citizens' surveys

Specifically asked for congestion in mobility (pedestrian or by other transportations), the three consulted areas show different results, with Malagueta and Plaza de la Merced, expressing a lower level of satisfaction.

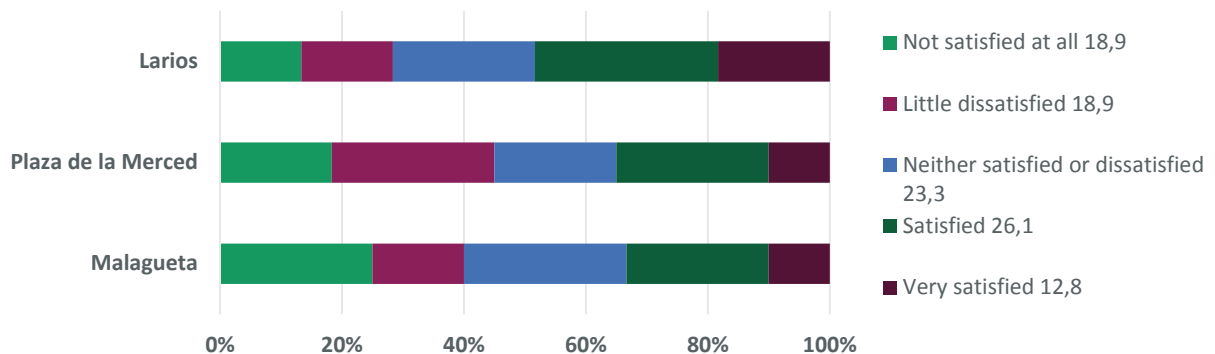


Figure 19 - Congestion in the streets in each of the three surveyed areas

Suggestions for a Low Carbon Transport Plan

Citizens' suggestions to sustainably integrate and absorb cruise tourists' flows are mainly related to awareness, the use of alternatives to fossil fuels and making more available information to tourists through information desks. Promoting the use of low carbon transport means through normative instruments, so as to strengthen the initiative was also suggested. Similarly, tour operators and commerce associations are seen as key actors to promote sustainable mobility through promotional campaigns. Main suggestions are:

- Greater involvement and coordination of all actors involved (public and private).
- Raise citizen awareness of the environment and cleanliness of the City.
- Create "green experiences" according to tourist profiles that could be more interested in such.
- Cruise/city rewarding those tourists that choose to visit the City in a more sustainable way
- Achieve balance between the need to transport large groups (usually by bus) and pedestrian areas.
- Establish a regular information channel among the City Council and tour operators that provide bus drivers with the most efficient routes according to traffic and their destination.
- Avoid/manage the blocking of the maritime axis in events (marathons, parades...).
- Determine the maximum capacity of hosting cruise tourism and find the most effective way to handle the people and goods transported.
- Fully exploit the Port as a transportation area for tourists.
- Placing an anti-vandalism three dimensional map in the terminal showing distances to the most touristic spots of the City in meters and minutes would encourage tourists to enjoy Malaga on foot.
- Allowing bike renting and touristic bus to be placed at the terminal to provide a wider offer of transportation since the very beginning of the visit.
- Identifying different profiles of tourist with different needs and expectations and provide the most suitable offer of entertainment for them, creating particular attractions for each type of tourist.
- Promoting electric transport: private vehicles, buses, etc.
- Dispersing the discretionary bus stops (for all kind of tourists) across the City in order to optimize its use. Considering new technologies to keep drivers constantly updated with the situation of each bus stop.
- Improve bike lanes connections and safety of bike users is also expressed in the survey.
- Introducing electric and hybrid vehicles to the public system, and offering tourists the possibility of taking those vehicles or bike from the very same terminal, is another reported key point.

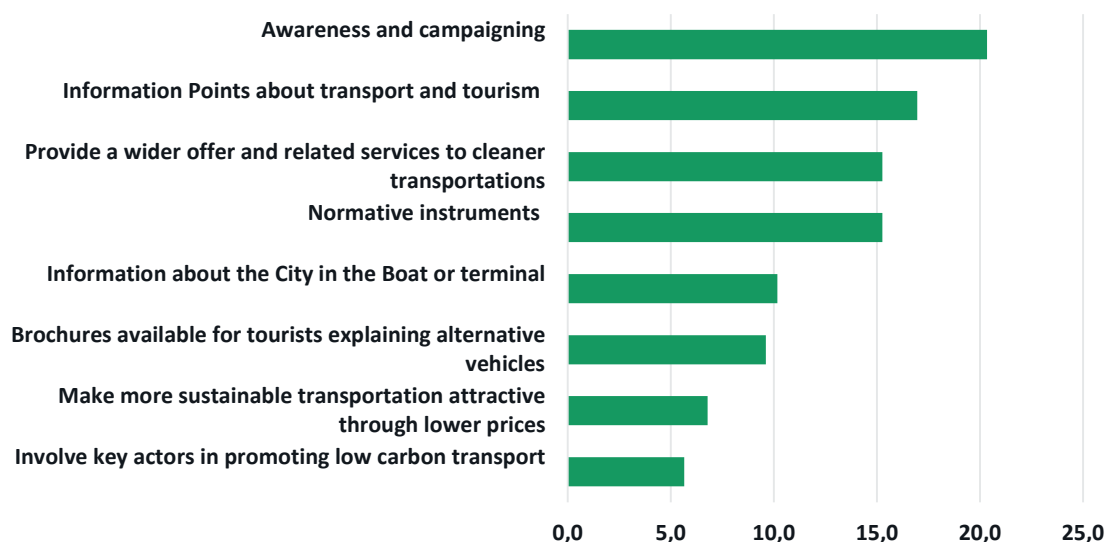


Figure 20 – Classification and distribution of citizens' LCTP suggestions

Finally, other suggestions revolved around studying the optimal size of tourists groups to be transported in a more effective way, and provide them with the transportation arrangements in the boat so they do not need to look for different options, as well as raising awareness of both, citizens and tourists.

Nearly 80% of residents believe that is necessary to design plans that integrate in a more sustainable way the cruise tourism in the City (nearly 60% state that it could improve the satisfaction with their experience in Malaga). Furthermore, interviewees believe that all the agents should be involved, the Public Administrations (City Council, Malaga Port, Junta de Andalucía, Andalusian Tourism, Ministries, ...), as well as other civil actors affected, so as to properly coordinate the design and implementation of tourism initiatives and access to the port by all means of transport.

REVISION OF THE PLAN (SECOND PHASE OF THE PARTICIPATORY PROCESS)

This second stage, took place after the elaboration of the LCTP, a year after the launching of the first phase of the participatory process. The goal was to present the initial outline of measures to be proposed in the LCTP, to a wider sample of stakeholder representatives. The contribution of the **30 experts** that attended these sessions, allowed the refining of measures with a higher rate of validation from all agents involved.

On this occasion, relevant stakeholder representatives were invited to participate in sessions devoted to the discussion of measures proposed. Each of the three sessions was focused on retrieving information of a specific stakeholder category:

- 1) Session 1: Cruise, Tourism, Commerce and Hostelry Sector
- 2) Session 2: City Council and Observatory of Urban Environment
- 3) Session 3: Citizenship

It is worth highlighting the general consensus about the opportuneness of the project vision towards sustainable growth and low carbon strategies. Measures, were highly acknowledge as positive for the City, and the main identified barrier is finding out balance among different stakeholders' interests at stage. Cruise lines and citizenship, being two opposite poles of this stakeholder network, are both crucial agents, that will define and determine the success of initiatives. In addition, these activities have provided agents

with a forum to approach a common challenge and raise key questions for the sustainable development of their sector.

Regarding sessions targeting cruise sector and the City Council, they showed similar opinion and suggestions regarding the initiatives:

The most embraced measures in every session were those related to the *promotion of alternative touristic interesting points* and *walking time and distance information* through the City (Initiative 1.1.1 and 1.1.2), with the support of accessible, visual and attractive information in terms of distance and time. It is worth mentioning that interesting points should be informed rather than pre-established routes, fostering orientation guidelines rather than leading cruise tourists through the City. *Cruise integrated touristic cards* and *tailored tool development to cruise passengers' mobility*, also are considered the suitable channel to inform about transport options in the City (Initiatives 2.1.1 and 2.1.2), allowing cruise tourists to configure their own itineraries.

Port2City cycling connection (initiative 3.1.1) also reached agreement on the benefits of promoting include pedal assisted electric bicycles and personal transporters in the City offer and inside the Port. Although, walking is still considered a better option given the size of the City.

Future potential lines of work that came up during the sessions were related to make more accessible cultural agenda of the City, inform citizens about when cruises will be arriving to Málaga (so they can plan in advance their activities) and come up with the most effective way to deliver information to cruise tourists about the City. This last issue, would target cruise tourists that do not hire in advance with the cruise lines their plans, so that they can fully enjoy the experience of knowing the City with promptness of services. These measures would fit the proposed Strategic Axis 1 *Cruise tourism contributes to ease movements & cohabitation in Málaga*.

Among the main concerns of citizens, they point out that the expansion of infrastructure is fundamental for the management of mobility, and they consider that any measure to be applied must also comply with security criteria for residents and cruise passengers. Also, they express the need to work in some areas of the city, specifically in the area of La Malagueta. There are also some present situations, such as congestion (mainly bus) in Ciudad de Melilla / Club Mediterráneo corner and in the circulation of bicycles and other vehicles used by cruise passengers without the proper precaution (in relation with initiative 3.1.1.).

Shuttle services, were specially discussed among participants in all sessions, as it is one of the main concerns of general public and the authorities. In general, comments were related to bus transportation from the Port to destinations. However, the initiative *shuttle services to reach distant attraction* (initiative 2.2.1) was accepted among the participants.

Step 3: Design of the plan

Definition of the current scenario

The previous steps have rendered a detailed image of the current scenario and the series of weaknesses and threats faced by the city concerning sustainable mobility and cruise flows. Through the technical analysis of national and local context, and the participatory process led in the city, a solid picture of the present situation and the future likely trends has been exposed. The summary of relevant factors and issues for sustainable mobility in Malaga linked to cruise flows is listed next:

- **Vehicular traffic:** Not only caused by cruise flows, the traffic of vehicles in the city is especially significant in the areas around the port, where buses, taxis and private cars struggle with large groups of pedestrian, sudden flows of tourists descending cruise vessels, and limited roads alternatives due to the presence of the sea and the pedestrian areas.
- **Congestion of pedestrian in the centre:** Another sort of congestion, due to large groups of people (mostly tourists) visiting the same pedestrian area, has been referred. The impact of cruise tourist is especially strong to this sort of congestion since groups are rather large and concentrated mostly on the same areas. A second dimension of this problem applies to touristic attractions, which divide themselves between those totally collapsed with the number of visitors and massive queues, and those under-visited due to the longer distance from the port.
- **Infrastructure and information:** safe bicycle infrastructure, together with the insufficient and confusing set of signs and road signals informing tourists, impede in practice a shift from walking to cycling, thus contributing to the previous trends of traffic and congestion.

From a sustainability standpoint, the current scenario linking mobility to cruise flows reflects the following trends:

1. From the social perspective, a potential conflict between inhabitants and tourists is observable, due to the inconveniences caused by not managing adequately the large number of tourists disembarking at a time, as well as the massive use of services and facilities.
2. From the economic perspective, a growing share of Malaga population thinks that cruise tourists do not spend significant amounts of money in the city as most of the services are offered inside the boat. Their expenditure is concentrated in trade and restoration, within a limited area and with very limited time.
3. From the environmental perspective, both, air and acoustic pollution is growing through the years. Although not only attributable to cruise flows, it is clear that cruise flows contribute direct and indirectly, by causing direct carbon emissions and noise through vessels, as well as more carbon emissions and noise through related traffic and tourists flows.

In case no measures are designed to address these issues, the trend to expect will continue as it does, ultimately causing potential stress among Malaga inhabitants, loss of quality for services and touristic attractions, worsening of air quality and, in summary, a decay in Malaga perceived interest as touristic destination for cruises.

Definition of vision and objectives

The LCTP vision is fostering the use of low carbon transport systems and multi modal connections for cruise-related passengers, goods and services flows in the frame of wider sustainable traffic and mobility policies (SUMP and SEAPs/SECAPs). In this respect, it totally applies to the issues and relevant problems detected in the current scenario.

Prior to define the objectives, it is important to highlight three main strategic axes (below) in which they are grouped. Thus, each strategic axis will have their own specific objectives and actions, although they are all related among themselves.

1. Strategic Axis 1: Cruise tourism contributes to ease movements and cohabitation in Malaga.
 - Increase the number of cruise passengers walking to attractions.
 - Decrease traffic congestion around the port.
2. Strategic Axis 2: Cruise tourism increases its contribution to local economy in a stable long term way.
 - Increase the use local facilities and low carbon mobility services by cruise passengers.
 - Increase cruise passengers reaching touristic and leisure options distant from the port.
3. Strategic Axis 3: Cruise tourism contributes to decrease carbon emissions and acoustic pollution in Malaga.
 - Increase the number of cruise passengers cycling to attractions.
 - Increase the use of low carbon motorized means from and into the port.

As previously stated, Malaga City Council has already been designing and developing long term Plans to address sustainability as a whole (Agenda 21) and specifically linked to urban mobility (SUMP2015). Since these two plans are already in place and entail a much larger scope and objectives, the strategy defined in this document targeting cruise flows will be designed so as to fit in the existing lines of action, looking for synergies and easier ways to be assumed and adopted by citizens.

Definition of actions and indicators

The three strategic axis presented are broke down into specific objectives, which in turn are composed of different initiatives. Each initiative targets a concrete and measurable goal, to be assessed through the indicator/s proposed accordingly. The different initiatives are described in details in the Annex I of the present document

Table 6 – Malaga LCTP strategic axis 1, specific objectives, initiatives and indicators.

STRATEGIC AXIS 1: CRUISE TOURISM CONTRIBUTES TO EASE MOVEMENTS & COHABITATION IN MÁLAGA.	
Objective 1.1 Increase the number of cruise passengers walking to attractions.	
Initiative 1.1.1 Promote alternative touristic interesting points.	
<p>At cruise arrival, distribution of specific information points for cruise passengers, possibly adapted from existing ones, highlighting tailored alternatives points of interests in the city (such as artistic event or thematic buildings), to be reachable from the port. These points are aimed to connect walking track preferences from cruise tourists' groups or individuals...</p> <p>[in line with initiatives 1.1.2, 1.1.3, 2.1.1 and 2.1.2.]</p>	
Initiative 1.1.2 Walking time & distance information.	
<p>Setting up an urban network of signals around the port and touristic areas, indicating, in an easy and multilingual way, the distance (in meters) and walking time (in minutes) to reach nearby attractions...</p> <p>[in line with initiatives 1.1.1 and 1.1.3, 2.1.1 and 2.1.2.]</p>	
Initiative 1.1.3 Foster walking tourism for cruise passengers.	
<p>In order to foster cruise passengers to plan their visit before arriving to destination, as well as to encourage cruise passengers to reach attractions on foot, this measure aims to provide useful permanent information via apps, QR codes, maps, advertisements or web resources...</p> <p>[in line with initiatives 1.1.1, 2.1.1 and 2.1.2.]</p>	
Indicator:	Cruise passengers walking to attractions.
Data source:	Cruise passenger surveys and tourist attractions' records.
Objective 1.2 Decrease traffic congestion around the port.	
Initiative 1.2.1 Optimization of excursion buses routes from Terminals.	
<p>In coordination with Malaga's mobility authority and tour operators, reduce the congestion by optimizing the routes of excursion buses, especially in some specific areas, for example Malagueta (where street lanes are often reduced to one)...</p> <p>[in line with initiatives 1.2.2 and 2.2.1.]</p>	
Initiative 1.2.2 Specific traffic protocol prior to cruise arrivals.	
<p>To develop a comprehensive traffic protocol considering, both, citizens and visitors' profiles and necessities. It entails the design and performance of a specific traffic protocol that eases transit, particularly, within the port area and touristic attractions...</p> <p>[in line with initiatives 1.2.1, 3.2.2 and 3.2.3.]</p>	
Indicator:	Traffic congestion in main streets around the port - Average Daily Traffic (ADT)
Data Source:	Local police, plus survey to terminal operators and citizens living in the neighbourhood.

Table 7 – Malaga LCTP strategic axis 2, specific objectives, initiatives and indicators.

STRATEGIC AXIS 2: CRUISE TOURISM CONTRIBUTES TO LOCAL ECONOMY IN A STABLE, LONG TERM AND RISING WAY.	
Objective 2.1 Increase the use local facilities and low carbon mobility services by cruise passengers.	
Initiative 2.1.1 Cruise Mobility integrated into the Touristic Card	
A customized package within existing touristic smart cards (such as <i>Málagapass</i>) specifically designed for cruise passengers that facilitates access to all public transport means, while promoting local businesses and touristic attractions... [In line with initiatives 1.1.1, 1.1.3, 2.1.2, 2.2.1, 2.2.3, 3.1.2 and 3.2.1.]	
Initiative 2.1.2 Tool development tailored to cruise passengers' mobility	
Integrating an existing app (such as <i>MálagaPass</i>) or design a new tool that includes basic information regarding navigation with public transport. This includes GPS navigation, bus network (with intervals and stops), as well as frequent and alternative interest points... [in line with initiatives 1.1.1, 1.1.3, 2.1.1, 2.2.1, 2.2.3, 3.2.1 and 3.2.3.]	
Indicator: Cruise passengers use local facilities and services	
Data source: Records provided by tourist attractions, public services operators and passengers' survey.	
Objective 2.2 Increase cruise passengers reaching touristic and leisure options distant from the port.	
Initiative 2.2.1 Shuttle services to reach distant attractions.	
A shuttle service is offered to cruise passengers interested to visit distant tourist attractions in Malaga and its surroundings. The tourism authority, by its own or in coordination with tour operators, promotes existing public services. The service might be contracted through an existing app or similar means... [in line with initiatives 1.2.1, 2.1.2 and 2.2.3.]	
Initiative 2.2.2 Promoting distant touristic offers for cruise tourists.	
In order to encourage cruisers to visit touristic and leisure options distant from the port it is important to set more abundant and precise information... [in line with initiatives 1.1.1, 1.1.2, 2.1.2 and 3.1.3.]	
Initiative 2.2.3 Development of integrated packages for distant touristic attractions.	
Promoting integral visit offers to options distant from port, which include comprehensive experiences, tourist attractions, meals and shopping, to increase visits outside the city centre. [in line with initiatives 2.1.1, 2.1.2 and 2.2.1.]	
Indicator: Cruise passengers visit to distant touristic and leisure options	
Data Source: Records provided by tourist attractions, public services operators and passengers' survey.	

Table 8 – Malaga LCTP strategic axis 3, specific objectives, initiatives and indicators.

STRATEGIC AXIS 3: CRUISE TOURISM CONTRIBUTES TO DECREASING CARBON EMISSIONS AND ACOUSTIC POLLUTION IN MÁLAGA.	
Objective 3.1 Increase the number of cruise passengers cycling to attractions.	
Initiative 3.1.1 Port2City Cycling Connection.	
Complement the existing bicycle infrastructure (lanes & parking) with safe connections to the port terminals and tourist areas... [in line with initiatives 3.1.2 and 3.2.2.]	
Initiative 3.1.2 Extend the bike sharing system to cruise tourists	
In order to increase cruise passengers using bikes when visiting the city, existing services for bicycle rental (both public and private) have to be reinforced... [in line with initiatives 1.2.2, 2.2.2 and 3.1.1.]	
Initiative 3.1.3 Improve signalling/priority/safety & awareness from citizens	
In order to increase the use of bicycles by cruisers visiting the city, it is important to reinforce safety perception... [in line with initiatives 2.2.2, 3.1.1 and 3.1.2.]	
Indicator: Increase the number of cruise passengers cycling to attractions.	
Data source: Sharing system and rental bikes records, passenger and local police survey.	
Objective 3.2 Increase the use of low carbon motorized means from and into the port.	
Initiative 3.2.1 Promoting the use of electric personal transporters	
Promote rental and other sharing schemes of electric personal transporters (electric bicycles, kick scooters, self-balancing scooters, etc.), working in association with private companies offering this service...	
Initiative 3.2.2 Promote the use of electric vehicles throughout the port	
Design a mid-term plan to replace the port fleet with electric vehicles gradually, for both people and goods transportation and other services offered by the port...	
Initiative 3.2.3 Foster the use of electric vehicles around city centre	
A master program for the consolidation of electric mobility in Malaga, ratifying the pioneer actions adopted in the last decade. This will include the setup of incentives to foster the use of electric vehicles among residents, visitors and companies, for all types of electric vehicles (cars, scooters, bicycles, kick scooters and other innovative personal transporters)...	
Indicator: Increase the use of low carbon motorized means from and into the port	
Data source: Records from rental services and cruise passengers' survey. Information regarding port operation should be provided by MalagaPort and Port authority.	

The three axes are independent although interconnected so as to facilitate their separate implementation in case funds, timing or other circumstances, make it necessary to prioritize some initiatives before others. Similarly, every strategic axis is formed by 2 objectives or modules, which may be implemented separately or even partially, therefore adopting some initiatives and not others.

Apart from the specific indicators mentioned above, there is a set of general indicators, affecting to the whole municipality, to be taken into consideration when monitoring the effects of the proposed interventions. As a summary, the 14 indicators proposed are as follows:

- LCTP-1.1. Cruise passengers walking to attractions (Strategic Axis 1)
- LCTP-1.2. Traffic congestion around the port (Strategic Axis 1)
- LCTP-2.1. Cruise passengers use local facilities and services (Strategic Axis 2)
- LCTP-2.2. Cruise passengers visit to distant touristic and leisure options (Strategic Axis 2)
- LCTP-3.1. Increase the number of cruise passengers cycling to attractions (Strategic Axis 3)
- LCTP-3.2. Increase the use of low carbon motorized means from and into the port (Strategic Axis 3)
- LCTP-0.1. Preferred means of transport (General Indicator)
- LCTP-0.2. Pedestrian mobility attraction by the port (General Indicator)
- LCTP-0.3. Cycling mobility attraction by the port (General Indicator)
- LCTP-0.4. Public transport mobility & similar attraction by the port (General Indicator)
- LCTP-0.5. Private transport mobility attraction by the port (General Indicator)
- LCTP-0.6. CO2 emissions (General Indicator)
- LCTP-0.7. Air quality index (General Indicator)
- LCTP-0.8. Acoustic pollution (General Indicator)

Development of future scenarios

Depending on the degree of success in the implementation of the chosen actions and considering a range of variables in the wider local context, a set of scenarios is elaborated. As a minimum output, a 'do-nothing scenario' is elaborated. For a partial successful implementation of the LCTP, a 'satisfactory' scenario is presented. Finally, for a mostly successful implementation, a 'best possible scenario' is shown. In all three cases, the scenarios describe the changes brought by the project, measured through the set of indicators previously selected.

- **Do-nothing scenario:** No changes are brought in by the project and, therefore, the current trends in economic, social and environmental terms continue to be the same.
- **Adequate scenario:** Minor positive changes are brought in by the project, responding to more sustainable behaviours, but still not very significant due to the low impact that undertaken measures have in the whole. The limited effect of actions targeting mostly port activities is also constrained by the partial achievement of goals.
- **Best possible scenario:** Significant changes brought in by the project, boost a behavioural change along the city, multiplying its effects and creating a positive trend with utter implications along the city.

Besides the Locations LCTP, the city of Malaga is currently developing a wide range of actions derived from the 2015 SUMP and Agenda 21 recommendations. The impacts of some of those actions are tightly linked to the effects of the LCTP measures and, therefore, it may sometimes be hard to assess which was the responsible for the improvements achieved: the previous measures, the ones brought by the LCTP or, most likely, the combination of both.

Therefore, in order to better harmonize the LCTP with the existing SUMP plan, the horizon set to spot the foreseen results of the interventions is the current SUMP + 10 years. This is to say, the year 2025.

Table 9 – Malaga current trend and possible mobility scenarios (Horizon 2025)

Indicator	Current trend	Do-nothing scenario	Adequate scenario	Best possible scenario
LCTP-1.1. Cruise passengers walking to attractions (Strategic Axis 1)	Mainly positive, some negative perceptions are becoming relevant both, among tourist and residents, especially around neighbourhoods close to the port and city centre.	Cruise passengers congestion in the city centre area becomes a relevant issue, affecting tourism.	Cruise passengers congestion in the city centre area decreases by 10% or more	Cruise passengers congestion in the city centre area decreases by 20% or more
LCTP-1.2. Traffic congestion around the port (Strategic Axis 1)	Traffic congestion around the port affects vehicles, pedestrians and bicycles. The positive opening of the port causes inconveniences around the port exits and main ways to access it.	Jams and traffic congestion around the port becomes a relevant issue for citizens.	10% decrease in jams and traffic congestion around the port area and streets.	15% decrease in jams and traffic congestion around the port area and streets.
LCTP-2.1. Cruise passengers use local facilities and services (Strategic Axis 2)	At present, there is a growing perception that cruise tourists spend little money in the city, since they do not use sufficiently the existing facilities and services.	No significant improvement in the volume of expenditure from cruise tourists in the city.	5% increase in public services use and in tourist attractions visited by cruise passengers.	20% increase in public services use in tourist attractions visited by cruise passengers.
LCTP-2.2. Cruise passengers visit to distant touristic and leisure options (Strategic Axis 2)	Cruise tourists contribution to local economy is hindered by their scope of reach, therefore limiting the number of attractions and services they visit, compared to the wide existing city offer.	No increase in visits to touristic attractions distant from the port area and city centre.	10% increase in visits to touristic attractions distant from the port area and city centre.	30% increase in visits to touristic attractions distant from the port area and city centre.
LCTP-3.1. Increase the number of cruise passengers cycling to attractions (Strategic Axis 3)	Despite the positive trend from last years, stagnation in the shift from motorized to non-motorized is noticeable, due to the economic recovery.	No significant improvement in the distribution of motorized and non-motorized means	10% increase in cruise passengers using bikes instead motorized vehicles.	20% increase in cruise passengers using bikes instead motorized vehicles.
LCTP-3.2. Increase the use of low carbon motorized means from and into the port (Strategic Axis 3)	A positive trend is present in Malaga in this respect, although still very limited. Vehicles within the port and outside the port are still mostly dependent on fossil fuel.	The use of electric vehicles by cruise tourists, port staff and Malaga citizens increases very little over the years, remaining insignificant.	5% of cruise passengers visiting Malaga use electric vehicles, 30% of vehicles within the are electric or hybrid	10% of cruise passengers visiting Malaga use electric vehicles, 75% of vehicles within the port are electric or hybrid
LCTP-0.1. Preferred means of transport (General Indicator)	From 2008 to 2014, the motorized means of transport have decreased by 3.6% in favour of non-motorized means. However, most of this decrease is likely to respond to the economic crisis endured through that period, and not to a behavioural change towards sustainability.	Stable 50% motorized, & 50% non-motorized, distribution around the city.	Shift from 1% to 2% in favour of non-motorized distribution around the city.	Shift from 3% to 5% in favour of non-motorized distribution around the city.

Indicator	Current trend	Do-nothing scenario	Adequate scenario	Best possible scenario
LCTP-0.2. Pedestrian mobility attraction by the port (General Indicator)	Although the port is very close to the city center and pedestrian areas, the generation and attraction of pedestrian mobility in 2014 was of 3.4% & 2.8% of total mobility of this type.	Pedestrian mobility attraction of port around 3% of total.	Pedestrian mobility attraction of port around 5% of total.	Pedestrian mobility attraction of port around 8% of total.
LCTP-0.3. Cycling mobility attraction by the port (General Indicator)	The port generation and attraction of cycling mobility in 2014 was stable and around 3.6% & 0.5% of total mobility of this type.	Cycling mobility attraction of port around 1% of total	Cycling mobility attraction of port around 3% of total	Cycling mobility attraction of port around 6% of total
LCTP-0.4. Public transport mobility & similar attraction by the port (General Indicator)	The port generation and attraction of public transport mobility in 2014 (bus, taxis, etc.) was stable and around 11.7% & 15.2% of total mobility of this type.	Public transport mobility attraction of port around 13% of total.	Public transport mobility attraction of port around 16% of total.	Public transport mobility attraction of port around 20% of total.
LCTP-0.5. Private transport mobility attraction by the port (General Indicator)	The port generation and attraction of private transport mobility in 2014 (cars and motorbikes) was stable and around 13.3% & 9.2% of total mobility of this type.	Private transport mobility attraction of port around 12% of total.	Private transport mobility attraction of port around 10% of total.	Private transport mobility attraction of port around 8% of total.
LCTP-0.6. CO2 emissions (General Indicator)	From 2008 to 2014, a significant decrease of CO2 emissions and fossil fuel consumption has taken place in Malaga, mostly due to the crisis, and the shift from fossil fuels to electricity in residential sector. Carbon emissions from transport sector have also decreased during 2008 and 2013.	Minor to no reductions in Carbon Emissions from transport sector.	Carbon emissions decrease due to transport decrease by 5%.	Carbon emissions decrease due to transport decrease by 10%.
LCTP-0.7. Air quality index (General Indicator)	Over the last 8 years, soft improvements could be noticed, although fluctuant and partial.	Minor or none improvement in air quality index.	Adequate improvement in air quality index	Relevant improvement in air quality index
LCTP-0.8. Acoustic pollution (General Indicator)	Over the last 8 years, soft improvements could be noticed.	Minor or none improvement in acoustic pollution.	Adequate improvement in acoustic pollution.	Relevant improvement in acoustic pollution.

Step 4: Monitoring and funding

Monitoring LCTP implementation

Frequently, a correct and timely monitoring of the proper implementation of any Spatial Plan is key factor to grant its success, avoiding deviations and unwanted obstacles. **Together with the set of 14 indicators proposed in the previous chapter**, the 2015 SUMP and the Agenda 21 include a whole set of indicators, which fit to the LCTP initiatives explained in details in the next chapters. Thus, SUMP and A-21 indicators should be taken into consideration, so as to take advantage of an already existing scheme for proper monitoring.

The A-21 indicators referred as NR are included in the Agenda Chapter Natural Resources Management, while the TCC refer to the chapter Territory and City Configuration. As for the 2015 SUMP indicators, they are all referred as 'I.x', and although belonging to different strategic lines, they follow a single sequence from I.1 to I.114.

SUMP Indicators

- I 1 - Area of restricted access to motorized vehicles (m2) - *[Superficie de entornos de acceso restringido a vehículos motorizados (m2)]*
- I 4 - Surface of pedestrian streets (m2) - *[Superficie de calles peatonales (m2)]*
- I 5 - Number of conditioned pedestrian routes - *[Número de itinerarios peatonales acondicionados]*
- I 6 - No. of thematic items introduced - *[Nº de itinerarios temáticos implantados]*
- I 7 - No. of traffic plans adapted to pedestrian flows - *[Nº de planes semafóricos adaptados a los flujos peatonales]*
- I 8 - Number of actions to improve pedestrian accessibility - *[Nº de actuaciones para mejorar la accesibilidad peatonal]*
- I 10 - Number of new pedestrian crossings - *[Nº de nuevos pasos de peatones]*
- I 11 - No. of acoustic alarms - *[Nº de avisadores acústicos]*
- I 15 - Travel number in collective public transport. - *[Número viajes en transporte público colectivo]*
- I 16 - Share public transport / global mobility - *[Porcentaje reparto transporte público/movilidad global]*
- I 19 - No. of urban buses with sustainable technology - *[Nº de autobuses urbanos con tecnología sostenible]*
- I 21 - Number of public transport stops with dynamic information systems - *[Número de paradas de transporte público con sistemas de información dinámica]*
- I 24 - % Coverage of urban territory by urban bus - *[% de Cobertura del territorio urbano por el autobús urbano]*
- I 28 - Number of electric taxis - *[Nº de taxis eléctricos]*
- I 31 - Length of the cyclist network. - *[Longitud de la red ciclista]*
- I 32 - Length of bike lanes restored - *[Longitud de carriles bici restituidos]*
- I 34 - Number of bicycles on loan - *[Número de bicicletas en préstamo]*
- I 35 - Number of bicycle loan stations - *[Número de estaciones de préstamo de bicicletas]*
- I 38 - Number of uses of the public bicycle per day - *[Nº de usos de la bicicleta pública por día]*
- I 39 - Proximity to the network of bicycle lanes in the urban territory - *[Proximidad a la red de carriles bici en el territorio urbano]*
- I 43 - Car share / global mobility percentage - *[Porcentaje reparto en coche/movilidad global]*
- I 52 - Mobile Park of Hybrid Vehicles - *[Parque Móvil de Vehículos Híbridos]*
- I 53 - Mobile Park of Electric Vehicles - *[Parque Móvil de Vehículos Eléctricos]*

- I 65 - Campaigns of the City Council where the "carsharing" has been publicized - *[Campañas del Ayuntamiento donde se haya publicitado el "carsharing"]*
- I 92 - Number of sustainable technology loading and unloading vehicles registered - *[Nº de vehículos de carga y descarga de tecnología sostenible matriculados]*
- I 104 - Number of visitors to web information about mobility - *[Nº de visitantes a la información web sobre movilidad]*
- I 106 - No. of outreach campaigns on sustainable mobility - *[Nº de campañas de divulgación sobre movilidad sostenible]*
- I 113 - New regulations on sustainable mobility - *[Nuevas normativas en materia de movilidad sostenible]*

A-21 Indicators

- 2.1 - Urban complexity / Average complexity by mesh (200x200m) in representative neighborhoods - *[Complejidad urbana / Complejidad media por malla (200x200m) en barrios representativos]*
- 3.1 - VPO Household Percentage - *[Porcentaje de Viviendas de VPO]*
- 4.1 - Green Zone Useful per inhabitant (m2) - *[Zona Verde Útil por habitante (m2)]*
- 5.1 - Modal transport (city) -Distrib. by areas - *[Transporte modal (ciudad)–Distrib. por áreas]*
- 5.2 - Growth of Bus Travelers (Base 100) - *[Crecimiento de Viajeros en Bus (Base 100)]*
- 5.3 - Area dedicated to transport infrastructures - *[Superficie dedicada a infraestructuras de transporte]*
- 5.4 - Traffic intensity - *[Intensidad del tráfico]*
- 5.5 - % Proximity to public transport stops (300m) - *[% Proximidad a paradas de transporte público (300m)]*
- 5.6 - % Proximity to bike lanes (300m) - *[% Proximidad a carriles bici (300m)]*
- 5.7 - % Pedestrian streets - *[% Calles peatonales]*

The following table represents the initiatives taken into consideration in the present document after the definition of the objectives and strategic axis. The initiatives, described in details in the following Annex 1, are accompanied by a battery of indicators issued from the own LCTP development as well as the indicators included in both plans SUMP and Agenda-21.

Table 10 – Malaga SUMP and Agenda 21 indicators related to the LCTP

		LCTP	SUMP	A-21
STRATEGIC AXIS 1: CRUISE TOURISM CONTRIBUTES TO EASE MOVEMENTS & COHABITATION IN MÁLAGA				
Objective 1.1 Increase the number of cruise passengers walking to attractions.				
Initiative 1.1.1 Promote alternative touristic interesting points.	LCTP-1.1.	I.1. I.4, I.5 I.5, I.6, I.8 I.21	TCC 5.3,5.4,5.5	
Initiative 1.1.2 Walking time & distance information.				
Initiative 1.1.3 Foster walking tourism for cruise passengers.				
Objective 1.2 Decrease traffic congestion around the port.				
Initiative 1.2.1 Optimization of excursion buses routes from Terminals.	LCTP-1.2	I.24, I.43, I.65	NR 3.6 & TCC 5.1,5.2	
Initiative 1.2.2 Specific traffic protocol prior to cruise arrivals.				
STRATEGIC AXIS 2: CRUISE TOURISM CONTRIBUTES TO LOCAL ECONOMY IN A STABLE, LONG TERM & RISING WAY				
Objective 2.1 Increase the use local facilities and low carbon mobility services by cruise passengers.				
Initiative 2.1.1 Cruise Mobility integrated into the Touristic Card	LCTP-2.1	I.21,104,106		
Initiative 2.1.2 Tool development tailored to cruise passengers’ mobility				
Objective 2.2 2 Increase cruise passengers reaching touristic and leisure options distant from the port.				
Initiative 2.2.1 Shuttle services to reach distant attractions.	LCTP-2.2	I.15,16	TCC 5.5	
Initiative 2.2.2 Promoting distant touristic offers for cruise tourists.		I.7,10	TCC 5.6,5.7	
Initiative 2.2.3 Development of integrated packages for distant touristic attractions.		I.6,113		
STRATEGIC AXIS 3: CRUISE TOURISM CONTRIBUTES TO DECREASING CARBON EMISSIONS & ACOUSTIC POLLUTION				
Objective 3.1 Increase the number of cruise passengers cycling to attractions.				
Initiative 3.1.1 Port2City Cycling Connection.	LCTP-3.1	I.31,32,39	NR 4.1 & TCC 5.6,5.7	
Initiative 3.1.2 Extend the bike sharing system to cruise tourists		I.34,35,38		
Initiative 3.1.3 Improve signalling/ priority/ safety & awareness from citizens		I.10,11,8		
Objective 3.2 Increase the use of low carbon motorized means from and into the port.				
Initiative 3.2.1 Promoting the use of electric personal transporters	LCTP-3.2	I.19,28	NR 1,2.1,3.1	
Initiative 3.2.2 Promote the use of electric vehicles throughout the port		I.92		
Initiative 3.2.3 Foster the use of electric vehicles around city centre		I.1,52,53		

Funding

Although most of the actions and initiatives proposed do not require large investments, it is hard to estimate the cost of the Plan since the initiatives can be implemented to different extents. Besides, some of the initiatives are already included in the A-21 and 2105 SUMP, and therefore the corresponding investment plans should be revised and adapted.

Most of the measures, nevertheless, are included in regional and national strategies mentioned in the beginning of this document. Thus, investment focused on mitigating the dependency of the use of pollutant transports means shall be taken into consideration.

As for the main funding institutions, the leading role shall be assumed by the public authorities, especially the City Council and Province Department. Nevertheless, other actors should be involved like retailers, tourist attractions, taxis and buses companies, rental services, etc. Of relevant importance is the role of cruise liners and tour operators. Being a crucial actor in promoting or not the measures undertaken, they should be engaged in the Plan, highlighting the benefits the latter brings to their operations as a further way of increasing the value of the destination, and an alternative source of profit. From this perspective, it is essential to find ways of implementing the Plan initiatives which bring in new ways of doing business for cruise liners and tour operators, adopting a sustainable stake.

Annex 1 – LCTP Measure Description

STRATEGIC AXIS 1: CRUISE TOURISM CONTRIBUTES TO EASE MOVEMENTS & COHABITATION IN MÁLAGA.

Objective 1.1 Increase the number of cruise passengers walking to attractions.

1.1.1) Promote alternative touristic interesting points

This measure aims to better integrate cruise tourists' flows in the city.

At cruise arrival, distribution of specific tourist information points for cruise passengers, possibly adapted from existing ones, highlighting tailored alternatives points of interests in the city (such as artistic event or thematic buildings), to be reachable from the port. These points are aimed to connect walking track preferences from cruise tourists' groups or individuals. Thus, the alternative touristic interesting points are various and its distribution aims tourists to design their own itineraries, which helps avoiding the pedestrian overlapping and congestion in the historical centre main streets. The numerous shuttle bus stops might be used to distribute passengers' groups depending on the preselected itineraries.

With this measure, cruise passengers may visit the city through non-designed routes or, in other words, customized routes according to the cruise tourists' preferences. On-street signals will back up the information inside maps to facilitate passengers' mobility.

Financial requirements might be solved through the selling of advertisement to local businesses, specifically shopping and eating options for each itinerary that will enhance the passengers' experience. In addition, the map design could exploit the existing "*Málaga en 8 horas*" map to reduce implementation and costs restrains.

Initiative 1.1.1 should be in line with initiatives 1.1.2, 1.1.3, 2.1.1 and 2.1.2.

1.1.2) Walking time & distance information

This measure aims to better integrate cruise tourists' flows in the city.

Setting up an urban network of signals around the port and touristic areas, indicating, in an easy and multilingual way, the distance (in meters) and walking time (in minutes) to reach nearby attractions. The signal network corresponds to the information and recommendations given to cruise passengers, and tourist in general, through institutional means (maps, web, apps, etc.), so on-street passengers might find an intuitive and clear way to move around, while controlling the restricted time they have available.

For this reason, the design of reachable touristic interesting points described in the previous measure is required prior the installation of signals, as the featuring information should help to the distribution of cruise passenger to alternative attractions and through alternative streets. Thus, routes, times, distances, destinations and even colours should be the same in both the city signals and the available tools for visitors.

Cycling and Walking connectivity and accessibility shall always be taken into consideration while proposing a complementary network.

Initiative 1.1.2 should be in line with initiatives 1.1.1 and 1.1.3, 2.1.1 and 2.1.2.

1.1.3) Foster walking tourism for cruise passengers

This measure aims to better integrate cruise tourists' flows in the city.

In order to foster cruise passengers to plan their visit **before arriving to destination**, as well as to encourage cruise passengers to reach attractions on foot, this measure aims to provide useful permanent information via apps, QR codes, maps, advertisements or web resources. The main goal is to advise cruise passengers and enhance their planning by communicating the available facilities, services, routes, city attractions, walking options, etc... and this, after exiting the terminal, in the terminal itself or, even in the vessel, guaranteeing the own shipping companies' interest and cooperation.

One of the keys of this measure relies on reaching passengers and supplying recommendations before visiting the destination. For this purpose, it aims to collect and arrange all the potential and/or interesting data, enriching visitors' experience, assisting on the organization of the trip and optimizing their time spent in the city.

However, information and resources available should be user-friendly and avoid saturating passengers. Beforehand, resources should be evaluated and ensure that transmit effectively and briefly necessary data. Moreover, it would be advisable to revise and update these resources periodically.

Initiative 1.1.3 should be in line with initiatives 1.1.1, 2.1.1 and 2.1.2.

Objective 1.2 Decrease traffic congestion around the port.

1.2.1) Optimization of excursion buses routes from terminals.

This measure aims to decrease traffic congestion around the port.

In coordination with Malaga's mobility authority and tour operators, reduce the congestion by optimizing the routes of excursion buses, especially in some specific areas, for example Malagueta (where street lanes are often reduced to one). It is advisable to carry a mobility analysis of the current operation of excursion buses that offer services to cruise passengers in order to establish specific measures to reduce their traffic impact and enhance their on-route conditions. Times of arrival and departure, pick-up / drop-off areas, number of passengers picked up at terminals, destinations, routes and problems identified by drivers, tour operators and authorities are evaluated to select the most appropriate measures.

On the other hand, the diagnosis and analysis of this measures could be accompanied by the revision of existing streets directions, in order to harmonize them, as far as possible, with the existing and future cruise passengers' traffic flow (Paseo Ciudad de Melilla, Paseo de la Farola are, as a matter of example, some of the axis in which a reorganization of roads' senses could be interesting).

The main issue to implement this measure is the commitment and articulation of the different actors such as tour operators, travel agencies and local police. Similarly, once the measures to optimize excursion buses operation are selected, bus drivers and tour supporting personal should be trained to smooth the implementation and increase the positive perception of cruise passengers.

Initiative 1.2.1 should be in line with initiatives 1.2.2 and 2.2.1.

1.2.2) Specific traffic protocol prior to cruise arrivals

This measure aims to decrease traffic congestion around the port.

To develop a comprehensive traffic protocol considering, both, citizens and visitors' profiles and necessities. It entails the design and performance of a specific traffic protocol that eases transit, particularly, within the port area and touristic attractions. It includes traffic management, public service reinforcement and the supply of special services and facilities, among others. It defines usual itineraries and schedules and optimizes traffic management as a daily routine. Furthermore, information available to develop the traffic protocol can be enriched and updated through Big Data suppliers. The main objective is to reduce traffic congestion around the port area and city's streets through the coordination between the various stakeholders involved: public transport services, tour operators, port authorities and citizens. Hence it is necessary a proper dissemination of the protocol before cruise arrivals, especially large ships. Demand management strategies should be adopted, exploiting the fact that port authorities know arrivals' times in advance.

This measure stands out because it analyses usual practices and statistics to improve traffic and minimize time of congestion caused by the arrival of cruises, with services and available means of transport coordination. The reduction of traffic congestion can improve visitors' experience, making it more pleasant and comfortable, as well as, reduce citizens' inconvenience due to big cruises arrival.

Initiative 1.2.2 should be in line with initiatives 1.2.1, 3.2.2 and 3.2.3.

STRATEGIC AXIS 2: CRUISE TOURISM CONTRIBUTES TO LOCAL ECONOMY IN A STABLE, LONG TERM AND RISING WAY.

Objective 2.1 Increase the use local facilities and low carbon mobility services by cruise passengers.

2.1.1) Cruise Mobility integrated into the Touristic Card.

This measure aims cruise tourists to use local facilities and services.

A customized package within existing touristic smart cards (such as *Málagapass*) specifically designed for cruise passengers that facilitates access to all public transport means, while promoting local businesses and touristic attractions. Implementation might be done by taking into consideration the average spent time of cruise tourists in the city. It requires the integration of public transport services, potentially including the public bike sharing system.

The card, which would be easily accessible at the port arrival, is aimed to be used in an easy and intuitive way, within the public transport network. Furthermore, it aims to increase the contribution of cruise tourism in the local economy by including customized discounted entrances and/or offers in local shops, especially rental services of low carbon vehicles, such as electrical assisted bikes and other electric personal transporters. In this sense, a potential collaboration of tour-operators or shipping companies could be a must.

This specific tourist card is tailored to cruise passengers available time and expectations. First, it facilitates the way passengers move from the port to city attractions, and *vice versa*. Second, included services enhance passengers' experience by allowing them to plan their itineraries before or at arrival. Suggested routes with discounted packages (entrances, food and transportation) might also be offered. If based on ICT, collected data might serve to generate or improve services according to passenger requirements and behaviour.

As a third solution, together with the urban transport network, it would be interesting to provide a sort of list comparing the public transport stops with the nearby attractions.

Initiative 2.1.1 should be in line with initiatives 1.1.1, 1.1.3, 2.1.2, 2.2.1, 2.2.3, 3.1.2 and 3.2.1.

2.1.2) Tool development tailored to cruise passengers' mobility

This measure aims cruise tourists to use local facilities and services.

Integrating an existing app (such as *MálagaPass*) or design a new tool that includes basic information regarding navigation with public transport. This includes GPS navigation, bus network (with intervals and stops), as well as frequent and alternative interest points.

On the other hand, the app should include updated information, special events, tourist attractions, open stores and shops, etc. This, in order to distribute the tourist flux as well as promote local facilities and services.

The app should also allow, as currently *MálagaPass* does, the purchase of touristic packages promoted by the city council, such as touristic cards. This initiative is not restricted to cruise passengers, but open to tourists in general. This measure can also increase tourist attractions visits and cruise passengers' overall expenses in the city. On the other hand, the app could be linked to the Centro Malaga shopping app in order to avoid the congestion of the centre from shopping activities.

The improvement of the existing app can be performed in parallel with other proposals and be updated with the information and resources developed, such as, signalling, specific maps and routes. It is underlying that the app gathers and presents the information available in a user-friendly way. As the use of ITC increases, providing all the necessary data on a smartphone App can ease cruisers planning before the arrival and optimize their experience and time spent in the city. For the city council, the collected data might serve to generate or improve services according to passenger requirements and behaviour.

It would be important to analyze this measure together with the interests from the cruise companies to ensure their full support. In this sense, a potential collaboration of tour-operators or shipping companies could be necessary.

Initiative 2.1.2 should be in line with initiatives 1.1.1, 1.1.3, 2.1.1, 2.2.1, 2.2.3, 3.2.1 and 3.2.3.

Objective 2.2 Increase cruise passengers reaching touristic and leisure options distant from the port.

2.2.1) Shuttle services to reach distant touristic attractions

This measure aims cruise tourists to reach touristic and leisure options distant from the port.

A shuttle service is offered to cruise passengers interested to visit distant tourist attractions in Malaga and its surroundings. The tourism authority, by its own or in coordination with tour operators, promotes existing public services. The service might be contracted through an existing app or similar means.

The main issue is that most of cruise passengers do not plan their visit before arriving Malaga (only around 16% organize excursions with the cruise service). The tourism authority must work with cruise lines and travel agencies, under a common benefit agreement framework, in order to promote the existing touristic means, especially the app, and the deals offered within. Having personal and vehicles available to on-demand service might be expensive, so promotion must be done to visitors in general in order to achieve the required minimum occupancy level. Working together with tour operators is recommended as they might offer the flexibility a service of this kind requires.

At some extend, it could be crucial and interesting to find common benefits with tour-operators or shipping companies during the projection and implementation of the measure.

Initiative 2.2.1 should be in line with initiatives 1.2.1, 2.1.2 and 2.2.3.

2.2.2) Promoting distant touristic offers for cruise tourists

This measure aims cruise tourists to reach touristic and leisure options distant from the port.

In order to encourage cruisers to visit touristic and leisure options distant from the port it is important to set more abundant and precise information. For example, providing multilingual information about available bus services and schedule, car park areas, bike and/or electric vehicle rental shops, can facilitate visitors' movements within the surroundings of the city. In this sense, a network of signs and signals may be placed over the city, as well as, maps detailing routes, timing and public transport options should be made available. This measure can be supported by the downloadable app and/or other resources easing in advance planning. Hence, cruisers can easily reach distant options on their own.

It is, therefore, a key fact to define strategies in order to rely on the cooperation with private agencies such as tour-operators or shipping companies.

This measure aims to provide decision support for the most suitable options available for attractions distant from the port, allowing time optimization and a more comfortable experience. Furthermore, it eases movements outside the city and, in line with traffic protocol, can cope with traffic congestion in the city centre.

Initiative 2.2.1 should be in line with initiatives 1.1.1, 1.1.2, 2.1.2 and 3.1.3.

2.2.3) Development of integrated packages for distant touristic attractions

This measure aims cruise tourists to reach touristic and leisure options distant from the port.

Promoting integral visit offers to options distant from port, which include comprehensive experiences, tourist attractions, meals and shopping, to increase visits outside the city centre. These touristic options have to be attuned with tour operators, offering special prices, guides and routes. This measure eases and limits the need of cruisers to manage their visit individually. To avoid overexploitation of specific sites or shifting congestion problems to other sites, proper organization, coordination and partnership with local and regional stakeholders is recommended.

Integrated visits allow diversifying touristic offers and can be developed in line with other improvement proposals, such as, “Cruise integrated Touristic Card”. Furthermore, active tourism activities in the surroundings of the city can supplement this measure and offer a unique and memorable experience. This option provides cruisers a more comfortable and relaxed experience, due to no planning is needed by their side. In addition, all-included packages may increase and diversify expenditure in the city and its surroundings. Moreover, diversion allows avoiding city centre overcrowding.

Initiative 2.2.3 should be in line with initiatives 2.1.1, 2.1.2 and 2.2.1.

STRATEGIC AXIS 3: CRUISE TOURISM CONTRIBUTES TO DECREASING CARBON EMISSIONS AND ACOUSTIC POLLUTION IN MÁLAGA.

Objective 3.1 Increase the number of cruise passengers cycling to attractions.

3.1.1) Port2City Cycling Connection

This measure aims to increase the use of non-motorized means.

Complement the existing bicycle infrastructure (lanes & parking) with safe connections to the port terminals and tourist areas. The existing plans to extend the offer of public lines in the city should be revised to ensure safe conditions that support the promotion of cycling among cruise passengers avoiding conflicts among residents. The port and its terminals should be included within the city plans to facilitate the access of visitors to public bike sharing stations, rental shops and attractions located within a range of 5 km. The bike line network should be complemented with bicycle parking options near touristic attractions as well as reorganized in case it is needed.

This measure will probably require a revision of the current mobility plan and the collection of stakeholders' perspectives to justify modifications. Allocation of public funds is also necessary, and it may compete with other more needed bike connections. However, this must be considered as a measure affecting the city in general, and not only the cruise tourism, given that the port is a major attractor and generator of travels.

An appropriate implementation will positively affect the congestion problematics around the port, while benefiting cruise passengers with safe cycling routes to reach touristic areas beyond the saturated historical centre.

Initiative 3.1.1 should be in line with initiatives 3.1.2 and 3.2.2.

3.1.2) Extend the bike sharing system to cruise tourists

This measure aims to increase the use of non-motorized means.

In order to increase cruise passengers using bikes when visiting the city, existing services for bicycle rental (both public and private) have to be reinforced. On the one hand, the number of stops and bikes available have to be increased, specifically within the port and the main touristic attraction areas. On the other hand, additional measures should be developed to ensure and manage the availability of bicycles. It is necessary to match supply and demand according to cruise passengers timing.

Therefore, increasing bicycle commuting, may contribute to city's Greenhouse Gases (GHG) emission reduction. In addition, it promotes environmental-friendly and healthy touristic offers. Combining ecotourism and cultural aspects, contributes to the generation of a new low-impact travelling philosophy. Hence, the visit results on a diverse, physical and intellectual active experience, where tourists not only tour the city.

Initiative 3.1.2 should be in line with initiatives 1.2.2, 2.2.2 and 3.1.1.

3.1.3) Improve signalling/ priority/ safety & awareness from citizens

This measure aims to increase the use of non-motorized means.

In order to increase the use of bicycles by cruisers visiting the city, it is important to reinforce safety perception. For this reason, it is highly recommended to improve signals and signs, install protection barriers and/or devices, develop education campaigns among citizens and advice about the presence of tourists flows. Safety and comfort of bike users and pedestrians has to be guaranteed and priority may be give when necessary. Furthermore, platforms and infrastructure shall be set into a multilingual environment.

This measure aims to foster cohabitation at two levels: "tourist-citizen" / "tourist-city". On the one hand, cohabitation of tourists and citizens. On the other hand, cohabitation of different means of transport. This proposal is complementary to others, such as the development of new bike lanes, which also look for the increase of commuting safety. This way, the city is presented as a friendly and safe city to non-motorized visitors, increasing comfort perception and promoting healthy, ecological and high quality tourism.

Initiative 3.1.3 should be in line with initiatives 2.2.2, 3.1.1 and 3.1.2.

Objective 3.2 Increase the use of low carbon motorized means from and into the port.

3.2.1) Promoting the use of electric personal transporters

This measure aims to extend use of Low carbon motorized means.

Promote rental and other sharing schemes of electric personal transporters (electric bicycles, kick scooters, self-balancing scooters, etc.), working in association with private companies offering this service. Tourist service companies within the city have introduced this low carbon vehicles, representing a clean transportation option for visitors and a future opportunity for the city in general.

Personal Transporters' promotion must be done by guaranteeing the security issues and avoiding conflicts among residents.

Management tools should be adopted as updated databases of existing companies, vehicles and their usage. On the other hand, a set of transit rules, and even changes on the current regulation, should be agreed with rental places in order to ensure the safety of visitors and avoid conflict with citizens.

As personal transporters are becoming a tangible reality in cities, Malaga takes several steps ahead for the smooth introduction of this low carbon means on urban mobility. Visitors will take advantage of this public-private partnership to access clean, quick and flexible transportation, especially cruise passengers moving from and to the port. Afterwards, the initiative allows the generation of local knowledge to enable schemes for residents as well.

3.2.2) Promote the use of electric vehicle throughout the port

This measure aims to extend use of Low carbon motorized means.

Design a mid-term plan to replace the port fleet with electric vehicles gradually, for both people and goods transportation and other services offered by the port. With the objective of 75% of port own land fleet to be electric and hybrid, this initiative aims to minimize the use of fossil fuels and contribute to the city sustainability objectives.

Services provided by the port authority, such as baggage loading/unloading and waste collection, using vehicles should comply with this objective. Investment is needed to both the acquisition of electric vehicles (including personal transportation vehicles) and the deployment of charging infrastructure, stations and dedicated parking spaces, through the port. In addition, incentives should be offered to private companies operating within the port, in order to support their shift to e-mobility.

This measure supports the city target to make electric mobility a reality. Instead of being an isolated initiative, the introduction of e-mobility at port-level is both supported and supporting similar actions in the city. Specifically, for cruise passengers, this initiative offers clean option to move inside the port (between terminals and the port entrance), as complement to other initiatives to guarantee a sustainable mobility between the port and the city.

3.2.3) Foster the use of electric vehicles around city centre

This measure aims to extend use of Low carbon motorized means.

Taking advantage from the special transport plan of the port as a pilot area, a master program for the consolidation of electric mobility in Malaga, ratifying the pioneer actions adopted in the last decade. This will include the setup of incentives to foster the use of electric vehicles among residents, visitors and companies, for all types of electric vehicles (cars, scooters, bicycles, kick scooters and other innovative personal transporters). Today, the city, through the municipal parking company, offer free parking to electric cars in special zones (including the port and the city centre) and manages the charging points. Further incentives should be designed, for example, supporting schemes for private touristic companies offering transport services to shift to this technology.

Malaga previous experiences prove that overcome the current market reluctance is a major challenge. Even after the successful participation in innovative programs, such as POWER and ZEM2ALL, electric mobility is still in an initial phase, waiting to be strengthen. Achieving a consensus over mid- and long-term objectives is also an important requirement. Special regulation for the transit of innovative personal transporters need to be agreed. Thus, private and public stakeholder's participation and commitment are highly required from the beginning.

This initiative builds on the city's knowledge in order to escalate Malaga as a national and European reference in electric mobility, promoting professionals and enthusiasts to visit the city. The port adopts specific measures that affect positively the cruise tourism and enhance the passengers' experience.

Annex 2 – Differences from LCTP draft version

The development of the LCTP, as well as the elaboration of the 2nd participatory process in Malaga in May 2018 the entailed a series of modifications in the definition of the measures, among others.

Thus, the names of the following measures have been changed accordingly. The content and description of them remain mostly the same.

1.1.1) Promote alternative touristic interesting points (Ex: Promote touristic walking routes alternatives)

1.1.2) Walking time & distance information (Ex: Walking time & distance signals)

1.1.3) Foster walking tourism for cruise passengers (Ex: Available useful info for cruise passengers)

2.1.1) Cruise Mobility integrated into the Touristic Card (Ex: Cruise Integrated Touristic Card)

2.1.2) Tool development tailored to cruise passengers' mobility (Ex: Downloadable App with info & resources)

2.2.1) Shuttle services to reach distant touristic attractions (Ex: Shuttle/tourist bus from council with special routes to reach distant attractions.)

2.2.2) Promoting distant touristic offers for cruise tourists (Ex: Clear signalling and maps indicating timings, means and availability)

2.2.3) Development of integrated packages for distant touristic attractions (Ex: Integrated visit offers with attractions, lunch and shopping)

3.1.1) Port2City Cycling Connection (Ex: Extend the bike lane infrastructure from the port to tourist attractions)

3.1.2) Extend the bike sharing system to cruise tourists (Ex: Improve and extend bicycle rental service)

3.2.1) Promoting the use of electric personal transporters (Ex: Promote electric vehicles rental (tricycle, bicycle, Segway))

3.2.3) Foster the use of electric vehicles around city centre (Ex: Foster the use of electric vehicles around city centre (free from parking))



Low carbon transport plan

Sustainable mobility for cruise passengers flows

Municipality of Ravenna

May 2018

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1. Introduction

The Municipality of Ravenna, by Municipal Resolution DG 660/171469 dated 10/11/2016, effective 12/12/2016, pursuant to the law, has joined Project LOCATIONS, funded by the European Interreg MED 2014-2020 programme. The project is specifically aimed at countries in the Mediterranean area which benefit from a prosperous economy that relies on tourism closely linked to sea cruises.

Cruise tourism has increased significantly in recent years, and the Mediterranean coastal regions have benefited from it in terms of growth, development, reputation and visibility. Today, cities serving as cruise destinations face conflicting needs: on the one hand, increasing profits and economic advantages linked to cruise flows; on the other hand, the need to limit negative impacts on cities, in particular on the environment, urban mobility, cultural heritage and the life of the local community.

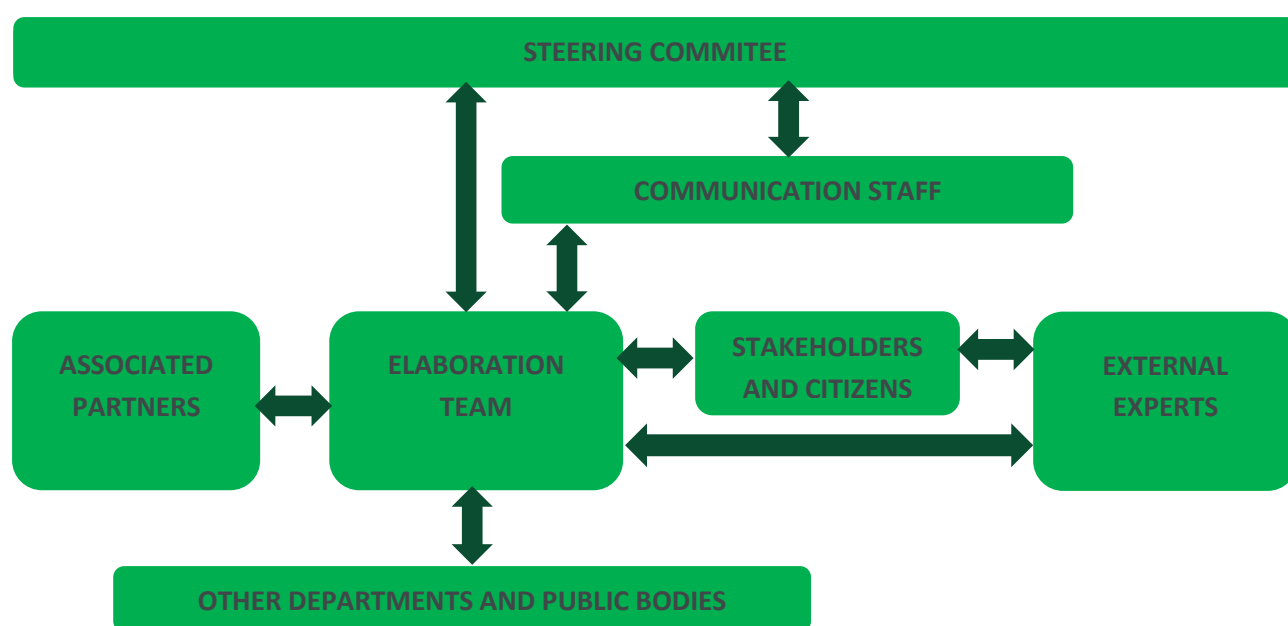
LOCATIONS project intends to contribute to decongesting traffic flows and limiting polluting emissions in cruise destination cities, using innovative and sustainable transport solutions. In this way, it will be possible to improve the quality of life of residents and cruise passenger experience, increasing the attractiveness of ports for cruise operators.

Seven cities (Lisbon, Malaga, Trieste, Ravenna, Rijeka, Zadar, and Durres) are involved in the project, and the aim is to develop a Low-Carbon Transport Plan (LCTP) - which is easily transferable to other Mediterranean centres facing similar problems. The objective of the Plan is to promote the use of low-emission transport systems and multimodal connections for cruise passengers, in the general framework of energy planning and municipal mobility (SUMP, Sustainable Urban Mobility Plan, and SEAP, Sustainable Energy Action Plan).

For these reasons, the Ravenna LCTP constitutes a first implementation of the Urban Plan of Sustainable Mobility to improve the connections between the cruise terminal and the entire municipal territory.

2. Low Carbon Transport Plan

2.0 Step 0: Work plan and team



► WORK TEAM

The work team involved in the development of the LCTP included several people with different positions and responsibilities. The diagram above represents the different groups that had supported the elaboration of LCTP and the relationship between them.

Steering Committee | It includes both a technical and political part and it took strategic decisions

Elaboration Team | they are in charge of the elaboration of the Plan, including collection and analysis of data. They are the core team, since all other groups relate with them and they report directly to the Steering Committee

Stakeholders and citizens | they are the players that hold any kind of interest to the LCTP

External Experts | two external experts had been identified to support the elaboration of the LCTP.

Associate partners | Ravenna Port Authority and Emilia Romagna Region, have been involved in the elaboration of the Plan

Other Department and Public Bodies | Several Departments of the Municipality and other Public Bodies that must give permissions in the implementation phase have been involved in the design of the LCTP.

Communication Department | they have worked with the elaboration team in the definition of the communication strategy

► WORK PLAN

	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
Collection and analysis of data										
Design of participatory process										
Implementation of participatory process										
Elaboration of first draft of the Plan										
Elaboration of final Plan proposal										
Approval of LCTP										
First implementation phase										

2.1 Step 1: Initial assessment

2.1.1 Context analysis

1 General framework

► REFERENCE GEOGRAPHICAL CONTEXT

The cruise terminal is located at Porto Corsini, and was inaugurated in 2011. To date, it includes two landing docks able to accommodate ships up to 330 m, although the terminal is still under development.

The main tourist attractions of the city of Ravenna are its 8 UNESCO monuments, 7 of which are located in the historic centre, or its immediate vicinity.

Porto Corsini is a hamlet of the municipality of Ravenna, has 1517 inhabitants (Source ISTAT), is located about 15 km from the historic centre of Ravenna and connected to Marina di Ravenna, the most significant hamlet standing opposite to the Candiano Canal, in a continuous way, from a ferry for passengers and vehicles.

Porto Corsini is crossed by three road axes: via Molo San Filippo, via Volano, which continues towards the coast taking the name of via Po and allowing a single direction of travel towards the sea, and via Giuseppe Guizzetti, a one-way street heading to Ravenna. In addition to traffic related to cruise flows, Porto Corsini is affected by seasonal flows due to the presence of an equipped camper area and bathing establishments that attract tourists on a daily basis. The location is also in the immediate vicinity of several naturalistic areas included in the Po Delta Park.



► EUROPEAN REGULATORY FRAMEWORK

In light of the global change to a low-carbon and circular economy in progress, in 2016, the European Commission adopted a low-emission mobility strategy which aims to ensure Europe a competitive position capable of responding to a constant increase in the need for mobility of people and goods. The European response to the challenge of reducing emissions in the transport sector is an irreversible change towards low-emission mobility. By 2050, the emissions of greenhouse gases produced by the transport sector will have to drop by at least 60% compared to 1900, and Europe will have to be decidedly positioned on a zero-emission path.

The “Strategy for low-emission mobility” incorporates a broad set of measures to support Europe's transition to a low-carbon economy, as well as job creation, growth, investment and innovation. The strategy identifies three priority areas of intervention:

1. increase in the efficiency of transport systems through the digitalisation of technologies, smart pricing policies and further incentives for the use of low- or zero-emission vehicles;
2. acceleration of the use of renewable energy sources, such as bio fuels, electric and hydrogen mobility, and the removal of obstacles to transport electrification;
3. transition to zero-emission vehicles; the European Community must accelerate the transition towards low-/zero-emission vehicles.

The strategy is part of the policies that the European Commission has been promoting for the preparation of Sustainable Mobility Urban Plans since 2013. In actual fact, a package of measures for urban mobility recently developed includes, in addition to SUMP, initiatives for the adoption of road pricing measures, traffic limitation in urban areas, the production of good practices, the monitoring of actions and the management of goods flows in the city.

The city of Ravenna fully shares the EU's urban mobility policies also by joining the CIVITAS network, a city network dedicated to sharing experiences and best practices for the development and implementation of strategies, policies and measures in the area of sustainable mobility.

► SUMP REGULATORY FRAMEWORK

The *Low Carbon Transport Plan* is the first implementation action of the SUMP: for this reason, the main points of the reference regulatory framework refer to SUMP Action Plan.

The SUMP is a strategic Plan conceived within national and regional legislation and European directives as a strategic document with the function of setting up policies for mobility and infrastructure interventions.

At the national level, the first legislative reference to the SUMP, although generic, is contained in Legislative Decree 257/16, concerning the infrastructures for alternative fuels. Until August 2017, the relevant legislation was Law 340 of 24.11.2000, whose Art. 22 introduces and defines the main objectives of the Urban Mobility Plan (UMP). On 5 August 2017, the Ministry of Infrastructures and Transport issued a Decree setting out the guidelines for Sustainable Mobility Urban Plans, which refers to ELTIS “Guidelines. Developing and Implementing a Sustainable Urban Mobility Plan” (ELTIS Guidelines), approved in 2014 by the European Commission's Directorate General for Mobility and Transport and already adopted by the Municipality of

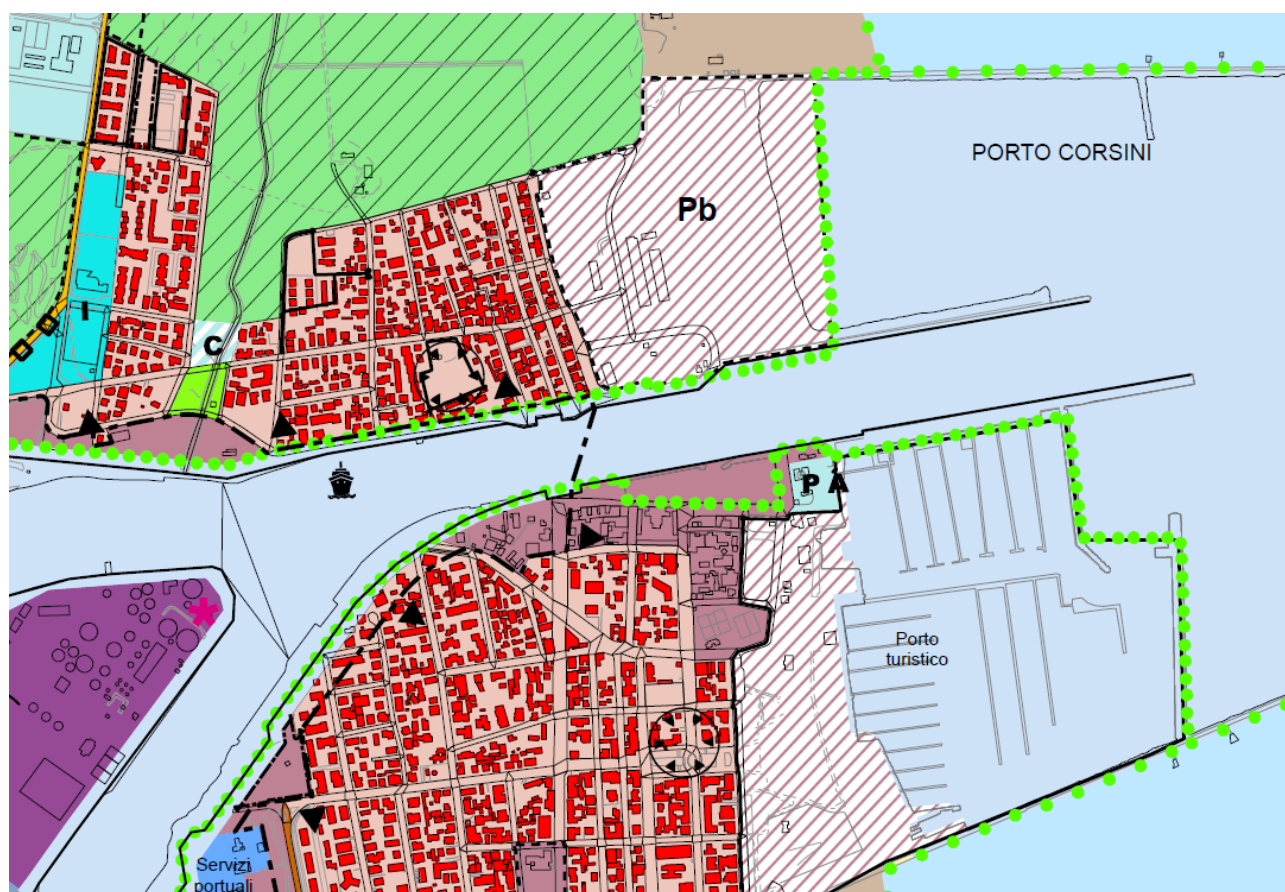
Ravenna. The national guidelines have been developed at ministerial level by a working group set up at the Ministry of Transport in the context of the “Po Valley Agreement” (Accordo del Bacino Padano); the Municipality of Ravenna also took part in this working group.

Compared to previous strategic planning tools, the SUMP has a more specific connotation for two fundamental reasons: first, it focuses on the local dimension and is closely related to the essential integration of spatial planning and mobility tools; second, it refers to transport planning tools introduced at the European level through the drafting of Sustainable Mobility Urban Plans, as tools for the definition of policies consistent with environmental, social and economic sustainability criteria, which can promote-favour the sharing of objectives and choices with the large community of citizens and stakeholders who are representative of the various interests in the field.

The Municipality is currently engaged in the SUMP-adoption phase.

► CITY PLAN

The City Plan in force was approved on 27/02/2007 by City Council Resolution 25/2007, when the passenger terminal had not yet been completed. The document identifies a Plan of public initiative (PB) behind the cruise terminal, which, however, was eventually scrapped.



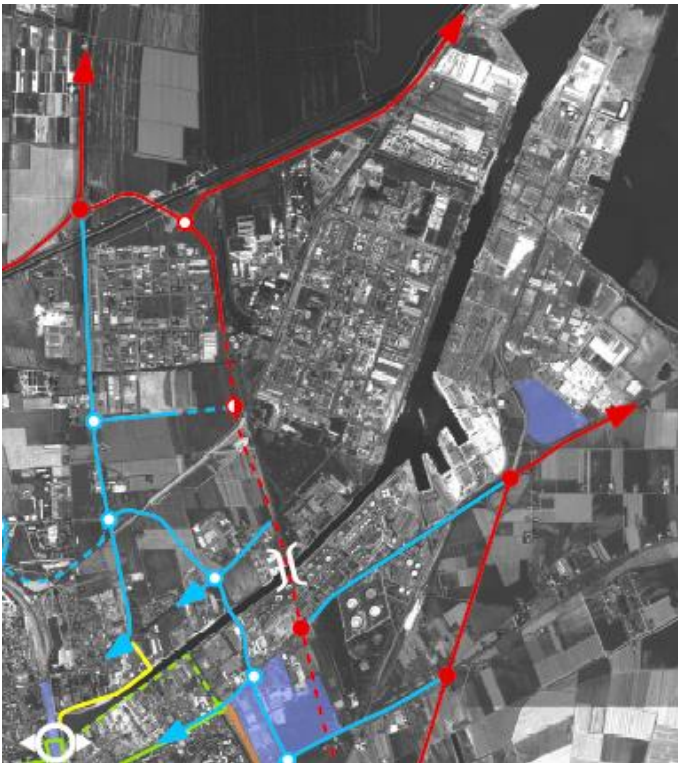


Figure 1: Part of 2.8 e 2.5.b maps of the City Plan

Urban Implementation Plan (UIP) was approved on 16/02/2016, and stipulated on 08/09/2016.

The City Plan provides for the construction of a golf facility in the town of Casalborsetti, which is located about 8 km from Porto Corsini, whose

The Strategic City Plan does not include project road infrastructures specifically for the passenger terminal; the main infrastructures that affect the port area include the new bridge on the Candiano canal for the completion of the outer ring road and the adaptation of via Baiona, from via Canale Magni to the entrance of the inhabited centre of Porto Corsini. The 2017/2019 Triennial Plan of Public Works foresees extraordinary maintenance interventions on the traffic in the port area and structural adjustment interventions without any modification of the roadway on the via Baiona bridges, near the town of Porto Corsini.

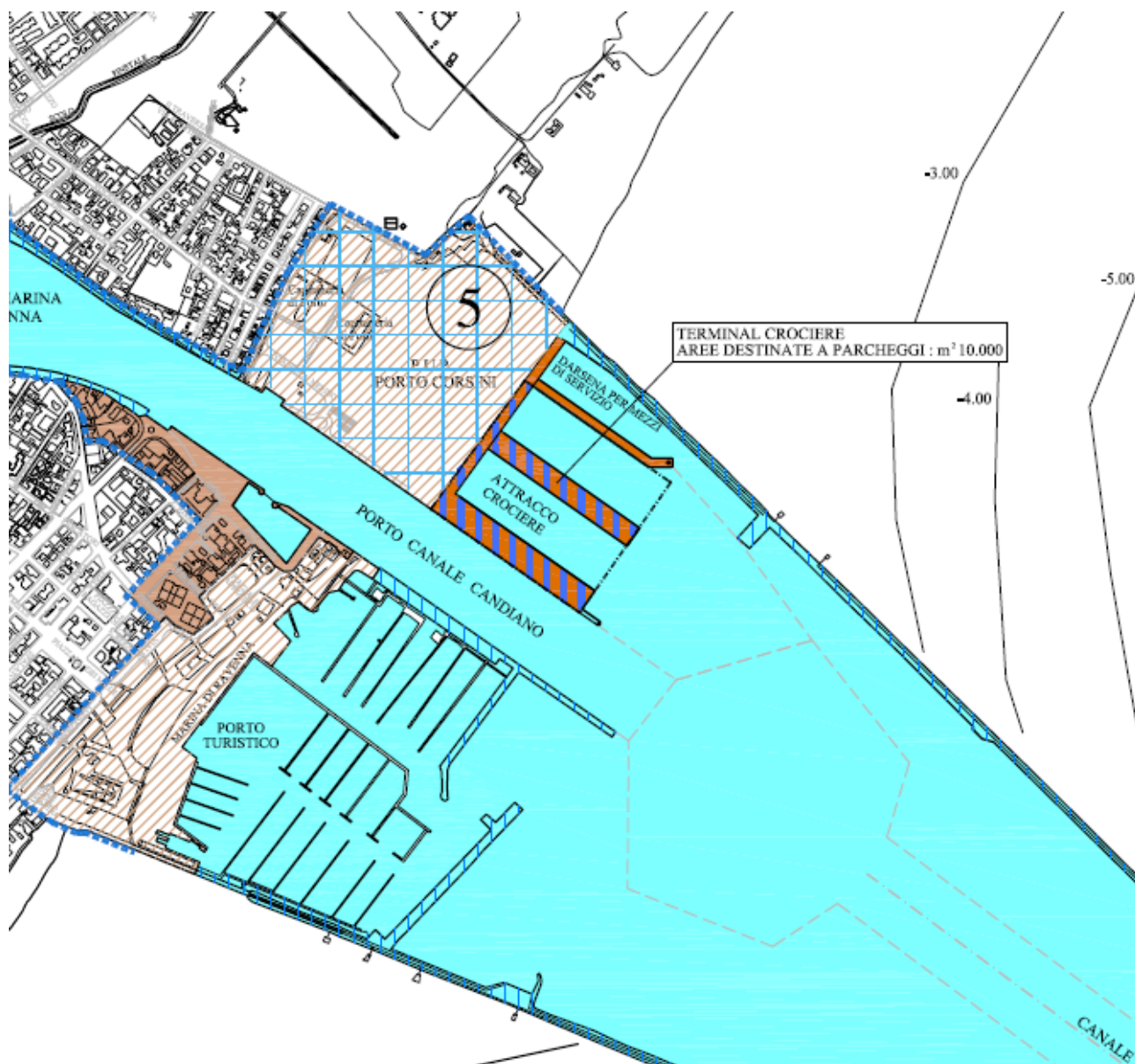
As far as cycling links are concerned, the Plan provides for a route that connects the town of Porto Corsini with Le Bassette, one of the main industrial area of Ravenna. The SUMP now being adopted provides for the completion of bike trails between Porto Corsini and the centre of Ravenna, which are currently interrupted on the main traffic routes (via Romea nord, via Baiona and via Canale Magni)

► PORT PLANNING

2007 PORT REGULATORY PLAN

The 2007 Port Regulatory Plan, adopted by Port Committee Resolution no. 9 of 9.03.2007 and approved by Provincial Government Resolution no. 20 of 3.02.2010, still in force, includes the **realization of the current specialized cruise dock**, in addition to other development works. "The pier for large cruise ships, 40 m wide, [...] can host two ships at the same time; the dimensions are such as to be able to accommodate the main equipment required by this type of traffic, as well as buses used for sightseeing by passengers".

A detailed unit plan of Porto Corsini had been envisaged in the area behind the terminal, approved in 2004, by Port Committee Resolution no. 58, though it was subsequently scrapped.



- ⑤ : PORTO CORSINI - il P.U.P. è suddiviso in quattro zone funzionali urbanistiche con le seguenti destinazioni d'uso:
- verde attrezzato, spazi di sosta attrezzati, servizi ristoro e di custodia, pubblici esercizi, attrezzature per lo sport e il tempo libero
 - servizi urbani di integrazione all'abitato, residenza, esercizi pubblici, servizi di quartiere, verde attrezzato e parcheggi
 - attività ricettive e turistiche, attrezzature culturali e per lo spettacolo, attività direzionali
 - attrezzature militari e amministrative di servizio al porto e relativi spazi di pertinenza

THREE-YEAR OPERATIONAL PLAN

The latest Triennial Operating Plan approved by Management Committee Resolution no. 10/2017 refers to the three-year period between and including 2017 and 2019. The Plan is structured around five strategic programmes:

- i. digitalization of logistics and ICT;
- ii. last/penultimate railway mile and connection to network;
- iii. last road mile;
- iv. maintenance of public property - state property | Maritime accessibility | Selective increase of port capacity;
- v. energy and environmental efficiency.

Within the fifth strategic programme, the Plan cites LOCATIONS project as part of the actions that Port Authority is implementing to define a road map for the sustainable development of the Port. Finally, among the actions to promote the Port potential, the Plan introduces the theme of waterfront redevelopment: “[...] Port Authority is currently evaluating the start of redevelopment processes of parts of the Porto Corsini canal front. [...] The project includes an area on which spaces related to the cruise terminal are to be allocated, and another allocating spaces for other activities related to tourism and services of interest to the port”.

HUB DEVELOPMENT PLAN OF RAVENNA

The Global Project (GP) – ‘Hub Development Plan of Ravenna’ – comprises the following interventions:

- Marine port infrastructure (dredging the canal in order to accommodate larger vessels);
- Land side port infrastructure (upgrading and developing infrastructure and platform services, handling areas and freight storage areas);
- Port accessibility (developing and creating an “integrated network” between maritime infrastructure and land-based infrastructure).

The intervention is divided into three main stages. The projects aims at maximising the port’s capacity, at pace with the evolution of maritime traffic, through infrastructure development. Interventions are then required to guarantee all necessary conditions (e.g. space, water depth, facilities, access and connections) to handle larger vessels and higher traffic volumes, even for cruise tourism.

The project was included in the Italian Strategic Infrastructure Program and therefore approved on 26.10.2012 (Resolution no. 98), at its preliminary project stage, by the CIPE (Interministerial Committee for Economic Planning) which granted RPA a contribution of a considerable amount, for the implementation of the project.

PROJECT FOR THE HARBOUR FRONT

Port Authority is preparing a project for a new harbour front in Porto Corsini. The project, whose details have yet to be defined, includes three sections. The first concerns the arrangement of the square in front of the terminal, with the creation of parking spaces for buses and vehicles, and the arrangement of the sediment tank shielded by shrubbery and shading tree species. The second section involves the construction of services for other maritime activities, storage of nautical vessels, military structures for surveillance services and police force, and services for minor boats with slide for in-water launch. The third and final section includes

the expansion of the current camper area and construction of equipped green areas. The Municipality of Ravenna will be involved in the approval phase of the final project and will collaborate with Port Authority for a project development consistent with the results of the LCTP.

► I PRINCIPALI VINCOLI

I principali vincoli che ostacolano, almeno nel breve periodo, nuovi collegamenti via mare o la realizzazione di nuove infrastrutture viarie sono i seguenti:

- Il Regolamento di navigazione vigente nel porto di Ravenna;
- la presenza di un'area naturale protetta.

Nell'immaginario di molti cittadini ravennati è diffusa la suggestione dell'approdo dei crocieristi via mare nella Darsena di città, uno spazio a ridosso del centro storico che potrebbe risolvere in parte la problematica degli spostamenti dei crocieristi da Porto Corsini a Ravenna. Precisando che la profondità dei fondali non consentirebbe l'arrivo delle crociere sino alla testata di Darsena, questa soluzione sarebbe praticabile con delle motonavi veloci per il trasporto dei passeggeri da Porto Corsini a Ravenna lungo il canale Candiano. L'assenza di un collegamento diretto tra la Darsena – punto di approdo dei mezzi - e il centro storico dovuto alla presenza della linea ferroviaria è una criticità non trascurabile. Occorre considerare anche l'aspetto della praticabilità del collegamento marittimo. Secondo il "Regolamento per la navigazione, la sosta, gli accorsi e la precedenza negli stessi della navi e dei galleggianti nel porto di Ravenna", approvato con Ordinanza n.35/2011, ad oggi la velocità massima consentita nel canale Candiano è pari a 6 nodi, circa 11 km orari (art.22). Allo stato attuale la navigazione dal molo del terminal crociere alla darsena di città impiegherebbe più di 60 minuti. Inoltre, le stesse imbarcazioni dovrebbero dare la precedenza a tutte le navi commerciali come riportato nell'art. 25 del Regolamento. Allo stato attuale si ritiene dunque difficile un implementazione di questa soluzione nel breve periodo.

Un'altra possibilità che si ripropone come soluzione alla riduzione del traffico veicolare legato agli spostamenti dei crocieristi riguarda la realizzazione di una nuova infrastruttura appositamente dedicata al terminal per collegarlo direttamente con la principale direttrice di accesso a Ravenna, la S.S. 309. Questa soluzione comporta però l'attraversamento dell'area SIC IT4070005 "Pineta di Casalborsetti, Pineta Staggioni, Duna di Porto Corsini". La pineta ricade nei siti Natura 2000 in cui sono vietati gli interventi, le attività e le opere che possono compromettere la salvaguardia degli ambienti naturali tutelati, con particolare riguardo alla flora, alla fauna ed agli habitat di interesse comunitario tutelati ai sensi delle Direttive n. 92/43/CEE.

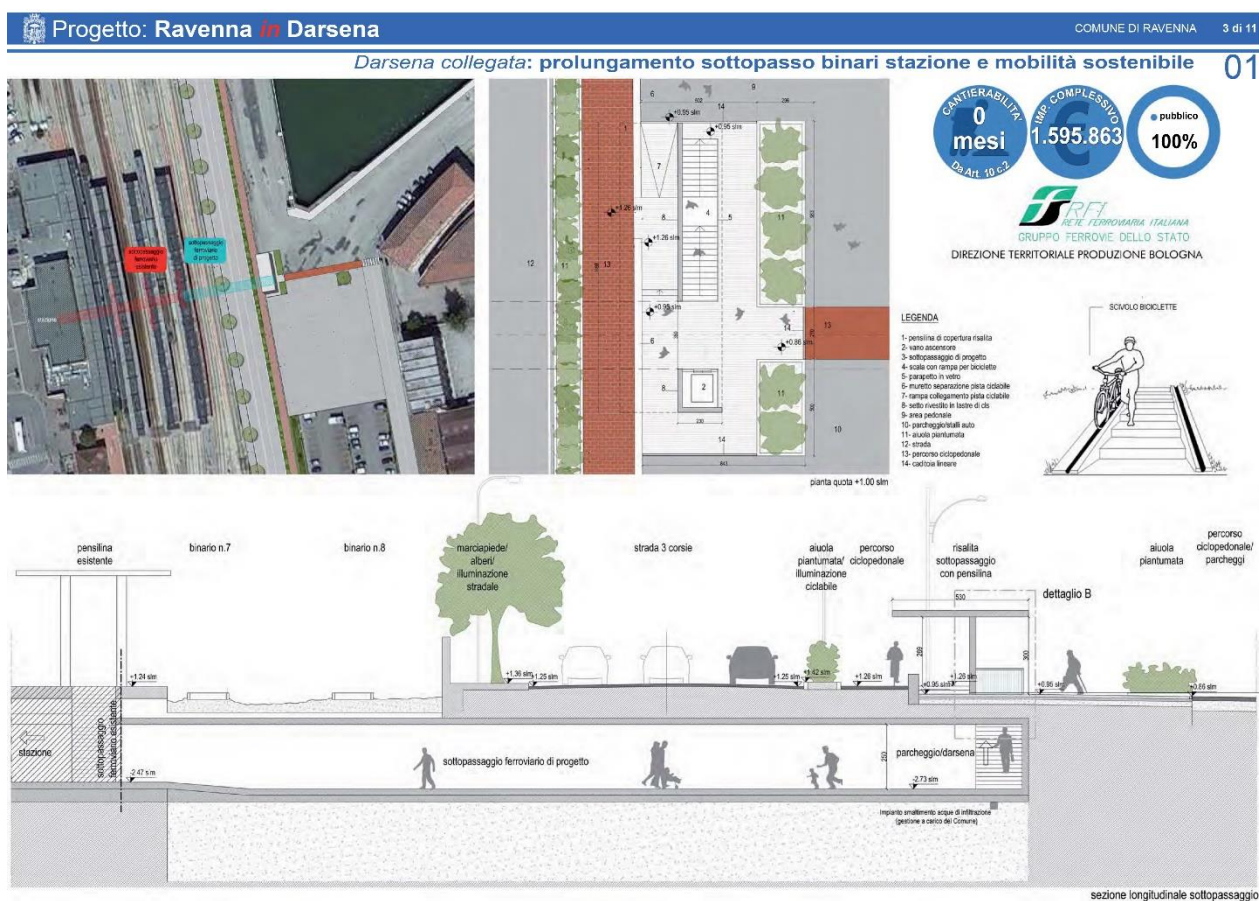
► DOCK DEVELOPMENT - SQUARE ON THE CITY SEA

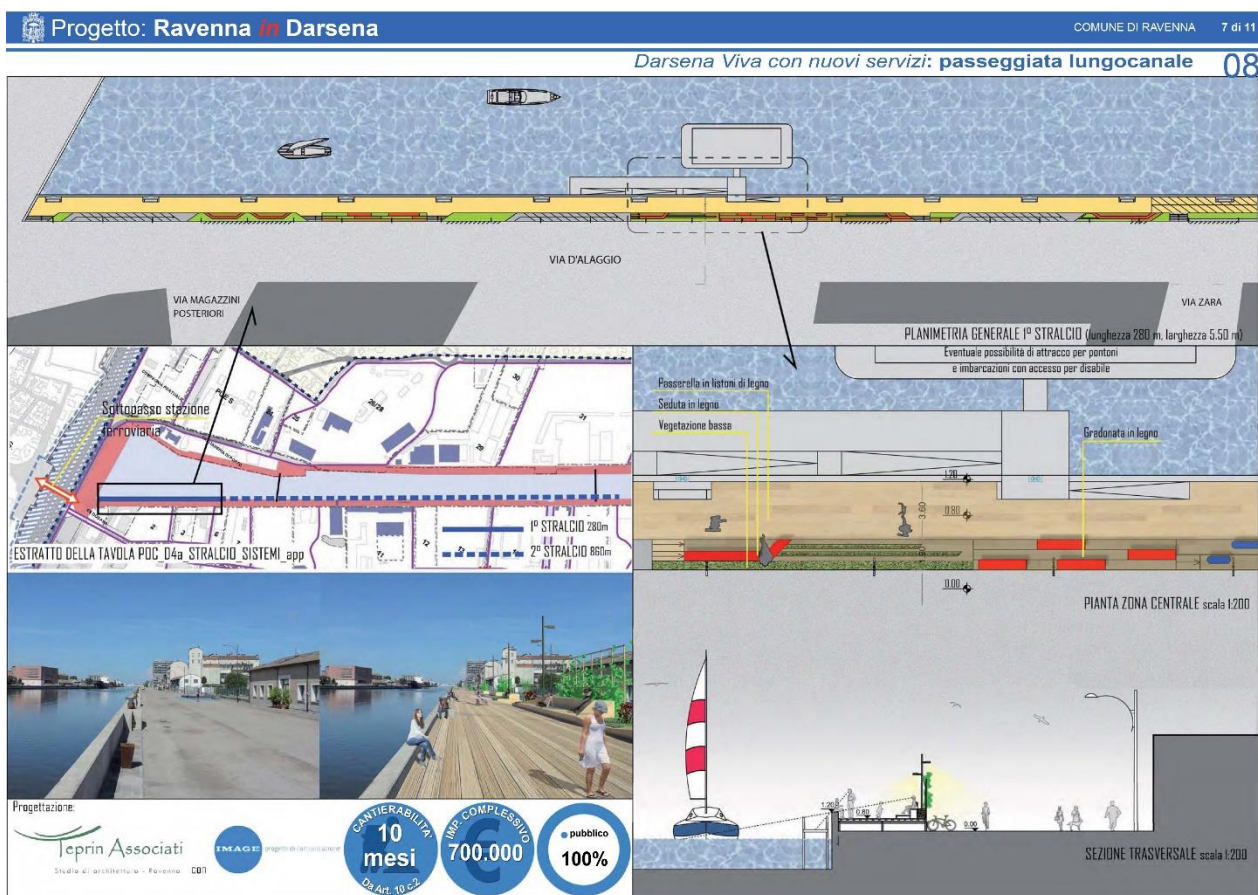
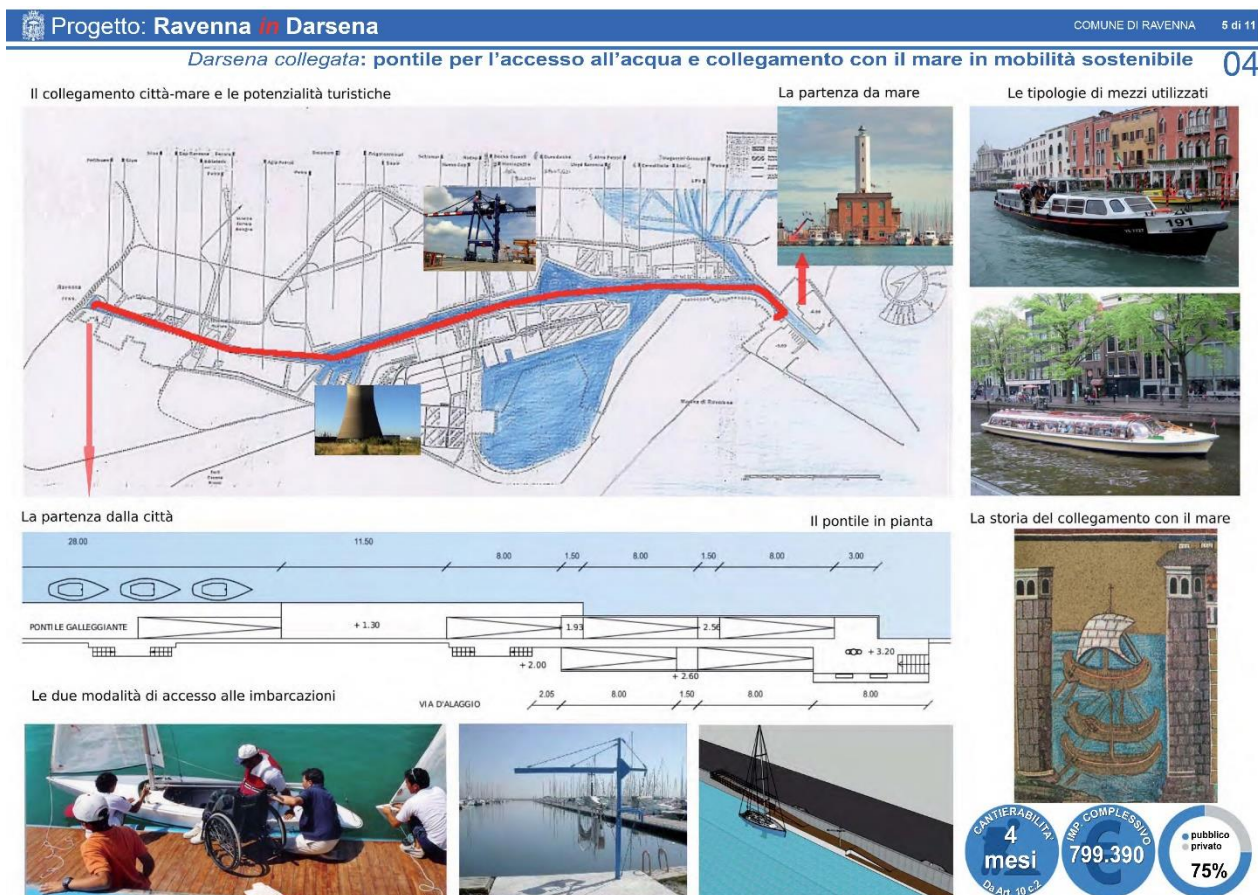
The Municipality of Ravenna submitted to the Presidency of the Council of Ministers a project for the redevelopment of the city dock in the context of the Extraordinary Intervention Programme for urban redevelopment and security in the suburbs of metropolitan cities and provincial capitals. According to the CIPE (Comitato interministeriale per la programmazione economica, Interministerial Committee for Financial Planning) Resolution published on 13/06/2017 in the Official Journal of the Republic of Italy, necessary funds were also allocated to the realization of the project presented by the Municipality of Ravenna.

The submitted project "Ravenna in Darsena il mare in piazza" (Ravenna on the Dock, Sea in the Square) is related to the urban redevelopment of the "destra canale" area. It consists of an organic set of interventions

strategically and uniquely aimed at taking off the more comprehensive urban redevelopment/reconversion based on the main idea of constituting a single territorial system from city to sea. The area overlooking the last section of the port canal for about 1.7 km is adjacent to the centre and the main square; therefore, it is located strategically with respect to the city, serving as a potential role of hinge between sea and centre (square), a role now hindered by the train station, which constitutes a barrier. The project consists of 12 interventions, 3 of which could have a strong influence on the transfer of cruise passengers. In fact, the 3 interventions entail the construction of a floating jetty without architectural barriers, the purchase of a hybrid boat for passenger transport to and from the sea, and the extension of the current station underpass with ascent to the strategic area at the head of Dock, near the pier for docking of transport means for connection to the sea.

The realization of these works opens a scenario in which at least a part of cruise passengers could arrive in Ravenna by sea through the Candiano canal with low-environmental impact vehicles, thus reducing the pressure on vehicular traffic, particularly in the town of Porto Corsini.





► THE LNG PROJECT IN RAVENNA

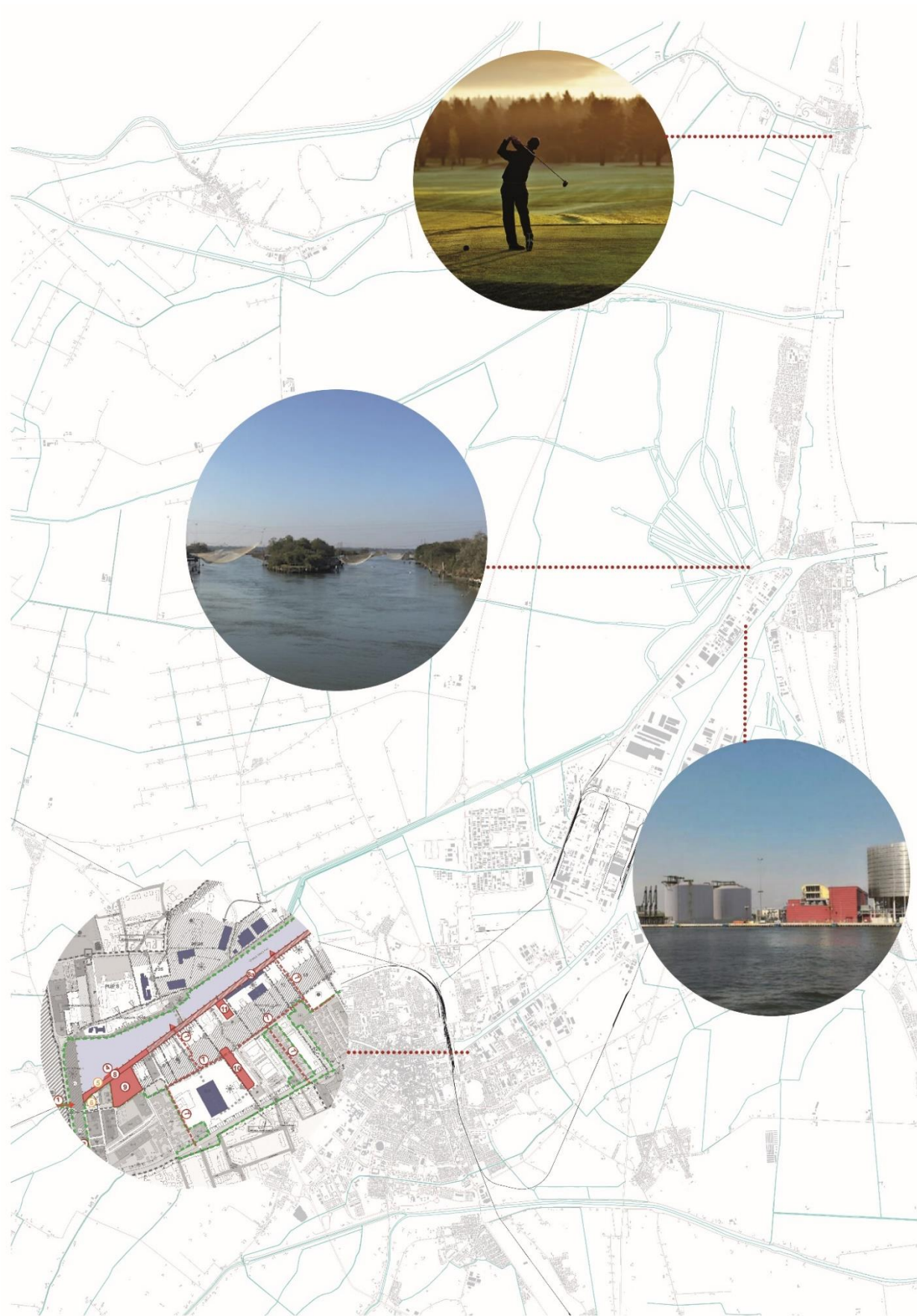
Within the context of Legislative Decree 257/2016, which provides for the construction of an adequate number of LNG refuelling points in the ports belonging to the TEN-T central network, of which Ravenna is a core port, Società Petrolifera Italo Rumena S.p.A. (PIR S.p.A.) intends to create a deposit for the reception and storage of Liquefied Natural Gas (LNG) within the industrial area of the port of Ravenna, in the town of Porto Corsini. The company has already submitted the necessary documents to receive the authorizations necessary to carry out the work. The deposit will be built in the area adjacent to the Bunge S.p.A. headquarters and to the Enel Plant. This area is currently not used, and free from facilities. Furthermore, the port of Ravenna is also involved in the industrial research project Clean Port (<http://www.cleanportravenna.it/>), which aims at the LNG retrofitting of the current Porto Corsini - Marina di Ravenna ferry.

The development of LNG plants could have a positive impact on the environmental aftereffect of cruise traffic, reducing the emissions of ships and smaller boats used to transport cruise passengers from the terminal to the city Dock.

► AGREEMENT FOR THE ENHANCEMENT OF PIALASSA DELLA BAIONA

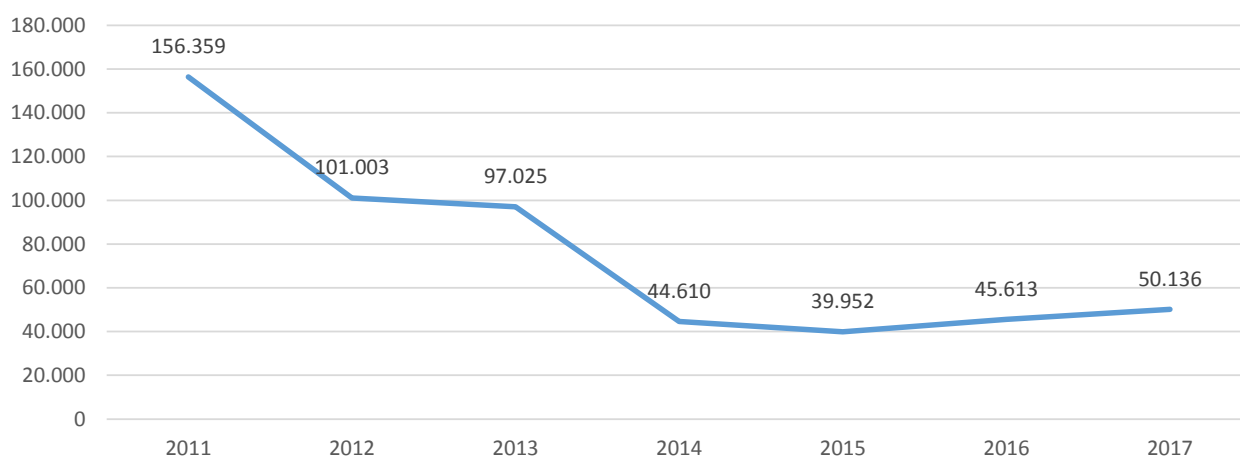
In August 2017, Ministry of Agricultural, Food and Forestry Policies, Emilia-Romagna Region, Port Authority of the Northern-Central Adriatic Sea, Park Authority of the Po Delta Park and Municipality of Ravenna signed a Memorandum of Understanding aimed at the recovery and enhancement of Pialassa Baiona. The purpose of the agreement was to realize the recovery and enhancement of the municipal “Pialassa Baiona” wetland and of the old building of the fish market of Marina di Ravenna, fielding resources for a value of over 5 million EUR.

Concerning Pialassa Baiona, the project intends to countervail the deterioration and progressive loss of biodiversity, by promoting its restoration, thus guaranteeing its vitality and functionality. The biodiversity conservation activities for Pialassa Baiona provide for the restoration of its waterway system and water circulation, thus allowing the revitalization of the basin and ensuring the oxygenation of waters and maintenance of temperatures and salinity compatible with diversified habitats. The programme includes, in particular: the opening of water connection systems between the Lamone river and Pialassa Baiona to encourage the exchange of lagoon waters and circulation through canals and basins, and the adaptation of existing systems for the control of tributaries; the reprofiling of embankments and sandbanks in the northern part of Pialassa Baiona; environmental restoration and naturalistic recovery interventions, such as the removal of waste and abandoned structures including asbestos; and, the restoration of native coastal vegetation for screening purposes and biodiversity enhancement.



2 Cruise flows and induced traffic

In recent years, the port of Ravenna has been considered a transit port, mainly providing for ships in transit and, in a smaller measure, ships whose final destination or departure was Ravenna.



Data show that in 2011 passengers exceeded 150,000 units in a year; in 2014, numbers decreased by more than half, even though the last two years showed a slight improvement. Many causes are attributable to this decline (for example, the issue of large ships in Venice and the Costa Concordia accident) and are part of a global picture of economic crisis that affected all cruise ports. In recent years, there has been a slight recovery in passenger numbers, with an annual increase of 10% since 2015.

Data on vessel size are available from 2014. There is an increase in the number of ships under 500 passengers and a fluctuating trend as far as large ships are concerned.

On average, ships stop in Ravenna for around 10 hours. Taking into consideration a duration of about 2-3 hours for disembarkation and embarkation operations, cruise passengers have at most about 8 hours to make a visit on land. On average, the arrival time is around 7.30 am, with departure being around 7.00 pm.

Cruise tourism in Ravenna does not continue throughout the whole year: the first arrivals begin in March, even though most of the trips are from May to October. Finally, a very limited number of cruises docks in November and December.

The traffic linked to the supply of goods for cruise ships is negligible.

► CRUISE PASSENGERS IN RAVENNA

Profiling cruise passengers - or "visitors aboard ships" - is challenging because such visitors fall into a variety of juxtaposing and intersecting categories.

One such category is **geographical origin** and consequent lifestyles/approaches to the trip. On average, Europeans are more accustomed to visiting artistic centres and to engage with spaces and location features; they are open to moving on foot and their health, even at a later age, usually allows it without much difficulty. On the other hand, US cruise passengers tend to visit cities in vehicles, a cultural issue reinforced by health conditions that frequently require to limit transfers; on the basis of what emerged from meetings with stakeholders, such tourists tend to delegate the organization of their trip in its entirety, minimizing efforts. Finally, Asian tourists, now still a minority share, suffer the charm of "Made in Italy", intended primarily as

“status symbol” (it is the appeal of brands such as Ferrari, Lamborghini and Ducati that attracts them to the so-called Motor Valley).

A second category is represented by clientele features that depend on the travel **season**: if in spring and autumn most tourists are middle aged, or older, with a good incidence of people older than 70 years, sometimes even with health problems or requiring walking aids, summer tourists tend to be younger, and include families with children and young couples.

A third possible differentiation is **financial means**: tourists in the medium-high segment move by shuttle, taxi or rental car with driver, and entrust to agencies the organization of excursions or - if particularly interested - book private tours that, in small groups of 4 or 6 people have costs comparable to tours offered aboard ships; often, the favourite seasons for travel are spring and autumn, since mild climate and reduced number of tourists allow a more satisfying experience. Middle-segment tourists often move by shuttle, and do not require the services of a tour guide, since they organize themselves using information found mainly on the web; the remaining segment uses public transport and, again, information found online.

An element that cuts across all three categories of tourists is physical disability, or, at least, motor difficulties: cruise tourism is a favourite among people with disabilities: the share of passengers with disabilities or reduced mobility is, on average, more significant than in other types of tourism.

Both from the analysis of landings data and the experience shared by stakeholders, Ravenna is a mid-to-high-end destination: ships with over 2000 passengers account for a quarter of the total number and they are exceeded by luxury ships with less of 100 passengers.

► INDUCED TRAFFIC IN PORTO CORSINI

Since opening the terminal, several traffic flow detection campaigns have been conducted in Porto Corsini. The first surveys were carried out by the Municipality of Ravenna on the occasion of the first docking of cruises and during the works carried out to rebuild the Marina di Ravenna - Porto Corsini ferry dock. Subsequently, other surveys were carried out for the preparation of the “Environmental Study (Traffic, Acoustics and Air Quality)” of the “specific variant to the 2010-2015 POC/Municipal Operational Plan - M02 card Porto Corsini Terminal - creation of service infrastructures at the cruise ship dock”.

From March to August 2017, the Municipality of Ravenna carried out a campaign to detect traffic flows for the purpose of assessing the effective increase in traffic flows during the summer season and on the days of disembarkation of cruises. Two instruments were installed for the detection of traffic flows, one on via Volano and the other on via Molo San Filippo.

MONTH	VIA VOLANO							
	Day	Average ve/d	Average day 7-20	Max ve/h	HGV/d	HGV/d 7-20	Max HGV/h	% HGVs
Apr-11	Working day	2700	N.A.	120	N.A.	N.A.	N.A.	N.A.
May-11	Holiday day	4000	N.A.	480	N.A.	N.A.	N.A.	N.A.
	Cruise call day	3500	N.A.	300	N.A.	N.A.	N.A.	N.A.
	Working day*	3200	N.A.	260	N.A.	N.A.	N.A.	N.A.
Cct-14	Holiday day*	1500	N.A.	160	N.A.	N.A.	N.A.	3%
	Cruise call day*	1500	N.A.	160	N.A.	N.A.	N.A.	7%
	Working day*	140	N.A.	140	N.A.	N.A.	N.A.	5%
Mar-17	Working day	2200	140	200	N.A.	N.A.	N.A.	6%
	Holiday day	2500	160	250	43	35	8	5%
	Working day**	3300	200	300	120	115	18	9%
Jun-17	Holiday day	3500	200	300	140	100	20	2%
	Cruise call day	3200	200	260	175	130	21	9%
Jul-17	Working day	3400	200	280	120	90	13	3%
	Holiday day	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Aug-17	Holiday day	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Cruise call day	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.

Tabella 1: Sintesi dei flussi rilevati a Porto Corsini in via Volano

VIA MOLO SAN FILIPPO								
MONTH	Day	Average ve/d	Average day 7-20	Max ve/h	HGV/d	HGV/d 7-20	Max HGV/h	% HGVs
Apr-11	Working day	2300	N.A.	100	N.A.	N.A.	N.A.	N.A.
May-11	Holiday day**	2600	N.A.	250	N.A.	N.A.	N.A.	N.A.
	Cruise call day*	2300	N.A.	160	N.A.	N.A.	N.A.	N.A.
	Working day	2000	N.A.	170	N.A.	N.A.	N.A.	N.A.
Cct-14	Holiday day	1300	N.A.	130	N.A.	N.A.	N.A.	N.A.
	Working day	1400	N.A.	115	N.A.	N.A.	N.A.	N.A.
	Cruise call day	1200	N.A.	100	N.A.	N.A.	N.A.	N.A.
Mar-17	Holiday day	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Working day	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Jun-17	Working day	2400	130	190	140	110	17	6%
	Holiday day	3100	140	220	200	100	17	4%
	Cruise call day	2400	140	170	260	250	34	9%
Jul-17	Working day	2500	140	180	150	125	15	6%
	Holiday day	3300	160	180	160	100	17	5%
Aug-17	Holiday day	4500	200	450	200	150	20	5%
	Cruise call day	4100	200	300	277	230	30	7%

The tables show the summary of data that have been collected since 2011: vehicular traffic flows in Porto Corsini are subject to seasonal variation that causes a sharp increase in daily traffic in the summer season. Daily flows are increased by around 1,000 vehicles per day (around 50 vehicles per hour); consequently, the maximum peak also increases to about 100 ve/h in the summer season. During daylight hours (7 am - 8 pm), the average hourly vehicle traffic flow is around 150 ve/h (2.5 vehicles per minute) in winter and 200 ve/h (3.5 vehicles per minute) in summer. Flows are greater on via Volano and via Po, considered the main access routes to the town.

Flows generated by cruise tourism are to be considered within this framework and they do not increase the volume of traffic compared to an average working day significantly. The substantial change concerns the flows of heavy vehicles that record a net increase on docking days, going from about 5 to 10% of the daily traffic flows.

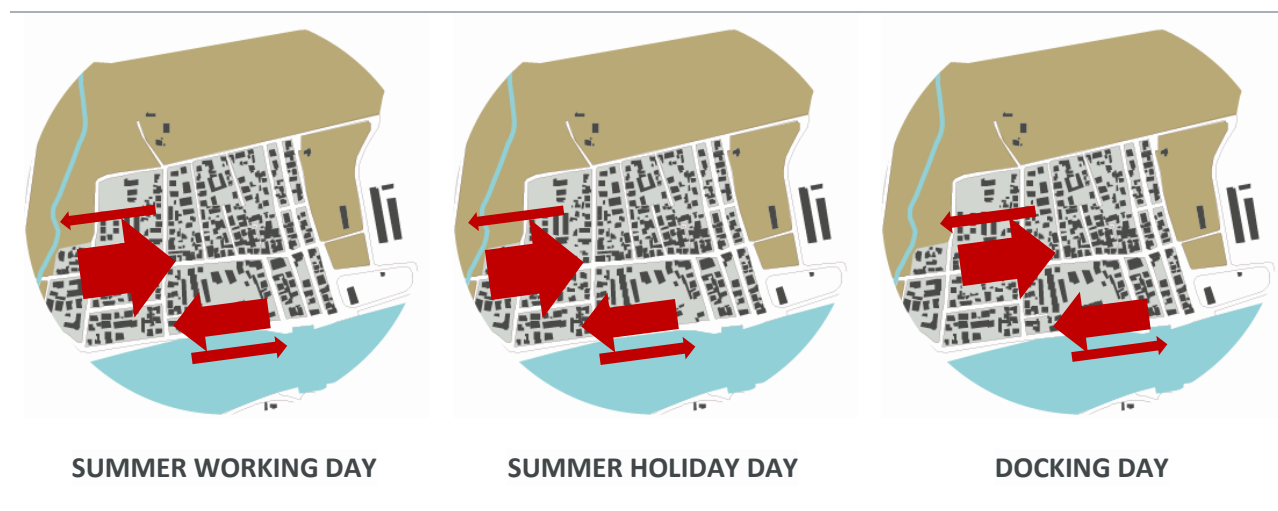
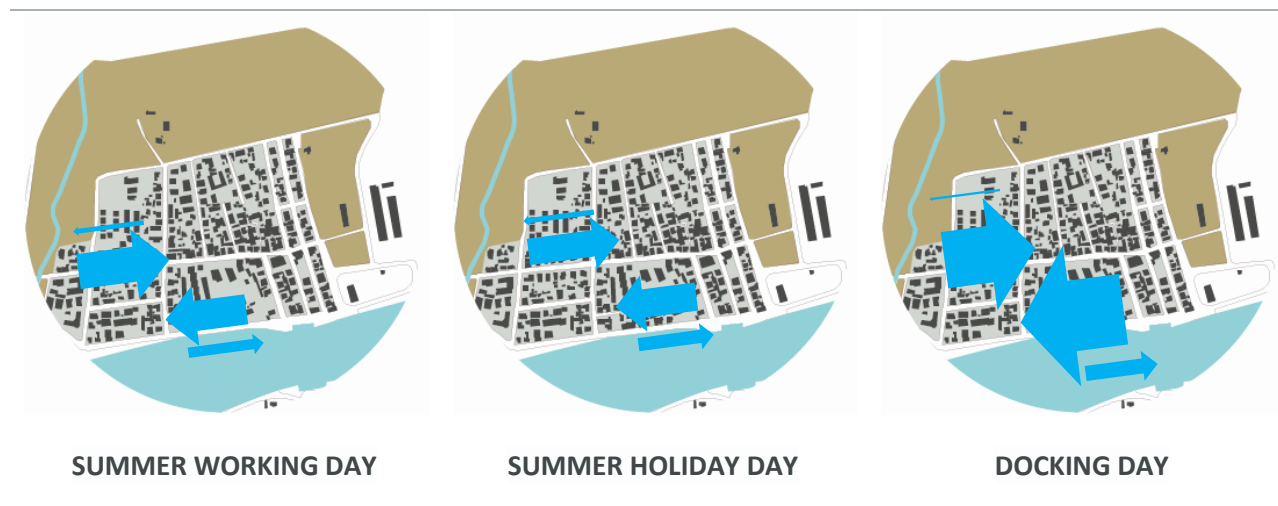


Figure 2: Infographic showing total vehicle traffic in Porto Corsini



3 Cruise-sector mid- to long-term (5 to 10 years) development trends

The growth trends of cruise flows at the port of Ravenna are not currently available and are unlikely to be made available, since they are commercial data of particular interest to industrial stakeholders. Given huge investments for the construction of the terminal, the Port Authority aims in the long run to reach 200,000 passengers per year. The Municipal Administration and the Port Authority are working to make the Ravenna cruise port the home-port of choice by ship owners, connecting the cruise terminal with the Marconi airport in Bologna, with which the Administration is already working to increase accessibility and connections with Ravenna. The possibility that Ravenna increasingly revisits the function of home-port is an opportunity not only for the terminal, but for the entire city, which could accommodate passengers for one or more days before or after the cruise experience.

4 Current cruise-related mobility and transport management policies and public & private initiatives addressing the existing flows.

► RAVENNA TERMINAL PASSEGGERI (RTP)

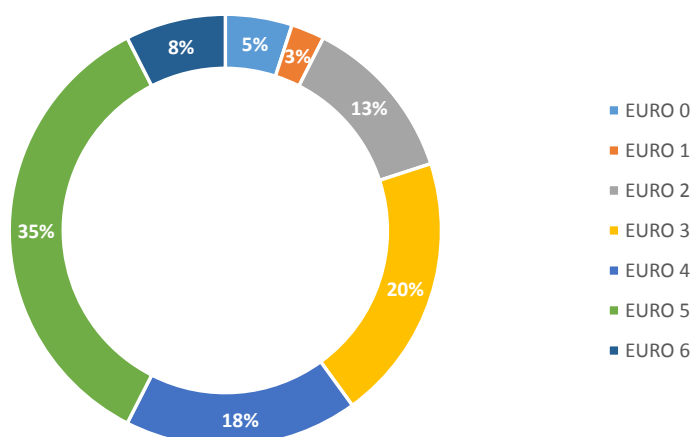
In 2009, the concession of the management of the maritime and boarding/deboarding and transit passenger services was awarded to RTP S.r.l. until 2019 through an RFP issued by the Port Authority in Ravenna.

Recently, the majority of the Company's shares were acquired by Global Ports Holding. Other shares are held by Aeroporto "Guglielmo Marconi" di Bologna S.p.A. and Venezia Terminal Passeggeri S.p.A. The new company structure does not have a local representation, previously guaranteed by the presence of the Chamber of Commerce, which is now no longer part of the concession company.

► TRANSPORT OPERATORS CONSORTIUM

In November 2001, the main transport operators of the province of Ravenna set up the METE consortium, thus forming a strategic alliance with the aim of creating management agreements and synergies, for the qualitative improvement and economic savings in the activity of members, though guaranteeing the basic autonomy of single members.

The company is the main operator engaged in transport operations for cruise passengers.



The graph represents the vehicle fleet of tourist buses of one of the main METE operators, considering only buses with more than 40 seats. To date, just over 20% of buses belong to a category equal to or lower than EURO 2.

► OTHER EUROPEAN PROJECTS

The passenger terminal area has been the subject of 3 European projects: “Adrimob”, Adriatic Multimodal System and EA SEA-WAY, “Europe-Adriatic SEA WAY”.

The first project, Adrimob, took place from February 2011 to October 2014; among the pilot actions implemented on the Passenger Terminal of Porto Corsini, those with the greatest impact on the mobility of cruise passengers are the following:

1. Informative and directional signage;
2. Free bike (16) rental point, near the terminal;
3. Passenger terminal Info Point.

At the end of the project, the bicycle rental service continued even though it was rarely used by cruise passengers, since the rental point is located in the camper area, far from the point of arrival.

The EA SEA-WAY project, active from November 2013 to autumn 2016, brought the following results:

1. construction of facilities to bring drinking water to the terminal;
2. installation of optical fibre;
3. activation of the bus connection between the terminal and the Ravenna railway station, for 2015 and until June 2016;
4. improvement of security measures thanks to the introduction of specific instrumentation

Once the shuttle service of the EA SEA-WAY project was completed, the transfer of cruise passengers was entrusted to the transport operators of the METE consortium company.



In the first half of 2018, Project MOSES began as the capitalization of EA SEA-WAY. The project aims to improve passenger mobility in the Adriatic area through the implementation of pilot actions aimed at introducing innovative services and maritime transport infrastructures.

5 List of negative impacts linked to cruise-related flows

The negative consequences of cruise tourism have been evaluated by stakeholders and can be summarized into the following key themes:

- absence of an official coordination table for cruise tourism stakeholders;
- congestion of tourist buses in Porto Corsini;
- poor exploitation of unconventional local tourist offer that is not linked to UNESCO monuments;
- lack of services in the passenger terminal;
- inadequacy of local public transport for cruise passengers;
- low development of bike trails at the service of cruise passengers;
- problem of accessibility for people with reduced mobility.

► STAKEHOLDERS COORDINATION TABLE

Several actors interviewed complained about the lack of a coordination entity for stakeholders involved in the organization of cruise tourism, underlining a lack of organization of the logistical aspects of areas affected by the presence of cruise passengers in the Ravenna area.

► CONGESTION OF TOURIST BUSES IN PORTO CORSINI

One of the main problems highlighted, due to the large size of buses in the small area of Porto Corsini, this situation causes a high level of stress in local residents. Furthermore, tourist buses are the main, yet only one of the elements causing saturation of the road network in the area at peak times. Porto Corsini is indeed additionally targeted by campers and daily visitors going to the local beach. To further enhance the inconvenience caused by the cruise tourists' transfers, are, according to local residents, the high speed of tourist buses and the continuous crossing of shuttle buses connecting the cruise terminal and Ravenna city centre throughout the day.

► POOR VALORIZATION OF UNCONVENTIONAL LOCAL TOURIST PRODUCTS AND SERVICES

Less cruise tourists are coming to Ravenna over recent years: they were more than 100.000 in 2011 and less than half in 2014, with a slight increase in the following years. The decrease may be due to a number of reasons (related to people's choices in relation to factors such as big cruise ships in Venice and the Costa Concordia disaster) and fall into the more general theme of the economic crisis affecting all ports.

The number of cruise passengers visiting Ravenna city centre has decreased, though, and there is a general perception - yet unconfirmed by data - that most tourist tend to visits other locations (San Marino, Bologna, Maranello) rather than Ravenna. Data show that Ravenna remains the main destination for cruise passengers, although the share of visitors moving to another location is increasing.

Among the reasons and missed opportunities:

- poor valorization of the city centre's UNESCO sites
- poor valorization of the opportunities offered by the territory surrounding the passengers terminal (Pialassa della Baiona, capanno Garibaldi, trails in the pinewood) of which cruise passengers remain unaware
- poor level of information for cruise passengers on opportunities and attractions offered by the territory
- absence of services for cruise passengers in Porto Corsini
- insufficient clarity and safety of pedestrian paths, including in the city centre
- absence of a Wi-Fi network in the whole territory

► LACK OF SERVICES IN THE PASSENGER TERMINAL

Among the main problems:

- the lack of shaded areas
- lack of an adequate information system
- absence of services for passengers

Although cruise liners' strategic choices are made in distant locations at international tables, the city council is determined to increase the destination's attractiveness and promote Ravenna internationally as a port of call to attract increasing numbers of cruise tourists

► INADEQUACY OF LOCAL PUBLIC TRANSPORT FOR CRUISE PASSENGERS

Among the main highlighted problems:

- insufficient number of taxis for cruise passengers
- inadequate local public transport service:
 - difficult to buy tickets (location of shops, opening times),
 - low frequency of service (competition with schools peak times)
 - low quality of buses

► LOW DEVELOPMENT OF BIKE TRAILS AT THE SERVICE OF CRUISE PASSENGERS

Cruise passengers are not often bike-friendly because of a number of reasons (cultural, health-related, etc.) and the distance between the passengers terminal and the city centre is such that only experienced users would choose this option. This notwithstanding, several cruise lines are already offering cycling tours and a development of cycling infrastructure would be highly beneficial not only for cruise passengers, but for all city users, including tourists and local residents.

Among the main problems highlighted:

- absence of a rental service by the passengers terminal (the existing service, free of charge, has a limited number of bicycles, is not clearly signaled and is far away from the terminal)
- low level of safety of available cycle paths connecting the passengers terminal with the rest of the territory

► PROBLEM OF ACCESSIBILITY FOR PEOPLE WITH REDUCED MOBILITY

The important issue of accessibility for people with reduced mobility is highlighted above all by tourism operators, as the proportion of passengers with different types of motor difficulties is significant. Cruises are reported to be the main way through which people with reduced mobility choose to travel; furthermore, tourists, including those in good health conditions, who choose cruises often wish to avail themselves of complete assistance as it pertains to issues concerning organization and planning. With this in mind, tour operators complain about the impossibility of parking near tourist sites in the historic centre, as well as lack of public restrooms.

6 Infrastructures and services for the mobility of cruise passengers

A tourist accessibility platform specifically dedicated to buses carrying cruise passengers has been set up in the historical centre of Ravenna, near the station on Viale Farini, in order to facilitate access to the historic centre. Other tourist buses for the embarking and disembarking of passengers must use the tourist accessibility platforms on Piazzale Aldo Moro or Piazza della Resistenza, which are located in a less central position than Viale Farini.

Cruise passengers use the following means to reach the historical centre of Ravenna:

1. Shuttle service managed by tour operators aboard ships

The shuttle service allows tourists to freely move between cruise terminal and historic centre (via Farini) without limits. The frequency of rides is contingent upon the size of the docked ship, and fluctuates between 10 and 20/30 minutes; the first ride becomes available about 30 minutes after docking, and the last one in time for the end of the boarding procedures. The service is carried out by 54-seat vehicles.

2. Excursion with tourist guide managed by tour operators aboard ships

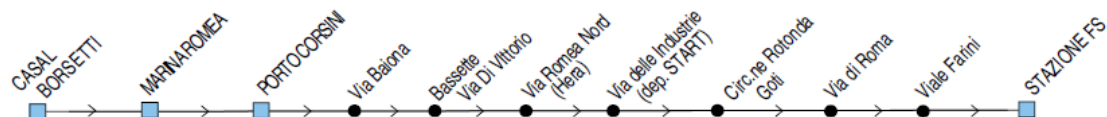
The service is carried out by 54-seat vehicles. The main destinations for excursions are Ravenna, San Marino, Maranello and Bologna.

3. Local public transport

Public transport line 90 connects Porto Corsini to Ravenna. However, the offer is limited, since the line was created for use by residents only. Alternatively, there are two lines with greater frequency from Marina di Ravenna - a place that can be reached by ferry.



Linea 90		Casal Borsetti → Marina Romea → Porto Corsini → Ravenna																			
		◆ START Romagna ◆																			
		✕ FERIALE																			
Zona	Località	●	§,%3,5	●	1,4,5	●	●,§,£	@	●	●,§,@	£	1	§	@,4	&			4			
703	C.Borsetti v.le al Mare				06:38			08:22		11:20	12:35	13:35	14:30	15:20	16:38	18:20	18:53	19:57			
703	C.Borsetti Ciceruacchio				06:44							13:41									
703	M. Romea H. Meridiana				06:51			07:59	08:30	11:28	12:43	13:48	14:38	15:28	16:46	18:28	19:01	20:05			
703	M. Romea p.zza Italia				06:53			08:00	08:32	11:30	12:45	13:50	14:40	15:30	16:48	18:30	19:03	20:07			
703	Porto Corsini Traghetto		06:58		07:00			08:07	08:39	11:37	12:52	13:57	14:47	15:37	16:55	18:37	19:10	20:13			
703	Stabilimento BUNGE														16:28	17:03					
703	v. Baiona L.Trattaroli		07:04		07:06			08:13	08:45	11:43	12:58	14:03	14:53	15:43	16:28	17:06	18:43	19:16	20:19		
703	Marcegaglia		07:05		07:07			08:14	08:46	11:44	12:59	14:04	14:54	15:44	16:29	17:07	18:44	19:17	20:20		
700	Bassette v. di Vittorio			07:06		07:43	07:53	08:18	08:50	08:51	11:48	13:03	14:08	14:58	15:48	17:11	18:48	19:21			
700	Bassette CFP						07:55				12:55	13:05									
700	v. Romea Nord Hera			07:08		07:45	07:57	08:20	08:52	08:53	11:50	13:07	14:10	15:00	15:50	17:13	18:50	19:23			
700	v. Industrie dep. START	06:05	07:12	07:13	07:14	07:50	08:02	08:24	08:56	08:57	11:54	13:11	14:14	15:04	15:54	16:34	18:54	19:27	20:26		
700	Industrie-Chiav.Romea				07:16		08:04	08:26	08:58	08:59	11:56	13:02	13:13	14:16	15:06	15:56	16:36	17:18	18:56	19:29	20:28
700	Ravenna FS	06:15	07:24	07:27	07:22	08:04	08:10	08:32	09:04	09:05	12:02	13:08	13:19	14:22	15:12	16:02	16:42	17:25	19:02	19:35	20:33
§ = solo nei gg. di Scuola		@ = non si effettua il Sabato									£ = nei gg. di Scuola transita CFP escluso Sabato										
& = transita stabilimento BUNGE escluso Sabato		● = corsa della Linea 2									% = transita Vill. S. Giuseppe (7:21)										
1 = transita via Ciceruacchio		3 = parte da via Volano (6:56)									4 = non transita Bassette										
5 = prolungata Ravenna p.zza Caduti																					



2.1.2 SWOT Analysis

STRENGTHS

- Project partnership
- Integration of LCTP in Ravenna SUMP
- The development of Ravenna Cruise Terminal has been treated by other European projects
- Due to the small dimension of Porto Corsini – a little more than 1500 inhabitants – it is possible to customize actions and mitigations.
- Shuttle busses from the cruise terminal have a special bus stop in the city center
- 8 UNESCO monuments as important tourist attractions

WEAKNESS

- Few facilities at the Cruise Terminal
- Distance between the Cruise Terminal, in Porto Corsini, and the historic center of Ravenna (20-25 min. by bus)
- Poor development of cycle infrastructure and related facilities oriented to cruisers
- Limited extension of Porto Corsini road network
- The presence of various seasonal tourism attractions in Porto Corsini – each one with its own related traffic – increase the citizens' discomfort
- Ravenna is a commercial port: the evocative idea of using the Candiano Canal to reach the city dock and, from there, the city center present some relevant difficulties
- The cruise terminal and the city center are separated by the main industrial area of the Municipality (chemical, petrochemical, metallurgical industries)

OPPORTUNITIES

- The development of a golf course in the near center of Casalborsetti (Municipality of Ravenna) is foreseen by the master plan
- It is possible to reach the beaches on foot from the cruise terminal
- Naturalistic attractions close to the cruise terminal
- Development of a LNG storage and distribution network in the port of Ravenna
- Industrial research project to powered with GNL the Porto Corsini –Marina di Ravenna ferry
- Financing of the city dock area

THREATS

- Fluctuating flow of cruise passengers in Ravenna
- Public Administration and Port Authority haven't any possibility to act on the itineraries chosen by the cruise companies
- A relevant part of cruisers is not environmental-friendly
- The tourism flow generated by cruises is not enough to justify new dedicated infrastructures
- It is difficult to realize new roads near the terminal due to its proximity to a naturalistic protected area (pinewood)

A focus is needed to clarify the main constraints that hinder, at least in the short term, new connections by sea or the construction of new infrastructures. In the collective imagination of many Ravenna citizens, there is the idea of sea cruisers landing in the city Dock, a space abutting the historic center that could partially solve the problem of the cruise passengers' transfer from Porto Corsini to Ravenna. Keeping in mind that the depth of seabeds would not allow the arrival of cruises up to the Dock head, this solution would be feasible with fast motorboats for transporting passengers from Porto Corsini to Ravenna, along the Candiano canal.

At the moment, the absence of direct connection between the Dock - the point of arrival of ships - and the historical center due to the presence of the railway line is a critical issue that cannot be neglected. The aspect of the feasibility of the maritime connection should also be considered. According to the “Regulations for navigation, parking, transit and right of way of ships and boats in the port of Ravenna”, the maximum speed allowed in the Candiano canal is 6 knots, about 11 km per hour. At present, navigation from the cruise terminal pier to the city dock would take more than 60 minutes. Moreover, boats must give priority to all commercial ships, pursuant to Art. 25 of the Regulations. At present, it is therefore considered difficult to implement these new connections right away, but it is undeniable that in the medium and long term period they could be part of the solution to the problem of traffic congestion in Porto Corsini.

Another possibility that is proposed as an answer to the reduction of vehicular traffic linked to the transfer of cruise passengers concerns the construction of a new infrastructure specifically dedicated to the terminal to connect it directly with the main access route to Ravenna. However, this solution involves crossing the SIC IT4070005 area “Pinewoods (Pineta) of Casalborsetti, Pineta Staggioni, Duna di Porto Corsini”. The pine forest is part of the Natura 2000 sites, where interventions, activities and works that may compromise the protection of protected natural environments are forbidden, with particular regard to flora, fauna and habitats of EU interest protected under Directives n. 92/43/EEC.

2.2 Step 2: Participatory process

1 Stakeholders identification

The Plan was developed as part of a broadly participated process, in which several actors were involved from the early stages of analysis. Indeed, cruise tourism includes a series of issues, in addition to transport, which could not be left behind in the preparation of the Plan and for which it was necessary to involve sector operators and stakeholders, who also hold information and data which otherwise would not have been possible to access.

The process of identifying stakeholders began from the work done during the kick-off meeting with other partners of Project LOCATIONS, and was integrated during the first phase of the participatory process. Previously considered or partially considered issues emerged during the course of a variety of meetings, which is why we constantly supplemented the list of actors to be involved. On the basis of our meetings, a stakeholder “interest vs. power” matrix was developed for the purpose of classifying their relevance in the development of the Plan. The matrix classifies stakeholders according to their power and interest, rather than in terms of their nature, in relation to results that the Plan aims to achieve.

It should be noted that it was not possible to involve all stakeholders from the early stages of the project. Specifically, the Po Delta Park Authority, the State Forestry Corps and the Superintendence were subsequently involved in obtaining suggestions and opinions in relation to specific actions that required their suggestions and the issue of opinions.

POWER	HIGH	Emilia Romagna Region Stakeholder representative associations (crafts and trades) Heritage Agency Delta Po Natural Park Agency Ranger	Tour operators Ravenna Port Authority Ravenna Passengers Terminal
	LOW	Province of Ravenna Cruisers	Environment protection associations Cycling associations Tourist guides Transport operators Beach resorts operators Local Committee for the Seaside Area and Local Development of Porto Corsini
		LOW	HIGH
INTEREST			

Given the plurality and diversification of players involved, it became necessary to structure the participatory process at different times, involving specific stakeholders in a different way. Among those identified, we can distinguish two types of actors:

1. Institutional or representative stakeholders representing an institution or group of people who are interested in the mobility of cruise passengers
2. Individual subjects who are directly affected by the Plan, namely, cruise passengers and citizens of Ravenna.

2 Process design

The participatory path has been structured in two phases.

► STEP 1 PARTICIPATORY PROCESS WITH REPRESENTATIVE STAKEHOLDERS

Representative stakeholders have been involved in three different moments:

- I. A first phase of analysis, during which **focus groups** or **face-to-face meetings** were held. Stakeholders were separately invited to some meetings in order to collect what were deemed issues of **critical importance** regarding the transfer of cruise passengers. The **focus group** mode was chosen to allow each actor expressing his or her opinion, thus preventing some subjects from prevailing over others and shifting attention only on certain problems. Furthermore, especially for tourism sector operators, the confidentiality of information and data regarding cruise tourism is of fundamental importance; it was therefore necessary to provide a confidential and favourable environment for dialogue.
- II. In the second phase, in which the roles of various stakeholders became clearer, a variety of actors were brought together in groups based on the interest-power matrix. Actors with high interest and low power met in an initial meeting; a second meeting was held with stakeholders with high power

and low interest and a third gathering was reserved for actors with high power and high interest. During the **first two meetings**, the first part was dedicated to the presentation of cruise tourism in and around Ravenna, as well as of main constraints in short- and long-term opportunities. After building a **common knowledge base**, the stakeholders with low power/high interest and high power/low interest were invited to assign a **priority** to a set of actions and objectives that had been formulated in the analysis phase. The evaluation was completed on the basis of a 1 to 5 scale, according to the following system

1 scarcely important	to be considered possibly only in the long term (10 years)
2 important, can be postponed	to be considered for sure in the long term (10 years)
3 important	to be implemented in the medium term (5 years)
4 very important	to be implemented in the short term (2 years)
5 priority	to be implemented as soon as possible

All actors were invited to raise issues and topics not included in the themes proposed by the Municipality of Ravenna.

Hypotheses discussed with other stakeholders were presented in a subsequent interview with high-power/high-interest actors, outlining operational hypotheses required to put in place high-priority actions.

- III. After drawing up an LCTP draft, stakeholders were once again involved in a single meeting to gather any observations and further opportunities for developing the Plan..

► STEP 2 – PARTICIPATORY PROCESS WITH SINGLE SUBJECTS

Another phase of the participatory process included the direct participation of individual subjects. Cruise passengers and citizens of Porto Corsini were involved in this process.

As end users, cruise passengers were interviewed during the last 2017 docking in Ravenna, and were asked to respond to a questionnaire to assess the quality of mobility services from the terminal to the city, as to allow understanding what deficiencies are most perceived by cruise tourists.

The citizens of Porto Corsini, as people more directly interested in the effects of the mobility of cruise passengers, were directly involved in a process that accompanied the development of a Detailed Traffic Plan, which, taking account of sustainable mobility, aims to define works that can be implemented in the short/medium term to improve pedestrian and cycle mobility, accessibility, road safety, as well as parking and vehicular traffic.

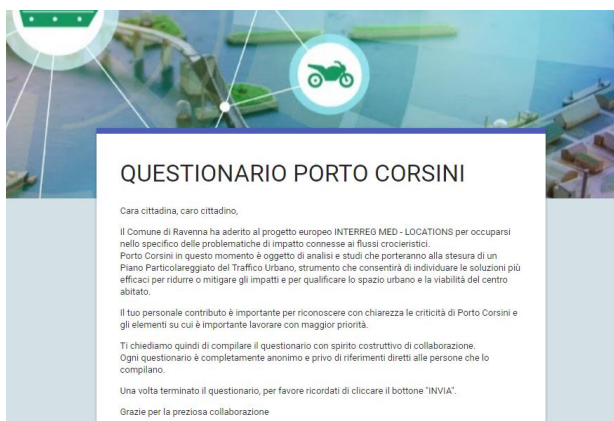
A claim and a dedicated logo were created for the citizen involvement path, which accompanied the entire process, from the analysis to the evaluation phases of scenarios, and to final design.



The activities related to the participatory process with the citizens of Porto Corsini took place at different times:

1. an initial meeting structured as a “group interview” to so-called “opinion leaders”, namely, some people (less than ten in total) who, by role and/or activities carried out in the hamlet, have a bird’s eye view of problems at hand and are able to convey the perception of part of local residents and economic operators;
2. a public meeting open to all interested parties. In the first part the local population was informed of the objectives of the LCTP, while in the second critical issues had been collected through the “geotagging” technique. Prior to the meeting, 6 categories of critical issues were identified, with a symbol being associated to each one of them. Each participant was provided with stickers with the six symbols representing the critical categories. Everyone was asked to identify critical issues by affixing stickers on a large printed aerial photograph. Moreover, through the distribution of A4 size “mute” floor plans of the location, it was possible to identify and mark additional points and critical sections related to issues that are meant to be addressed by Plan tools. Finally, some initial roadmap proposals were collected, ensuring that, at a later point, the results of reports could be identified and discussed in a collegial environment;
3. the publication of an on-line questionnaire addressed to the Porto Corsini residents, aimed at getting to know basic mobility habits, gathering summary opinions on some issues concerning local mobility and traffic patterns, as well as opinions and more structured proposals
4. a public meeting focused on informing citizens about “traffic-calming” strategies, on the measures that can be implemented in Porto Corsini and on the comparison between the different possibilities and implications of each, integrating technical aspects with suggestions and observations made by residents;

5. a final meeting in which the Plan proposal was submitted to residents; the proposal was formulated on the basis of contributions by locals, as well as contacts entertained with entities involved, and includes works that can be largely anticipated by reversible and low-cost experiments which can provide suggestions and serve as references for the future.



3 Results of the participatory process

► STEP 1 PARTICIPATORY PROCESS WITH REPRESENTATIVE STAKEHOLDERS

The analysis of the critical issues that emerged from the stakeholders during the focus groups is reported in detail in paragraph “List of negative impacts linked to cruise flows”. A system of different priorities for the actions and strategies of the Plan, depending on the type of stakeholder considered, has emerged during the identification of solutions, even if the tables identify priorities that are shared by the two groups of actors.

What all the representative stakeholders consider as priority is the enhancement of local tourism offer in order to increase the positive impact of cruise tourism in the area, and the reduction of the length of routes to reach the excursion destinations, thus encouraging the use of sustainable mobility (bike and feet).

For other strategies, however, we can notice a certain difference in the allocation of priority by stakeholders: if high-interest/low-power stakeholders consider the other three strategies as priorities or, in any case, important, those with low-interest/high-power consider important, though not a priority, the improvement of the environmental quality of Porto Corsini, while they consider the other two strategies achievable only in the long term.

SPECIFIC OBJECTIVES	PRIORITY High Interest – Low Power	PRIORITY Low Interest – High Power
ENHANCMENT OF LOCAL TOURIST OFFER	4.4	4.1
IMPROVEMENT OF ENVIRONMENTAL QUALITY IN PORTO CORSINI	4.3	3.25
REDUCTION OF POLLUTANT EMISSIONS PRODUCED BY COACHES USED FOR CRUISE PASSENGERS	3.9	2.1
DEVELOPMENT OF NEW MODES OF TRANSPORT FOR CRUISE PASSENGERS	3.8	2.2

Tabella 2: Le priorità delle strategie secondo gli stakeholders

ACTIONS	PRIORITY	PRIORITY
	High Interest – Low Power	Low Interest – High Power
Increase low carbon tourist offer for cruise passengers	4.8	3.7
Wayfinding for cruise passengers (and tourists)	4.7	3.7
New bike paths	4.6	3.7
Improve accessibility to POI for people with reduced mobility	4.5	4.7
Create an official coordination table for cruise tourism stakeholders	4.5	4.7
30 km Zone areas	4.4	1.7
Urban requalification in Porto Corsini	4.4	4.0
Limitation of circulation to polluting vehicles	4.3	2.3
New road schemes	4.2	3.0
Low carbon bus for cruise passengers (LNG or electric)	4.2	3.3
Works in the historic centre for the regulation of bus transit and walking accessibility	3.7	3.3
Cruise passengers' bus flow management	3.1	2.7
Offrire nuove opportunità di spostamento a basso impatto ambientale ai crocieristi	2.2	2.3

Tabella 3: Le priorità delle azioni secondo gli stakeholders

Delving into details that concern actions, high-interest/low-power actors consider the expansion of tourist offer and interventions to support cycling and pedestrian mobility as a priority. Low-interest/high-power stakeholders, while considering these very important actions, also highlight the urgent need to institutionalize a coordination table related to the mobility of cruise passengers. All actors involved in the participatory process recognize the urgency of improving accessibility for people with reduced mobility.

► STEP 2 – PARTICIPATORY PROCESS WITH SINGLE SUBJECTS

Cruise passengers were interviewed on the occasion of the last 2017 cruise call, on 25/11/2017. For a correct interpretation of the results, it must be emphasized that cruise passengers travelling during this season tend to be older and with greater financial resources. 71 cruise passengers were surveyed, an amount equal to about 60% of those who visited Ravenna.

This number mostly includes couples aged between 60 and 80. Approximately 30% of cruise passengers interviewed claimed to be a person with reduced mobility. In general, the assessment of the quality of the transfer is perceived positively, as the level of accessibility is considered good enough even among people with reduced mobility. Among those who consider the quality of the transfer to be inadequate, there is evidence of 40% complaints about lack of information, and an additional 30% does not provide information about the assessment and probably complains about the absence of public toilets as reported by the technicians of the Municipality of Ravenna, who distributed the questionnaire. The availability of different modes of transport in the city has been assessed as important by about 70% of respondents.

Regarding the engagement with citizens, the geotagging activity carried out during the public assembly has allowed identifying with a certain precision the critical issues known to citizens. The photo taken of the aerial picture at the end of the evening, used as a working base, shows where participants affixed stickers. From the picture it emerges; in particular, the density of reports on the three axes of via Po, via Molo San Filippo and via Guizzetti.

The questionnaire dedicated to Porto Corsini residents was published on the website of the Municipality of Ravenna and on the Facebook page "PUMS Città di Ravenna", on 11 December, 2017 and launched publicly during the meeting with citizens. 75 surveys were completed. Below are the main elements emerged, presented with the support of tables and graphs. The questionnaire was mostly compiled by people over the age of 60, although there is also a good participation of people between the ages of 41 and 60, with a prevalence of female participation (41) compared to men (34). Most of the questionnaires came from workers (64%) and retirees (17%).

As it will emerge from the attention paid to the slow mobility of Porto Corsini, many of the inhabitants who have filled out the questionnaire usually use the bicycle (40%), a number that surpasses standard car drivers (37%) and that is added to those who routinely move on foot (20%). Buses and motorbikes-scooters are scarcely used. It should be noted that the question asked to indicate the transport means used mainly to move within Porto Corsini. The dedicated table, which details data for the different occupations declared, also shows how the car becomes the preferred vehicle for workers.

When asked about the perception of safety when moving on roads and pedestrian and cycle paths of Porto Corsini, 71% responded negatively. In 70% of cases, the reasons for scarce safety are due to absence or lack (small size, poor maintenance, poor functionality, discontinuity, etc.) of both pedestrian and bike trails

In the second part of the questionnaire, citizens expressed themselves on a number of issues concerning mobility, evaluating them according to a 1 (very negative) to 5 (very positive) scale. In general, it is noticeable that no aspect of mobility reaches weighed average feedback above 3 and that all average ratings are rather flat on values between 2 and 3. Road (and car trips) and walking routes get the best reviews (at least in terms of the number of positive reviews between 4 and 5). Stops, cruise passenger flows, cycling and mobility of children are the central block of the ranking. On the other hand, ferry (which receives the highest number of 1s), architectural barriers and mobility of the elderly receive the most negative judgement.

Finally, when asked about the importance and priority that the Plan should assign to certain strategic issues, citizens responded in a clearer way, identifying the two most relevant issues (both indicated by 83% of completed questionnaires) in the improvement of routes and safety for pedestrians and bicycles. 60% to 65% of citizens confirmed their consensus on improvement of the quality of public space, reduction of vehicle speed and mitigation of impacts related to the transit of cruise passengers' buses. The improvement of the

cruise terminal area and of public transport stops are considered important and priority by a number of around 50% of the completed questionnaires.

The second public assembly was divided into two closely related moments: a first portion included the presentation of the results of the online questionnaire and the geotagging activity; a second portion discussed principles and techniques of so-called “traffic calming” strategies, as a crucial element of response to problems raised. The presentation featured a practical approach, with application examples within the town of Porto Corsini and comparison of different possibilities. Citizens were provided examples of local realities in order to facilitate the understanding of possible actions: participants expressed their preferences regarding proposed solutions, as well as suggested modifications and additions.

The final meeting - the presentation of the plan proposal - constituted the moment of synthesis of the path taken. Project tables, not yet final, of the main themes were presented and hung to facilitate the understanding of the proposed interventions.



Principles of sustainability, accessibility and security were integrated with those of flexibility, feasibility for parts, experimentability and reversibility. Some of the proposed actions can be tested even in the short term, in a reversible way and at low cost.

It is important to highlight that actions envisaged in the plan, as well as self-consistent, can be the basis for further future actions in favour of the quality of the town of Porto Corsini, both in terms of mobility and urban life.

2.3 Step 3: Design of the plan

The Plan proposal include three strategies that have been articulated according to a set of actions. For each action, we identified financial costs that consider costs that the public body or other subjects involved must foresee for the implementation of the activity.

An external consultant drafted a Detailed Plan and implemented a participatory process with the residents of Porto Corsini and a wayfinding draft plan aimed at promoting low-carbon transfers from the cruise terminal to points of interest near the terminal.

1 The current scenario

On the basis of the information reported in the previous chapters, the current scenario of the mobility of cruise passengers on the ground is summarized here:

- about 50,000 cruise passengers per year;
- the bus is the only mode of transport available to cruise passengers;
- 40% of buses belong to a category equal to or better than EURO 3;
- during disembarkation days, there is a 45% increase in heavy traffic at Porto Corsini;
- Cruise passengers with reduced mobility have difficulties in moving about the municipal territory.

The most urgent problems of the current scenario are the following:

- Porto Corsini residents have to reckon with a considerable increase in heavy traffic during the disembarkation days;
- Porto Corsini residents perceive only the negative impacts of cruise tourism;
- stakeholders report the poor enhancement of tourist attractions near the cruise terminal;

2 Vision and objectives

► VISION

The Municipality of Ravenna aims to become one of the reference destinations for the sustainable mobility of cruise passengers in the Mediterranean area. Specifically, the City aims to excel in the issue of accessibility to ensure everyone the opportunity to move in a sustainable manner in the port and in Ravenna with the least possible number of architectural barriers.

This goal is part of the commitment of the whole city on the issues of accessibility and elimination of architectural barriers. At the beginning of 2018, the Municipality of Ravenna approved the Urban Accessibility Plan (PAU) aimed at creating safe and accessible pedestrian paths for everyone and achieving greater social inclusion and integration of all people in the field of mobility.

The vision of the LCTP also falls within the strategic objectives of the Urban Plan for Sustainable Mobility (SUMP) of the city of Ravenna and, more in general, the perspective of improving the quality of life of all citizens.

► OBJECTIVES

As part of the overall objective of LOCATIONS project, the LCTP of the Municipality of Ravenna aims to reduce adverse impacts resulting from the shifts to land of cruise passengers, and seek solutions to maximize the opportunities for developing sustainable transport modes for cruise tourism. The position of the passenger

terminal and the uniqueness of the Ravenna canal port must become a force factor on which to focus for the purpose of offering cruise passengers sustainable transport opportunities that have tangible and measurable repercussions on the town of Ravenna.

3 Actions and indicators

To achieve the general objectives that the Municipality of Ravenna is pursuing within the framework of the LCTP, three strategies have been defined and shared with stakeholders. In this regard, we must make a clarification: the questionnaire given to stakeholders listed four strategies. In the course of the project, the in-depth study of topics at hand led to a better definition of strategies: the objectives identified were traced back to basic actions, which, in turn, were grouped into macro-areas on the basis of themes and coherence. The result led to the definition of the “new” strategies.

“The decrease in the emissions of vehicles transporting cruise passengers”, being in fact a very precise activity, has been brought back within a broader strategy - *to improve the environmental quality of connections between the cruise terminal and the centre of Ravenna.*

We decided to develop a Plan that includes feasible actions, trying to overcome scepticism of citizens and stakeholders that in previous year were shown high-cost projects that were never realized. LCTP is a Plan integrated with other territorial and urban plans already approved(or being-approved) by the Municipality or other Public Bodies. For this reason, actions included in LCTP do not need to get special permissions (as Environmental Impact Assessment or other authorization) with long and complicated process and not certain results.

STRATEGY 1 | IMPROVING TOURIST ACCESSIBILITY TO POINTS OF INTEREST IN THE PROXIMITY OF THE TERMINAL

The improvement of the local tourist offer, especially referred to the naturalistic areas near the terminal tend to decrease distances travelled by cruise passengers on land with the double effect of reducing emissions produced by road trips and incentivizing more sustainable modes of transports, such as cycling, as these destinations become more attractive to cruise passengers.

Objectives

- To increase the level of accessibility, also for people with reduced mobility, of tourist destinations near the cruise terminal;
- To create the basis for the development of low-carbon local economies that have the main objective of enhancing tourist destinations near the terminal

Actions

1.1 Improvement of accessibility to points of interest near the cruise terminal - the Municipality of Ravenna aims to improve routes to reach tourist destinations in the vicinity of the terminal. First of all, together with the main stakeholders, we identified the main tourist destinations that could be enhanced in the immediate vicinity of the cruise terminal, and, in broader strokes, we assessed the accessibility to identified points of interest, as well as the feasibility of any necessary work in this regard. We then identified the following actions to increase the level of accessibility of the following points of interest:

- **Isola degli Spinaroni:** construction of a bike trail from the entrance of Porto Corsini to the embarkation point to the island of Spinaroni and a small parking area for small vehicles - table 1.1
- **Capanno Garibaldi** - construction of a bike trail, sometimes within mixed use areas, from Porto Corsini to the access bridge to Capanno Garibaldi - table 1.1
- **Beach resorts and Diga Foranea (Breakwater):** as part of the new project of the Porto Corsini harbour, the Municipality of Ravenna has requested Port Authority to create a pedestrian route from the maritime station to the bathing establishments and the breakwater

Indicators	Source
km of bike paths from cruise terminal	Municipality of Ravenna Port Authority
# points of interests 5 km far from cruise terminal accessible for cyclists and pedestrians	
# of cruise passengers visiting points of interest near cruise terminal	
# bikes available for cruise passengers	
# of cruisers using bikes	

1.2 Cycle and pedestrian signage system - The LCTP also includes a wayfinding draft plan designed to foster cycling for cruise passengers. One of the preliminary operations for the precise definition of individual signage systems and information posts concerned the identification of sites of interest and attraction centres to be marked by signage, which involved representatives of the Porto Corsini, Marina Romea and Casalborgretti Pro Loco offices. The elements chosen to be marked by signage can be distinguished in two macro categories:

- services and attraction centres;
- sites of scenic/naturalistic interest.

Each of these elements was assigned an icon, so as to report information in signage, as necessary and in the most concise way possible.

The wayfinding system includes two types of signals:

1 Four-sides totem with information about points of interests and the entire cycle network related to cruise terminal. These totems have been designed to be read and consulted in stop and non-transit mode. They are structured as four-sided parallelepipeds. There are two types of posts, with similar graphics and characteristics, being aimed primarily at cruise passengers; their contents, however differ, since they are installed on the basis of two different contexts: Porto Corsini and Ravenna. Totems informing tourists about the main tourist sites of the coastal towns of Porto Corsini, Marina Romea and Casalborgretti and of the bike trail system of the Lidi Nord area will be installed in two or three “noticeable locations” in the town of Porto Corsini, in proximity of the network of slow-mobility trails. A single totem focusing on the historic centre of Ravenna, designed to facilitate walking on foot to reach the main attractions of the capital, will be installed on Viale Farini, at the tourist accessibility platform dedicated to cruise passengers. As the previous one, it includes four sides with the following features.

2 Signals with tables guiding cyclists on the most suitable routes to reach certain attraction centres and the main sites of scenic and naturalistic attraction. Existence and features of marked routes were verified through specific inspections. Therefore, they are positioned, in general, where cyclists come across a fork or at intersections along trails connecting to a variety of sites of interest. In some cases, these signals univocally identify the direction to be followed; in others, they allow choosing alternative trails to reach the same destination through paths of different length. For the most important sites, we estimated distances in minutes, assuming an average ride speed of 12 km/h. This is a medium-low speed, acceptable even for occasional cyclists, and which generally also takes into account possible short stops along the way. The coloured dots that point to four recommended routes with departure from and arrival at Porto Corsini provide additional information on the choice of routes represented and briefly described in information posts. For the design of directional tables, we made reference to the Coordinated Image Handbook of the Emilia-Romagna Region concerning protected areas and Natura 2000 sites and to what is set forth in the Traffic Code.

We have planned for the supply and installation of 59 points and 199 directional tables. Each plant is made up of a tubular support pole with a diameter between 48-60 mm, to which, using the appropriate brackets, are anchored various signage tables in 10/10 extruded iron sheet measuring 1000x200 mm. The base on which each system must be installed, for which a plinth of the approximate dimensions of 50x50x50 cm should be provided, is to be verified. Totems must be constructed using structural methods, materials and types of digital printing that guarantee high resistance to atmospheric agents and UV protection, with

particular regard to those to be installed in the Porto Corsini area, close to the sea. Each face of the post has a height of 200 mm and a width of 80 mm. Totems will be anchored to the ground to a foundation plinth of adequate size or with a concrete block placed inside it, in case the need arises to change the installation location.

Indicators	Source
# of signals installed	Municipality of Ravenna

1.3 Activation of a new service of e-bike rent (MOSES project)

The MOSES project and in agreement with RTP, will launch a pilot installing an equipped container containing pedal-assisted bicycles, cycles without power and a small space for maintenance. E-bikes will be equipped with GPS detectors and distributed free of charge to cruise passengers, who will be able to follow the marked naturalistic and urban routes: the presence of GPS equipment will make it possible to track preferences and distances travelled, and support choices regarding the future location of charging stations. The experimentation will start in June 2018 and end in 2019. Municipality of Ravenna helped MOSES Ravenna partners in the procedure for identifying the criteria for the purchase of pedal-assisted bicycles, requiring the presence of a bicycle dedicated to the transportation of people with reduced mobility.

Indicators	Source
# e-bikes available for cruise passengers	Municipality of Ravenna
Average bike rent rate	Port Authority

STRATEGY 2 | IMPROVING URBAN QUALITY IN PORTO CORSINI

Description

The improvement of urban quality in Porto Corsini, the area most affected by the negative effects of cruise tourism, will result, on the one hand, in actions aimed at improving accessibility and usability of cycling and pedestrian routes, and, on the other hand, increasing the quality of public spaces to compensate for inconvenience caused by the inevitable passage of buses in the town of Porto Corsini.

Objectives

- To reduce heavy traffic in the centre of Porto Corsini
- To improve the quality of the public spaces of Porto Corsini to mitigate the negative impacts caused by the traffic of cruise tourism;
- To increase the attractiveness of the centre.

Actions

2.1 Implementation of interventions foreseen by the Detailed Urban Traffic Plan of Porto Corsini - A Detailed Traffic Plan has been developed in order to reach the following goals:

1. reduction of the adverse effects caused by the transit of buses in the town of Porto Corsini,
2. improvement of safety conditions, especially for users with challenges, and the urban quality of the Via Po axis.

In responding to the critical issues related to the impact of cruise traffic in Porto Corsini, the Detailed Urban Traffic Plan aims to outline a series of works that can lead to a stable improvement in the liveability and safety of the centre's public spaces

Porto Corsini at 30 km/h

The residential centre of Porto Corsini becomes a single "30 Zone". Speed reduction is not to be understood as the mere imposition of a speed limit enshrined by the installation of special vertical signs, but as the adoption of an approach to the way of treating roads not as "corridors for motor vehicles", but, rather, as spaces where to carefully preserve the needs and security of users with challenges and provide for slow pedestrian and cycle mobility. Reducing the speed limit, along with traffic moderation techniques, will improve safety on all roads and mitigate the impact of vehicular traffic on atmospheric and acoustic pollution. The lengthening of travel times in the town is relative: if in a free-flowing network, the speed differential would lead to an increase of the time of about 40 sec to cross the 900 m that separate the entry junction on via Baiona and Capitaneria di Porto, reality shows how the interference with lateral flows and pedestrian crossings, as well as speed maintained on the trails within the centre greatly reduce the theoretical result of the count.

Internal bike trails and trail connections with the area.

Bringing residents and tourists to cycle easily and safely in Porto Corsini is the PPTU's goal. The establishment of the "30 Zone" and, as we will see, some "residential streets" with appropriate works, is already in itself a provision that leads to a rebalancing in the use of the road in favour of the bicycle.

Accessibility and usability of pedestrian paths.

The poor quality of the network of pedestrian paths emerges especially in some streets. The identification of “residential areas” can offer a “non-infrastructural” response to the problem. In other cases, on roads affected by major traffic flows, the construction from scratch or re-sizing of sidewalks according to laws in force governing the elimination of architectural barriers are identified as priority actions. This is the case of Via Guizzetti and Via Sirotti, where the already reduced sidewalks are even more unserviceable due to the presence of public lighting poles, and the western part of Via Molo San Filippo.



Accessibility and usability of bike trails

The idea prevails in Porto Corsini that bicycles can move freely and safely in the roadway, along with vehicles and on all roads, thanks to the establishment of an extended 30 Zone.

In some cases, it is necessary or advisable to create dedicated routes, as in the case of the trails of via Po and via Guizzetti - which allow bikes to move even in the opposite direction to that of motor vehicles - or in bike trails or bike/pedestrian trails connecting local beaches and the port (beaches, earth dam, cruise terminal and ferry dock for Marina di Ravenna) to Via Baiona and the rest of the network of local bike trails.

Table project in annex shows some moderate road traffic connections that complete the idea of “network” which we sought to make the system of the routes of Porto Corsini clear. That is how via Valle Giralda and via Volano, for example, despite the lack of space to create dedicated bike trails, should be seen as fundamental connections for the development of local cycling.

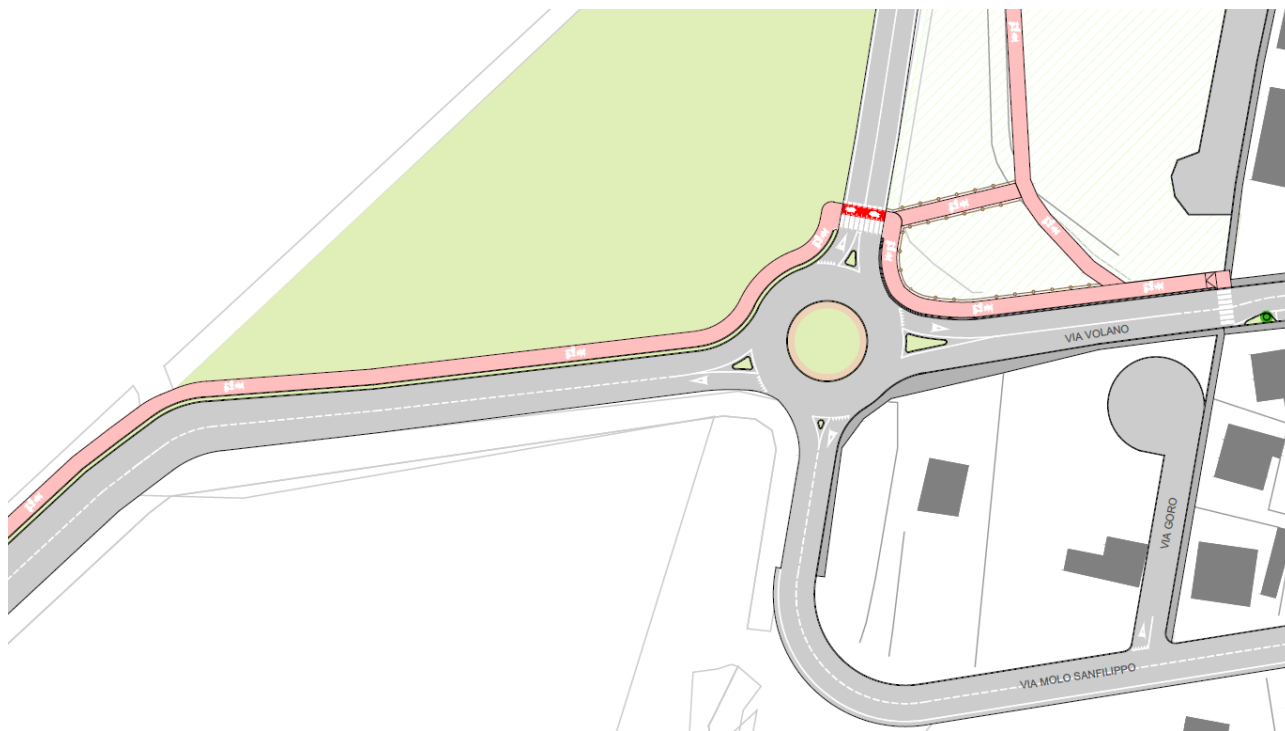
Through the wayfinding system described above, cyclists are addressed preferentially in the area surrounding Porto Corsini to the following trails:

- cycle-pedestrian route along Via Baiona, towards Marina Romea and Casalborsetti;
- the bike path that, running alongside the “Cavallo Felice” stables, allows quickly reaching Piasa Baiona, transiting through the pine forest at the drain point, and via Valle Giralda;
- the trail through the pine forest that starts from the intersection between via Guizzetti and via Sirotti, crossing northwards all the access roads to the sea.

“Safe nodes” works

Along the local road network some intersections have been identified on which to intervene to improve the general conditions of safety. The safety of the intersections responds, in the first place, to the need to reduce risk factors, but is also addressed as an opportunity for redevelopment of public space and improvement of connections between pedestrian and bike trails.

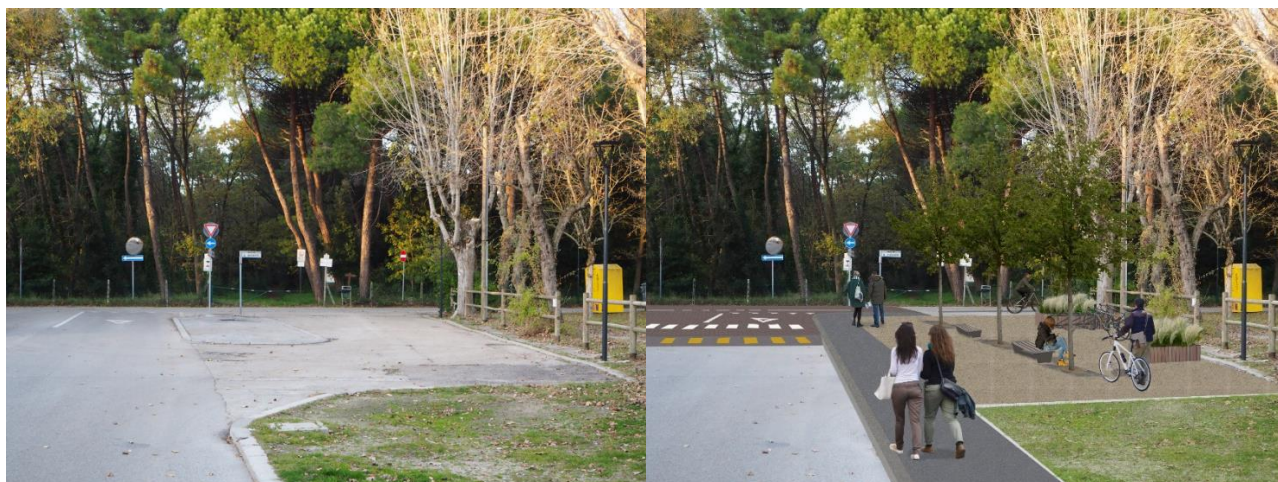
At the town entrance, the junction between Via Baiona and Via Volano can be revisited with the construction of a roundabout functioning as a speed mitigator and “gateway” to Porto Corsini.



At the intersections of via Cottino, that cuts the town in half, with via Guizzetti, via Volano and via Molo San Filippo, we propose to carry out works reminding drivers the level of attention to be paid behind the wheels.



At the two ends of Via Sirotti, we plan to reorganize intersections along with the creation of bike and pedestrian trails and crossings, as well as the redevelopment of spaces adjacent to the roadway and, in the case of the ferry berth to the south, improve the current connection viability.



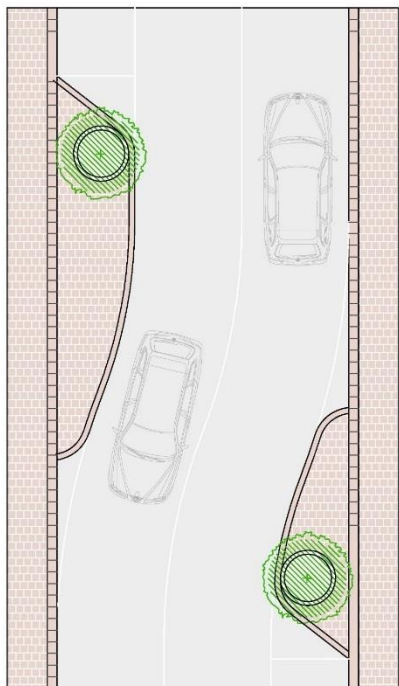
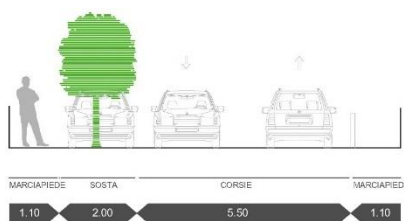
Reorganization of some road axes and redevelopment of public space

Some of the road axes that serve the village deserve a general reorganization for the purpose of ordering and making more legible the allocation of space to transit, parking, pedestrian and vehicular components.

This is the case, in the first place, of the via Volano - via Po route: on via Volano, the aim is to moderate traffic and restrict the use of parking at roadside in marked spaces, possibly improving the quality of pedestrian routes; on via Po, the main objective is to guarantee the transit of bicycles running opposite to traffic direction.



Along Via Volano, there will be three horizontal off-cuts of the carriageway, moving parking lines from one side to the other and creating three chicanes with the physical construction of flowerbeds on the side of the road to separate marked parking places.



Via Po maintains its current one-way road status, though space is made for a one-way bike trail in the opposite direction and, in the central stretch between the pharmacy and the tobacconist (between via XXV Aprile and via Lamone), there will be a single road platform raising the carriageway at the level of sidewalks.

The first part of via Valle Giralda coming from via Baiona and the stretch of via Sirotti between via Po and via Molo San Filippo can be revised to create wide sidewalks and parking lines on both sides of the roadway.

On via Molo San Filippo, it is necessary to connect the existing bike trail to the ferry terminal and to evaluate the possibility of moving off the carriageway to increase the radius of curvature with via Sirotti, to which the ferry service can be connected. These opportunities are superimposed to the need for the total redevelopment of the entire front occupied by the disused ferry dock, which represents an opportunity to enhance one of the representative nuclei of the hamlet.

Similar needs for general redevelopment are also found for the via Molo San Filippo quay between via Cottino and the shipyards and, in general, in the whole area that includes the harbour and the earth dam, with particular regard to areas used for (seasonal) parking.

Proposal to modify public transport and cruise transport routes

An issue that we also tackled as a priority concerns the routes of buses and HGVs (in particular, light and heavy commercial vehicles that supply the cruise terminal) within the hamlet, for several reasons:

- road classification: the roads on which the buses transit must technically be functionally classified at least as “interzone local roadways”, with anything that follows in terms of applicable road regulations;
- road organization: the roads on which buses and heavy vehicles transit must have adequate standards as it pertains to organization of spaces, with due attention to interference between buses and transit of other vehicles, bicycles and pedestrians;
- impact on the hamlet: transport services for cruise passengers and vehicular flows attributable to the activities of the cruise terminal create an impact in the hamlet that is negatively perceived by its inhabitants.

Although the use of the via Volano - via Po barycentric axis with respect to the hamlet leads serving the latter well, the transit of buses is not appropriate due to the rather reduced road section and the presence of marked parking places at roadside. To these difficulties on via Po are added problems related to interferences with pedestrian crossings, and, in particular, with bicycles travelling in the opposite direction of traffic.



Observing phenomena on the field and armed with all relevant road measurements of the hamlet, and to the extent that is not already done at present, the Plan proposes to forcibly divert vehicular traffic imputable to the cruise terminal (transport of people and goods) onto via Molo San Filippo, which will result in a moderate speed transit.

With regard to urban public transport, the displacement of the entrance route on via Molo San Filippo (where the buses leaving from Porto Corsini now transit) penalizes the access to stops for the northern part of the hamlet; however, if the route is extended to a ring made up of via Sirotti, via Bisca Nerino, via Guerra Teseo, via Guizzetti and again via Sirotti (see Table project in annex), the following results are obtained:

- Capitaneria di Porto is connected more directly;
- camper area, beaches and earth dam to the north are served, which can increase the attractiveness of the service in the summer;

- the most north-east portion of the hamlet is not penalized if a new stop is added in the section of via Sirotti, between via Guizzetti and via Po. Table 08 shows 250 m “buffer” reservoirs from the project stop facilities on this proposal to modify the LPT routes that almost completely cover the inhabited centre.

Although conceptually it is not advisable to change routes during the year, we believe that if the modification proposal is considered to be penalizing for accessibility to the service, the current routes for winter service can be maintained, while in summer - when interference with vehicular, cycle and pedestrian flows caused by tourist presences increases and there is a need to serve the camper area and beaches in the north - the routes can be modified, as in many tourist locations.

This measure, which can also be tested in the short term, will obviously be accompanied by widespread information and communication campaigns.

Indicators	Source
# of daily HGVs passing through Porto Corsini center	Municipality of Ravenna
% of the works foreseen by Porto Corsini Traffic Plan realized	
sqm of 30 km/h area	

2.2 Preparation of a feasibility study for an intermodal hub at the entrance of Porto Corsini - This action involves the construction of a hub outside the inhabited centre of Porto Corsini, where buses can stop while waiting to go to the cruise terminal. Buses will be able to access the cruise terminal through an entry system designed to avoid congestion in Porto Corsini. This platform would constitute an intermodal hub whose management should be carefully designed together with transport companies and cruise operators. However, it is a costly proposal both from a financial and environmental point of view, in light of the amount of soil that should be waterproofed or partially rendered permeable. Considering also the evaluation of stakeholders and the extent of the current cruise flows, we therefore determined not to proceed with the implementation of this action in the short term, postponing further verification of its feasibility at a later time, when the amount of cruise passengers increases.

Indicators	Source
# cruise passengers buses going into Porto Corsini / year	Municipality of Ravenna

STRATEGY 3 | TO IMPROVE THE ENVIRONMENTAL QUALITY OF CONNECTIONS BETWEEN THE CRUISE TERMINAL AND THE CENTRE OF RAVENNA

Description

This strategy aims at the environmental improvement of the connections between the terminal and the centre of Ravenna through both the upgrade of the vehicle fleet used for the transfer of cruise passengers on land, and the creation of new services and infrastructures to increase the share of low-emission transfers. This is a medium-long term strategy that seeks to combine synergies with other projects concerning the Ravenna area and which is part of an expansion of the tourism offer, since the strategy aims to increase the opportunities for travel and therefore also a visit to local sites.

Objectives

- To increase the low-carbon transport modes for cruise passengers
- To reduce emissions from vehicles used for transport

Actions

3.1 Limitation of circulation to polluting vehicles. A Low-Emission Zone will be established in phases in **Porto Corsini**, through the implementation of gradual actions to limit the circulation of the most polluting heavy vehicles, including buses used for the transfer of cruise passengers, which will have to comply with increasingly more stringent environmental requirements. The development of fuels from renewable and/or alternative sources will allow the introduction of vehicles with reduced, if not zero, environmental impact. With the construction of the LNG storage facility at Porto Corsini, medium-term scenarios with LNG buses can be outlined, while in the long-term, transport companies will also have to consider the opportunity to use electric vehicles. By 2020, pursuant to the provisions of the Emilia Romagna Region, which provides for the replacement of all EURO 2 buses dedicated to local public transport in Porto Corsini, cruise passengers will be transported aboard EURO 3 category vehicles, or higher. Approximately every 4 years, in line with SUMP scenarios, the minimum emission category for access to Porto Corsini will be updated in order to contribute to the reduction of polluting emissions deriving from the transfer of cruise passengers on land. In the medium and long term, it is expected that a part of the vehicle fleet of buses dedicated to cruise ship transport will be powered by LNG and/or electricity.

Year	Environmental requirements for cruise passengers coaches
2020	At least EURO 3
2024	At least EURO 5
2028	At least EURO 6

Indicators	Source
Coach fleet	Municipality of Ravenna

3.2 Connections by sea - As explained in the context analysis, the Municipality of Ravenna has set in motion the process of establishing new sea connections along the Candiano Canal. Transfers should take place on motorboats accommodating about 150 passengers to connect the coast with the city dock, where it is planned the construction of a landing place also accessible to people with reduced motor skills. Furthermore, a new connection with the railway station and the historical centre is foreseen by the extension of an already existing pedestrian underpass. Finally, the installation of a bike sharing station with 15 pedal-assisted bikes is planned. These projects are an important opportunity for cruise passengers. Although navigation is around 60 minutes, even tour operators may be interested in offering a package including a tour on the Canal. In the medium term, this action would allow a partial decrease in bus travel, which can not be totally replaced by canal connections at least in the medium term (5-6 years). The canal connection should take place using a low-environmental impact means, thus leveraging the results of the CleanPort experimentation.

Indicator	Source
% of cruise passengers using maritime connections	Port Authority

3.3 Increase bike towards Ravenna city centre

A priority action requested by stakeholders is the construction of a new cycle path between Porto Corsini and the historic centre of Ravenna. A possible trail has already been identified by FIAB and included in the SUMP in the adoption phase, as a north-south cycle route for trips home-to-school or home-to-work trips. For tourists, an alternative route has been identified since it best enhances points of naturalistic interest. The tourist itinerary, which most interests cruise passengers, is partly included in action 1.1, which provides for the creation of bike routes from the terminal to Capanno Garibaldi. With this action, we intend to include the following stretches:

- I. from Capanno Garibaldi at the entrance of the San Vitale pinewood, which should provide for the arrangement of the trail on a dirt road, the construction of a new link between Via Baiona and the left bank of the Stagghi canal and the reinforcement of the embankment itself;
- II. a part in Pineta San Vitale pinewood between the Stagghi Canal and the entrance to the wood from road SS309 Romea; in this section, works are planned, since the trails already exist;
- III. a new stretch which, after crossing road SS309, runs along Canale Magni up to Via Enrico Mattei, passing next to an already existing sports facility;
- IV. the last stretch of a mostly existing trail, from via Enrico Mattei passing through via Chiavica Romea, joins the trails of the Teodorico Park.

The entire itinerary described, including the stretches referred to in action 1.1, has been included in the Corridor of the Adriatic Cycle Route “Ciclovia Adriatica” (BI6), also in order to increase the possibility of

financing works necessary for its complete implementation. Costs are indeed high, as the new trail should include the construction of at least two new bridges.

As a measure to support the use of bicycles by cruise passengers to reach Ravenna, it would be useful to activate a bus + bike service to allow tourists to be able to return to the terminal by bus by loading their bike; this means encouraging the use of the two wheels in a “protected mode”, in which fatigue - notwithstanding assisted pedalling - or fear not reaching the terminal on time are not detrimental elements.

Indicators	Source
# of cruisers cycling to Ravenna city center	Municipality of Ravenna Port Authority

3.4 Installation of infrastructure for charging pedal-assisted bicycles at the cruise terminal

The Municipality of Ravenna is in the process of writing a memorandum of understanding for the installation of a charging station for electric vehicles. Given the LCTP objectives, it will also include the installation of a charging station for e-bicycles also to support the launch of the rental service described in action 1.3

The memorandum of understanding will also contain details concerning the data that the manager will have to provide to the Administration in order to be able to carry out a correct monitoring process. After monitoring, it will be possible to install additional charging columns

Indicators	Source
# e-bike recharge points	Municipality of Ravenna Port Authority

3.5 Improving accessibility for people with reduced mobility - In agreement with transport companies and tour operators, the Municipality of Ravenna will authorize low-impact vehicles with reduced size to access the Limited Traffic Zone (ZTL) to facilitate visits to the historical centre by people with reduced mobility. Specifically, two accesses to the ZTL will be allowed for each landing. Authorized vehicles must be specifically dedicated to people in wheelchairs or with serious walking problems. The main vehicles available today to transport companies that transfer cruise passengers can accommodate 12 guests, including 2 on wheelchairs and are just over 4 m long. These vehicles are powered by diesel and belong to the EURO 6B category, which is currently one of the most stringent in terms of polluting emissions. In the long term, a provision was made to deliver transfer services by electric vehicles. Vehicles can make a stop in front of the Alighieri Theatre, on via Angelo Mariani, in the historic centre of Ravenna. Once cruise passengers have gotten off, the vehicle must stop in the Piazzale Giustiniano parking lot, which will soon be acquired by the Municipality of Ravenna and where 2 stalls will be reserved for the vehicles described above.



Indicators	Source
# of buses for people with reduced mobility	Municipality of Ravenna
# of cruise passengers using of buses for people with reduced mobility	Port Authority

3.6 Works in the historic centre for the regulation of **bus transit** - the Municipality of Ravenna is defining the regulation for the establishment of a limited traffic area for buses. The ZTL BUS is an area to which tourist buses can access after payment of a ticket. Buses that transport cruise passengers, given the particularity of the target, will be exempt from the payment of the fare.

4 Future scenarios

Given that the LCTP is a first implementation of the actions of the SUMP, the same future scenarios have also been adopted here, which are summarized below:

- **“Business as usual” scenario** describes developments that do not depend on the Plan and, therefore, only envisage trends that result from other forecasts and plans. To each time context, given that the hope is to increase the number of cruise passengers, corresponds a trend scenario that takes into consideration the number of cruise passengers estimated for the time references described below;
- **The short-term scenario** includes the most immediate actions that can be **initiated** within 2/3 years of LCTP approval
- **The medium-term scenario** includes more complex actions that require more detailed planning than short-term actions do, and, generally, are more onerous in financial terms; actions included in this scenario are expected to start within 5/6 years from the entry into force of the Plan
- **The long-term scenario** includes actions that complement the overall vision of the Plan. These are the most complex actions and involve greater economic and planning commitment than the actions envisaged in the short and medium term.

Each action has been related to one or more scenario identified within the SUMP

ACTIONS	SCENARIO			
	BAU	SHORT TERM	MEDIUM TERM	LONG TERM
Improvement of accessibility to points of interest near the cruise terminal		X	X	X
Cycle and pedestrian wayfinding system		X		
Activation of a new service of e-bike rent (MOSES project)	X			
Implementation of interventions foreseen by Detailed Urban Traffic Plan		X	X	
Preparation of a feasibility study for an intermodal platform				X
Limitation of circulation to polluting vehicles		X	X	X
Connections by sea	X			
Increase bike trips towards the center of Ravenna				X
Installation of infrastructure for charging e-bike bicycles at the cruise terminal		X		
Improving accessibility for people with reduced mobility		X	X	
Regulation of bus transit in the city center	X			

2.4 Step 4: Monitoring and funding

2.4.1 Monitoring LCTP implementation

The selected indicators are strongly related with those ones included in the SUMP. For obvious reasons, some new indicators have been introduced, but the reference scenarios are still the same of those pinpointed in the SUMP.

In general, for each indicator, we identified a target to be achieved in reference to each scenario. We highlight the presence of a context indicator that does not depend on the implementation of the LCTP. The number of cruise passengers as explained in the previous paragraphs depends on many factors, which, in turn, are largely not dependent on public bodies, but on the performance of the international market and geopolitical balances that cannot be predicted. The targets of the Plan indicators necessarily depend on reaching the number of cruise passengers in each scenario.

INDICATOR	CURRENT	BAU	SHORT TERM	MEDIUM TERM	LONG TERM
Cruise passengers - <i>context indicator</i>	50.000		50.000	150.000	200.000
km of bike paths from cruise terminal	0.3	0.3	5	15	33
# points of interests 5 km far from cruise terminal accessible for cyclists and pedestrians	0	0	2	6	9
# of cruise passengers visiting points of interest near cruise terminal	N.A.	0%	2%	4%	8%
# of signals installed	0	0			
% of cruise passengers using maritime connections	0	0	1%	2%	5%
# of daily HGVs passing through Porto Corsini center	200	200	10	10	10
# cruise passengers buses going into Porto Corsini / year	~300	~300	~300	~600	<i>To be evaluated with feasibility study</i>
Coach fleet			<i>According to strategy 3</i>		
# bikes available for cruise passengers	20	20	20	30	30
# e-bikes available for cruise passengers	0	20	20	30	30
Average bike rent rate	N.A.	30%	50%	50%	50%

# of cruise passengers using bikes	0%	0%	1%	2%	5%
# of cruisers cycling to Ravenna city center	0%	0%	0%	0%	1%
# e-bike recharge points	0	0	2	2	5
# of buses for people with reduced mobility	0	0	2	2	2
# of cruise passengers using of buses for people with reduced mobility	0	0	200	400	600
area of 30 km/h (sqm) (% of total Porto Corsini area)	0	0	~35.000 (10%)	~215.000 (70%)	~310.000 (100%)

Moreover, in the tables below we identified a responsible person and one or more milestones for each action.

STRATEGY 1– IMPROVING TOURIST ACCESSIBILITY TO POINTS OF INTEREST IN THE PROXIMITY OF THE TERMINAL						
Actions	Results	Indicators	Source	Monitoring responsible	Milestones	Description and methodology
1.1 Improvement of accessibility to points of interest near the cruise terminal	Cruise passengers visit points of interest near the terminal	km of bike paths from cruise terminal # points of interests 5 km far from cruise terminal accessible for cyclists and pedestrians # of cruise passengers visiting points of interest near cruise terminal Average bike rent rate	Mobility Planning Department – Municipality of Ravenna Port Authority	Municipality of Ravenna	M1.1.1 one of the point of interest identified by stakeholders is easily accessible by pedestrian and bicycles	Bike and pedestrian paths' construction will be monitored considering the certification of proper execution issued by construction company, according to Italian legislation. Collection of data of possible future shore excursions to points of interests near cruise terminal Collection of data about number of bikes used by cruise passengers Questionnaires
1.2 Cycle and pedestrian wayfinding system	Cruise passengers can explore areas near the terminal safely and easily	# of signals installed	Mobility Planning Department –	Municipality of Ravenna	M1.2.1 The wayfinding plan is approved	Number of signage points will be included in the wayfinding plan

			Municipality of Ravenna		M1.2.2 the first signage point is installed M1.2.3 the first totem is installed	The number of signals installed will be monitored considering the certification of proper execution issued by installation company, according to Italian legislation. .
1.3 Activation of a new service of e-bike rent (MOSES project)	Cruise passengers can rent e-bike directly at the terminal	# e-bikes available for cruise passengers Average bike rent rate	Mobility Planning Department – Municipality of Ravenna Port Authority	Municipality of Ravenna	M1.3.1 Launch of the e-bike rent service M1.3.2 The rent service continues beyond MOSES project.	Data will be collected in collaboration with Port Authority

STRATEGY 2 – IMPROVING URBAN QUALITY IN PORTO CORSINI						
Actions	Results	Indicators	Source	Monitoring responsible	Milestones	Description and methodology
2.1 Execution of works foreseen by Detailed Urban Traffic Plan	reduction of the adverse effects caused by the transit of buses in the town of Porto Corsini, improvement of safety conditions, especially for users with challenges, and the urban quality of the Via Po axis	# of daily HGVs passing through Porto Corsini center % of works realized	Mobility Planning Department – Municipality of Ravenna	Municipality of Ravenna	M2.1.1 Detailed design approved for the first part of works M2.1.2 Execution of the first part of works	Traffic flows indicators will be collected with mobile instruments owned by the municipality The % of works realized will be monitored considering the certification of proper execution issued by construction company, according to Italian legislation.
2.2 Preparation of a feasibility study for an intermodal platform at the entrance of Porto Corsini	The City Council will be able to evaluate impact, costs and benefits of an intermodal parking outside the residential area of Porto Corsini	# cruise passengers buses going into Porto Corsini / year	Mobility Planning Department – Municipality of Ravenna Port Authority	Municipality of Ravenna	M3.4.1 Identification of an external experts able to elaborate the feasibility study	Data about cruise passengers' coaches will be collected in cooperation with Port Authority

STRATEGY 3 - IMPROVING THE ENVIRONMENTAL QUALITY OF CONNECTIONS BETWEEN THE CRUISE TERMINAL AND THE CITY						
Actions	Results	Indicators	Source	Monitoring responsible	Milestones	Description and methodology
3.1 Limitation of circulation to polluting vehicles	Pollutant emissions produced by cruisers' coaches are reduced.	Coach fleet	Transport operators Mobility Planning Department – Municipality of Ravenna	Municipality of Ravenna	M3.1.1 50% of coaches for cruise passengers will be EURO 4 category vehicles, or higher M3.1.2 a GNL bus service is active for cruise passengers M3.1.2 an electric bus service for cruise passengers is active	Data will be collected in cooperation with bus operators.
3.2 Connections by sea	Part of cruise passengers can reach Ravenna city center by sea through the canal	% of cruise passengers using maritime connections	Transport operator	Municipality of Ravenna	M3.2.1 a maritime connection between the cruise terminal and city centre is active	Data will be collected in cooperation with bus operators.
3.3 Increasing bike trips towards Ravenna city center	Cruise passengers can cycle to Ravenna city center	Average bike rent rate	Mobility Planning Department – Municipality of Ravenna	Municipality of Ravenna	M3.3.1 The detailed design of the bike path is ready	Bike paths' construction will be monitored considering the certification of

		# e-bikes available for cruise passengers # e-bikes rented for cruise passengers # of cruise passengers using bikes km of bike paths from cruise terminal # of cruisers cycling to Ravenna city center	Port Authority		M3.3.2 A construction company has been identified M3.3.1 a bus+bike service for cruise passengers is active	proper execution issued by construction company, according to Italian legislation. GPS system will provide information about destinations of users Questionnaire
3.4 Installation of infrastructure for charging e-bike bicycles at the cruise terminal	A bike recharge point is available for cruise passengers	# e-bike recharge points	Private operator	Municipality of Ravenna	M3.4.1 the memorandum of understanding is signed M3.4.2 The first recharge point is installed	Data will be collected according to the procedure defined in the memorandum of understanding
3.5 Improving accessibility for	Cruise passengers with reduced mobility can easily	# of buses for people with reduced mobility	Transport operators	Municipality of Ravenna	M1.3.1 creation of parking spots reserved	Data will be collected in

people with reduced mobility	access the historic center.	# of cruise passengers using of buses for people with reduced mobility	Mobility Planning Department – Municipality of Ravenna		to minibus for people with reduced mobility M1.3.2 transfer service for people with reduced mobility is active	cooperation with bus operators.
3.6 Regulation of bus transit in the city center						

► POLLUTING EMISSIONS

Based on the scenarios identified above, since each one assumes a different number of cruise passengers as a context indicator, for each time frame, we identified and compared a “Plan scenario” and a “trend scenario”. For example, for the medium-term scenario, pollutant emissions have been calculated on the basis of a flow of 150,000 cruise passengers, considering the actions envisaged by the LCTP for the Plan scenario and only the actions envisaged by the BAU scenario for the trend scenario.

To determine the baseline of pollutant emissions, we estimated an indicator that evaluates the lengths travelled by bus per cruise passenger per year, a value that has been calculated based on the data of shore excursions made in 2017. We combined this indicator with the composition of the fleet of vehicles used to transport cruise passengers and with emission factors referring to the 3 main pollutants (CO₂, NO_x and PM₁₀).

For the estimation of emission factors, the methodology used refers to the database of average emission factors for road transport in Italy, provided by the Italian Institute for Environmental Protection and Research (ISPRA). The ISPRA methodology developed and applied to the estimation of atmospheric pollutant emissions is based on the 2016 EMEP/EEA Air Pollutant Emission Inventory Guidebook and is consistent with the 2006 IPCC Guidelines for greenhouse gases. ISPRA used COPERT 4 software, vers. 11.4, whose development is coordinated by the European Environment Agency, as part of the activities of the European Topic Centre for Air Pollution and Climate Change Mitigation (ETC/ACM). The estimates were processed by ISPRA on the basis of the national input data regarding fleet and circulation of vehicles (number in the fleet, average mileage and average consumption, speed per vehicle category with reference to urban, extra-urban and motorway driving cycles, and other specific national parameters). Emission factors are available:

- both with respect to kilometres travelled and consumption,
- with reference to details of technologies and aggregation by sector and fuel,
- processed both on a total level and separately for the urban, extra-urban and motorway areas.

For the case of Ravenna, given the different types of contexts travelled by buses to reach the destinations of cruise excursions, we decided to consider polluting factors relating to tourist buses of less than 18 tonnes processed at a total level, without distinction of urban, suburban (extra-urban) and motorway contexts.

With reference to the evaluation of the expected results of the Plan, for each strategy, we considered as the effects of relevant actions either the decrease of routes travelled by bus or the improvement of vehicle fleets for cruise passengers, or the percentage reduction of polluting emissions.

The reduction of the Km/passenger/year indicator was calculated differently, as described below, according to the action being assessed. The improvement of the vehicle fleet took into account restrictions to access to Porto Corsini described in action 3.1, assuming that the share of buses belonging to the emission categories that will not be allowed access to the site will be equally distributed among other admitted categories. If it was not possible to arrive at emission factors due to the implementation of an action, we evaluated, where possible, a percentage reduction compared to an emission category taken as reference on the basis of scientific articles specifically mentioned.

Emissions have therefore been calculated with factors calculated above by applying the number of cruise passengers referred to the considered scenario.

STRATEGY 1

The expected result of the actions aimed at improving accessibility of the points of interest near the terminal was assessed taking into account cruise days, available bicycles, estimate of distances travelled by each user and rental rate. Based on these factors, we could estimate km/passenger per year rate not travelled by bus, thanks to the implementation of the actions included in the strategy.

STRATEGY 2

The improvement of the environmental and urban quality in Porto Corsini implies numerous effects, in addition to those related to the reduction of emissions: greater safety, better quality of public space, decrease in accidents, support for the shift towards more sustainable modes of travel. Furthermore, the change of the public and private collective transport line on via Molo San Filippo involves the elimination of the canyon effect on via Volano and via Po and a greater factor in the dispersion of pollutants. However, it should be emphasized that via Molo San Filippo overlooks the Candiano Canal, which is affected by intense traffic of commercial ships, which constitute a significant polluting source, about which, however, the Plan cannot act.

The reduction in emissions due to this strategy can be traced back to a general decrease in speed at Porto Corsini. Although there are no studies related to buses, there are several studies demonstrating the correlation between pollutants and speed. An article published by Imperial College of London (Williams D & North R, 2013, "An evaluation of the estimated impacts on vehicle emissions of a 20 mph speed restriction in central London") shows the following table:

Vehicle type	Drive cycle Speed Limit (km/h)	NOx (g/km)	PM10 (g/km)	CO2 (g/km)
Petrol 1.4l -2.0l, EURO IV	30	0.0726	0.00218	271.95
Petrol 1.4l -2.0l, EURO IV	50	0.0673	0.00237	266.35
Impact of 30 km/h drive cycle		+7.9%	-8.3%	+2.1%
Diesel 1.4l -2.0l, EURO IV	30	0.7437	0.01758	201.58
Diesel 1.4l -2.0l, EURO IV	50	0.8104	0.01917	203.48
Impact of 30 km/h drive cycle		-8.2%	-8.3%	-0.9%

Although the table refers to a car powered by diesel technology, like most of tourist buses, it can be assumed that the effective speed reduction at Porto Corsini involves a real reduction of pollutants which, however, cannot be quantified given the absence of known scientific studies concerning buses

STRATEGY 3

The effects of the actions included in the last strategy have been estimated in different ways.

The share of buses whose access to the site will not be allowed has been distributed equally among other permitted categories; the effect of the use of buses powered by LNG has been estimated by referring to the

Consultation Document for a National LNG Strategy (MiSE 2015) which assumes the following reductions due to the replacement of an 8% EURO IV vehicles with LNG-powered vehicles.

Fleet composition (only diesel)		Fleet composition (with LNG vehicles)	
EURO IV	25.9%	EURO IV	17.9%
EURO V	32.3%	EURO V	32.3%
EURO VI	41.8%	EURO VI	41.8%
LNG	0%	LNG	8.0%

	Current Fleet (only diesel)	New Fleet (with LNG vehicles)	Reduction
CO ₂ (t)	1561	1500	-3.9%
NO _x (kg)	5289	4900	-7.2%
PM (kg)	120	88	-26.1%

An additional Dutch study¹ relating to heavy vehicles powered by LNG shows an 80% reduction of NO_x and 20 to 25% of CO₂ compared to EURO VI vehicles. For precautionary purposes, the reductions reported in the MiSE document were considered, since they are lower than those of the Dutch study.

For the activation of new sea connections to integrate existing land connections, we could not quantify pollutant reductions in relation to the displacement of a share of cruise passengers with an LNG vessel. In fact, to date, there is not enough data to evaluate the emissions of small boats powered by LNG. However, it is assumed that this action does not lead to any increase in emissions.

Regarding actions related to cycling to Ravenna and the installation of electric columns for the recharging of bicycles, the effects in terms of emissions have been evaluated considering landing days, available bicycles, kilometres travelled and vehicle rental rates, assuming that the combination of the two actions leads to a synergy able to increase the number of cruise passengers willing to reach Ravenna by bicycle. Based on these factors, we could estimate km/passenger per year rate not travelled by bus, thanks to the implementation of the two actions.

Finally, we assumed that the two actions relating to people with reduced mobility and to bus ZTL limitations do not involve any variation in terms of emissions.

¹Dutch Study

	CURRENT SCENARIO	SHORT TERM		MEDIUM TERM		LONG TERM	
		BAU	LCTP SCENARIO	BAU	LCTP SCENARIO	BAU	LCTP SCENARIO
CRUISE PASSENGERS	50.000	50.000	50.000	150.000	150.000	200.000	200.000
CALLS	48						
DISEMBARKATION DAYS	43	43	43	129	129	172	172
KM SAVED/CRUISE PASSENGER/YEAR	0	0,01032	0,0172	0,00258	0,1075	0,00258	0,1763
KM TRAVELLED BY VEHICLES/CRUISE PASSENGER/YEAR	0,96	0,95	0,94	0,96	0,85	0,96	0,79

	CURRENT SCENARIO	SHORT TERM			MEDIUM TERM			LONG TERM		
		BAU	LCTP SCENARIO	REDUCTION	BAU	LCTP SCENARIO	REDUCTION	BAU	LCTP SCENARIO	REDUCTION
Cruise passengers	50.000	50.000			150.000			200.000		
CO ₂ [t]	31,000	30,65	30,64	-	30,5	28,16	-8%	123,03	96,79	-21%
PM ₁₀ [kg]	5,61	11,09	8,57	-22%	10,01	4,5	-55%	20,18	4,39	-78%
NO _x [kg]	227	448	362	-19%	444	127	-71%	895	35	-96%

2.4.2 Funding

The total budget of the Plan is about 6.800.000 euro. The table below specifies costs for each strategy.

STRATEGY	COSTS
IMPROVING TOURIST ACCESSIBILITY OF INTEREST IN THE PROXIMITY OF THE TERMINAL	2.850.000 €
IMPROVING URBAN QUALITY IN PORTO CORSINI	1.310.000 €
IMPROVING THE ENVIRONMENTAL QUALITY OF CONNECTIONS BETWEEN THE CRUISE TERMINAL AND THE CITY	2.662.000 €

A more detailed cost analysis is reported in the next table, where possible sources of funding have been pinpointed

ACTIONS	DESCRIPTION	COSTS	POSSIBLE SOURCES OF FUNDING
1.1 Improvement of accessibility to points of interest near the cruise terminal	Completion of bike paths connecting cruise terminal to city center	2.750.000 €	National or regional resources European funds
	Path connecting cruise terminal to beach resorts	50.000 €	Port Authority
1.2 Cycle and pedestrian wayfinding system	Installation of wayfinding system	10.000 €	Regional funds
1.3 Activation of a new service of e-bike rent	Installation of a bike rent service in a mobile depot	40.000 €	Already funded by Interreg and private resources
TOTAL STRATEGY 1			2.850.000 €

ACTIONS	DESCRIPTION	COSTS	POSSIBLE SOURCE OF FUNDING
2.1 Implementation of works foreseen by Detailed Urban Traffic Plan	Realization of works foreseen by Detailed Urban Traffic Plan	1.300.000 €	National, regional or municipal resources European funds
2.2 Preparation of a feasibility study for an intermodal platform		10.000 €	Municipal resources
TOTAL STRATEGY 2			1.310.000 €

ACTIONS	DESCRIPTION	COSTS	POSSIBLE SOURCES OF FUNDING
3.1 Connections by sea	Floating accessible dock	800.000 €	Already funded by the State requalification outskirts' program
	Activation of a new maritime connection through Candiano Canal	350.000 €	Already funded by national requalification outskirts' program
3.2 Increase bike trips toward city center	Completion of bike network	1.500.000 €	National funds related to national bike paths Private funds
3.3 Installation of infrastructure for charging e-bike bicycles at the cruise terminal	Installation of a recharge point for e-bike	10.000 €	Already funded by private operator
3.4 Improving accessibility for people with reduced mobility	Installation of special signage system to reserve a parking space for minibuses providing this service	1.000 €	Municipal funds
3.5 Regulation of bus transit in the city center	Implementation of the new regulation for bus transit in the city center	/	/
TOTAL STRATEGY 3			2.662.000 €



SYNTHETIC REPORT OF THE FINAL LCTP

LOCATIONS - LOW CARBON TRANSPORT IN CRUISE DESTINATION CITIES

WP3 — TESTING

ACTIVITY 3.6 FINALIZATION OF PILOT ACTIVITIES

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1. LOW CARBON TRANSPORT PLAN

1.0 STEP 0: WORK PLAN AND TEAM

TEAM			
Name	Organization	Role in the organization	Tasks in the elaboration of the LCTP
Dinko Živković	Port of Rijeka Authority	Port development	Coordination of all relevant stakeholders for developing the LCTP; Analysing data for the statistic base; Defining the concept of the LCTP, public procurement of expertise in urban mobility
Rajko Jurman	Port of Rijeka Authority	Cruise business	Providing information on cruise development in Rijeka
Sandra Juretić	Port of Rijeka Authority	EU projects	Data analyzing
Astrid Zekić	REA Kvarner		Developing a questionnaire, communication with stakeholders, gathering data
Andrej Čotar	REA Kvarner	Energy Advisor	Project Assistant
Danijel Frka	Rijeka promet d.o.o.	Urban traffic and mobility expert	Defining the measures of LCTP.

WORK-PLAN			
task	time	responsibilities	comment
Meeting with the Commission of cruise development in Rijeka	May 2017.	REA Kvarner	
I. st participatory process	May-October 2017.	REA Kvarner/Port of Rijeka Authority	
Development of context analysis	July 2017.	REA Kvarner/Port of Rijeka Authority	
Defining the LCTP measures (draft)	October/November 2017	REA Kvarner/Port of Rijeka Authority	
LCTP draft	November 2017.	Port of Rijeka Authority	
II. Participatory process	January – March 2018.	REA Kvarner/Port of Rijeka Authority	
Finalizing the measures	March 2018.		

WORK-PLAN			
task	time	responsibilities	comment
Acceptance of measures by the Port of Rijeka Authority management	April 2018.	Port of Rijeka Authority	
Letters of support from the key stakeholders	May 2018.	Port of Rijeka Authority	

1.1. STEP 1: INITIAL ASSESSMENT

1.1.1. CONTEXT ANALYSIS

1. EU, NATIONAL, REGIONAL AND LOCAL FRAMEWORK OF REFERENCE.

General context – linked to EU policies

- Common transport policy
- Fuel Sulphur Directive 2012/33/EU

National context – linked to national policies

- Transport Development Strategy of the Republic of Croatia
- Energy Strategy of the Republic of Croatia
- Action plan for the development of nautical tourism
- Study of sustainable development of cruise tourism in Croatia

Regional context – linked to regional policies

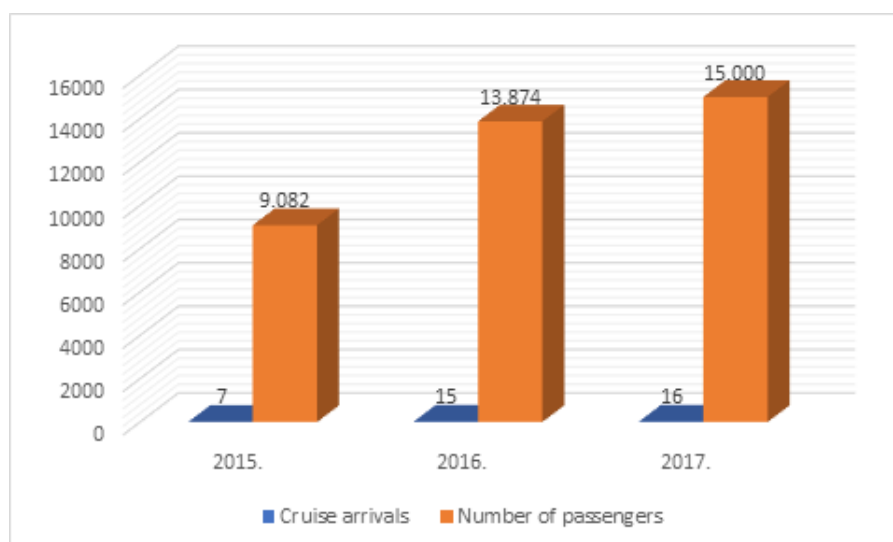
- Primorsko-goranska County Development Strategy, 2016.-2020.
- Strategic plan for tourism development Kvarner, 2016.-2020.

City context – linked to local policies/ plans/ strategies

- Spatial and urban plans of the city
- Rijeka - The starting port for cruise tourism, Action plan
- Study of possibilities for developing Rijeka as a cruising destination
- Action Plan for development Rijeka as a tourist destination - emphasising the segment of cruising tourism
- Sustainable energy Action Plan for the city of Rijeka
- Development Plans of the Rijeka Port Authority

2. CURRENT CRUISE-RELATED FLOWS FEATURES, TRENDS, ETC., IN THE CITY/PORT

The port of Rijeka is a port of call. The number of cruisers and passengers is shown in **the Picture 1.:**



Picture 1.: Number of cruisers and passengers, 2015.-2017.

At destination, cruiser is taking approximately 10 hours. According to that, about 35% of tourists stay on board. Tourists are offered with 3 to 7 trips, ranging from 2 to 164 kilometres, that last 4 to 7 hours and using 5 to 20 buses which are 16 to 50% full in capacity. For the tourists that remain in destination, a shuttle bus is organized (only Brajdica), starting at least every 30 minutes.

Within the questionnaire, the activities of a passengers and crew of the ships that remain in the destination, where investigated. The respondents were mostly from the United Kingdom, the United States and Australia. The highest number of respondents, in destination spent three hours. Moreover, the buss service used 13% of respondents, 6% taxi service, 2% bicycle, 1% motorcycle, and 78% of respondents did not use the means of transportation at their destination. Regarding the rate of traffic congestion, 61% of respondents rated low, very low 19%, high 15%, very high 4%, while 1% of respondents did not know.

Municipal waste is transported by the vehicles with an absorbing capacity of 5 m³ at a distance of 17 km. Approximately 2-8 waste discharges are carry out. The oily waters are conveyed at a distance of 10 km, while all other waters at a distance of 1 km.

3. CRUISE-SECTOR MID- TO LONG-TERM (5 TO 10 YEARS) DEVELOPMENT TRENDS

The forecast is given for a period of 10 years, for different scenarios as follows:

- 1. Worst-case scenario** in which no measure from this Plan is anticipated to be implemented.
- 2. The best possible scenario** in which all measures from this Plan are anticipated to be implemented in their best versions.
- 3. The most probable scenario** in which all measures from this Plan are anticipated to be implemented but in their initial versions.

PASSENGER TRAFFIC

Year	Scenario 1		Scenario 2		Scenario 3	
	No. of passengers	Index	No. of calls	No. of passengers	No. of calls	No. of passengers
2018	15.000		16	15.000	16	15.000

2019	20.000	33%	20	20.000	33%	20	20.000	33%	20
2020	28.000	40%	27	28.000	40%	27	28.000	40%	27
2021	30.800	10%	28	30.800	10%	28	30.800	10%	28
2022	33.880	10%	30	35.420	15%	30	33.880	10%	30
2027	47.518	7%	46	71.242	15%	45	68.145	15%	34

Table 1. Traffic forecast up until 2027

Year	Scenario 1	Index	Scenario 2	Index	Scenario 3	Index
2017	1.113		1.113		1.113	
2018	1.157	4%	1.157	4%	1.157	4%
2019	1.203	4%	1.203	4%	1.203	4%
2020	1.251	4%	1.251	4%	1.251	4%
2021	1.302	4%	1.302	4%	1.302	4%
2022	1.354	4%	1.380	6%	1.354	4%
2027	1.647	4%	1.846	6%	1.811	6%

Table 2. Forecast of the median number of passengers per cruise ship call in Rijeka

EXCURSION BUS TRAFFIC

Year	Scenario 1	Scenario 2	Scenario 3
2017	10	10	10
2018	10	10	10
2022	12	12	12
2027	15	17	16

Table 3. The average bus travel time from the passenger terminal to Road D404 and vice versa, expressed in minutes

SHUTTLE BUS TRAFFIC

Year	Scenario 1	Scenario 2	Scenario 3
2017	9	9	9
2018	9	9	9
2022	11	1	11
2027	13	1	2

Table 4. The average number of shuttle bus rounds per one cruise ship call at Rijeka

Year	Scenario 1		Scenario 2		Scenario 3	
	CT Brajdica	Breakwater	CT Brajdica	Breakwater	CT Brajdica	Breakwater
2017	43%	57%	43%	57%	43%	57%
2018	45%	55%	45%	55%	45%	55%
2019	47%	53%	47%	53%	47%	53%
2020	49%	51%	49%	51%	49%	51%
2021	51%	49%	51%	49%	51%	49%
2022	53%	47%	4%	96%	53%	47%
2027	64%	36%	5%	95%	10%	90%

Table 5. The percentage of cruise ship calls per pier

SERVICE OF DISPOSAL OF VARIOUS TYPES OF WASTE

Year	Scenario 1	Scenario 2	Scenario 3
2017	4	4	4
2018	4	4	4
2022	5	5	5
2027	6	7	7

Table 6. The average number of waste disposal service rounds per one cruise ship call at Rijeka

Year	Scenario 1	Scenario 2	Scenario 3
2017	1	1	1
2018	1	1	1
2022	1	1	1
2027	1	2	2

Table 7. The average number of oily water disposal service rounds per one cruise ship call at Rijeka

Year	Scenario 1	Scenario 2	Scenario 3
2017	1	1	1
2018	1	1	1
2022	1	1	1
2027	1	2	2

Table 8. The average number of other water disposal service rounds per one cruise ship call at Rijeka

ELECTRIC SCOOTER TRAFFIC

Year	Scenario 1	Scenario 2	Scenario 3
2017	0	0	0
2018	0	0	0
2022	0	0	0
2027	0	55	54

Table 9 The median number of passengers per one call using electric scooters

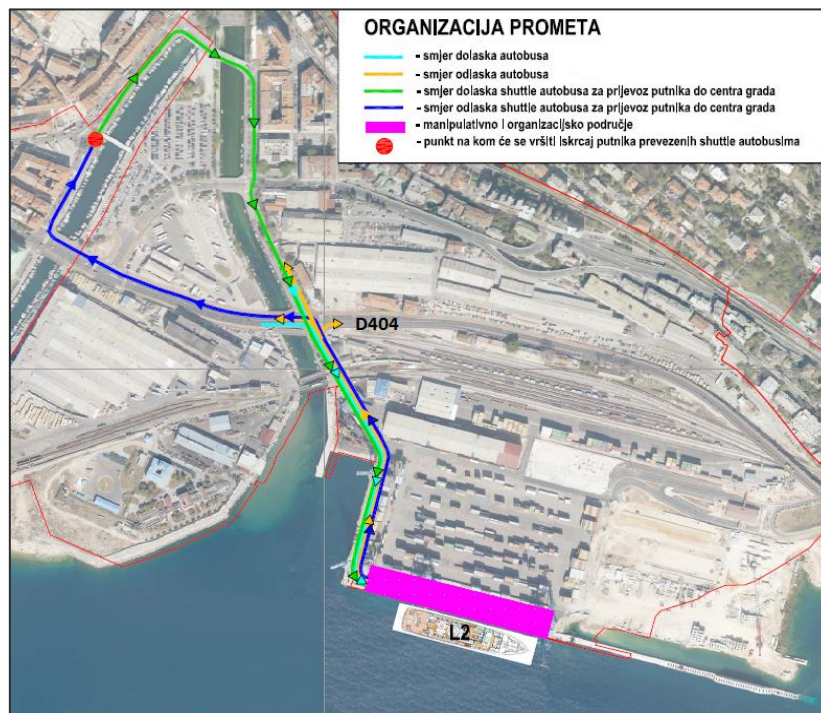
4. CURRENT CRUISE-RELATED MOBILITY AND TRANSPORT MANAGEMENT POLICIES AND PUBLIC & PRIVATE INITIATIVES ADDRESSING THE EXISTING FLOWS.

The cruise pier on the breakwater is located 300 metres from the city centre and there is no need to arrange a shuttle service from the ship to the city centre. The distance between the pier and the high speed Road D404 is 300 metres.



Picture 1. Breakwater – transport flow

The cruise berth on the container terminal is located 800 meters from the city centre and the shuttle service is organised to transport tourists to the city centre.



Picture 2 Brajdica Container Terminal

The local public transport is provided by KD Autotrolej d.o.o. Rijeka has 51 lines, connecting 12 towns and municipalities with the County centre (City of Rijeka). The city transport in Rijeka is conducted on 19 lines. The lines cover the entire city area.

Rijeka Airport is located on the island of Krk, about 17 km from the pier (in a direct line), or 25 km by road. It is common to use a taxi or a bus service to reach the airport.

5. WEIGHTED LIST OF NEGATIVE IMPACTS LINKED TO CRUISE-RELATED FLOWS

Description of negative effect	Priority	Description of negative effect on the local level
Road traffic congestion	High	A bottleneck is created due to the narrow road and the fact that the road passes around the market.
More pronounced occupancy of land for the construction of parking spaces and road infrastructure	High	The problem of connecting the breakwater with Road D404 is in the occupation of the terrain with existing facilities. It is anticipated that the new road will partly pass through the area of the existing car park or the overhang under which timber is stored.
Air and noise pollution	Moderate	Air and noise pollution currently don't have a major effect, but with the anticipation of increased traffic this negative effect may have a tendency for growth.
Reduced road safety	Moderate	It is estimated that road safety has a moderate priority because sometimes there is an interaction of buses with pedestrians in the area of exit from the breakwater and there is also a problem of cyclists' safety on city roads. In traffic, cyclists are not equal to motor vehicles.
Increased tension in the local community	Low	Surveys have shown that there is no tension in the local community that comes with the arrival of cruise ships to the city.

6. EXISTING ROAD NETWORK, TRANSPORT SERVICES AND INFRASTRUCTURE IN THE CITY/ PORT

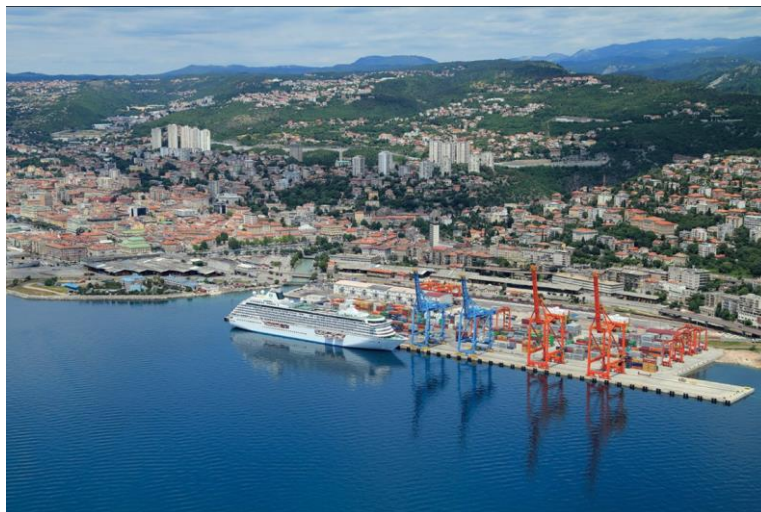
Since 2012, Rijeka has started to develop cruise ship tourism more intensively, which represents a new challenge in organizing all activities related to the flow of passengers/goods from cruise ships. The Port of Rijeka does not have an adequate terminal with ancillary infrastructure intended for berthing of cruise ships, but their berthing is possible on two locations, both limited by certain parameters. One location is on the passenger part of the Rijeka basin on the breakwater's inner side, while the other one is located in the Sušak basin, on the Brajdica Container Terminal.

The most notable negative characteristic of the breakwater pier is its sea depth, limiting the arrival of large cruise ships. A further problem is the width of the breakwater operating surface of only 12 metres which makes it difficult to manoeuvre buses and other vehicles for the needs of passengers/goods transport.



Picture 3. Location at breakwater

The total length of the pier at the container terminal is 628 m, with a maximum depth of 13,5 m and a possibility of simultaneous reception of two container ships of maximum 367 metres. The Brajdica Container Terminal serves for reception of cruise ships in case their draught is over 7 metres. The container terminal can accept cruise ships of all sizes.



Picture 4. Location at container terminal Brajdica

1.1.2 SWOT/CAME ANALYSIS

STRENGTHS	WEAKNESSES
<p>Geographical position</p> <ul style="list-style-type: none"> - Part of the Mediterranean most deeply indented in the European mainland - Proximity of emissive markets <p>Resource/attractions base</p> <ul style="list-style-type: none"> - Possibility of excursions to surrounding places - High degree of ecological preservation - Agreeable climate - High number of cultural and historical monuments <p>Good traffic connections</p> <p>Port infrastructure</p> <ul style="list-style-type: none"> - Navigational safety - Port safety - Personal safety <p>Existing accompanying tourism infrastructure and superstructure</p> <ul style="list-style-type: none"> - Accommodation facilities - Human resources <p>CNG filling station</p> <p>Green energy sources</p> <p>Intellectual capacities</p> <p>Passenger terminal in the city centre</p> <p>Tourists walking around the city</p> <p>Inability to supply ship from the shore</p>	<p>Port infrastructure</p> <ul style="list-style-type: none"> - inadequate passenger terminal - use of container terminal for reception of cruise ships - lack of parking areas for buses and cars <p>Different degrees of interest for the development of cruise ship tourism</p> <p>Conflicts with other types of tourism</p> <p>Lack of common development initiative</p> <p>Environmental pollution</p> <p>Lack of space for construction of infrastructure</p> <p>Insufficient tourist offer</p> <p>Lack of accommodation facilities in the event of Rijeka becoming a home port</p> <p>Crowds in the city centre</p> <p>Crowds at the exit from the passenger terminal</p> <p>Centralised tourist offer</p> <p>Insufficient information on traffic trends in the city (insufficient number of displays, flyers)</p> <p>Insufficient experience in cruise ship tourism</p> <p>Inability to develop bicycle infrastructure (terrain configuration, narrow roads)</p>
OPPORTUNITIES	THREATS
<p>Expected stability in the region</p> <p>Trends in tourism</p> <ul style="list-style-type: none"> - Growth in demand for cruising tourism in the world - Favourable position of the northern Adriatic on the world tourist market - Expected growth of cruise ship tourism in the Mediterranean - Expected diversification of offer in cruise ship tourism - demand for new ports <p>Further improvement of traffic accessibility – particularly new low-cost airlines</p> <p>Increase in the quality of other tourist offers</p> <p>Green energy sources</p> <p>Construction of LNG terminal</p> <p>Study on development of cycling in the city</p>	<p>Political instability in the region</p> <p>Terrorism</p> <p>Emergence of new infectious diseases</p> <p>Disorders on emissive markets</p> <p>Environmental pollution</p> <p>Fast development of other destinations</p> <p>Development of unhealthy competition between ports</p> <p>Development of offer in other destinations</p> <p>Conflicts with other resource users</p> <p>Insufficient political will in the implementation of the LCTP</p>

Table 10. SWOT analysis

1.2 STEP 2: PARTICIPATORY PROCESS

1. STAKEHOLDERS IDENTIFICATION

Stakeholders	Stakeholder's importance in the project (low/high)	Stakeholder's influence on the project (low/high)	Stakeholder's contribution
Port of Rijeka Authority	High	High	The main responsible entity for drafting the Plan and further implementation and monitoring of measures.
REA Kvarner	High	High	Participating in the development of the plan. Collecting data from all stakeholders. Surveying tourists and citizens.
Rijeka Tourist Board	Low	High	Providing information and data on the flow of cruise ship tourists and signing a support letter for the implementation of the measures/Plan.
Experts from the fields of mobility and transport: Rijeka promet d.d.	High	High	Detailed breakdown of measures per scenarios and calculation of greenhouse gas emission reductions per passenger. Signing the support letter for the implementation of the measures/Plan.
Public city carrier: Autotrolej d.o.o.	Low	Low	Providing information and data.
Utility company: Čistoća d.o.o.	Low	High	Providing information and data on the collection of waste from cruise ships and signing the support letter for the implementation of the measures/Plan.
Bus operator: Autotrans d.o.o.	Low	Low	Providing information and data.
Taxi service	Low	Low	Providing information and data on the use of taxi services by tourists.
Tourist agencies: ID Riva Tours	Low	Low	Providing information and data on the number of excursions per each cruise ship.
Tourists	High	Low	Surveying, which contributed to the development of tourist mobility statistics.
Citizens	High	Low	Surveying, which contributed to the development of tourist satisfaction statistics and citizens' attitudes towards cruise ships.
Private companies: Dezinsekcija d.o.o., IND-EKO d.o.o.	Low	Low	Providing information and data on the reception of waste and oily waters from cruise ships.

Table 11. Stakeholder identification

2. PARTICIPATORY PROCESS DESIGN AND IMPLEMENTATION

The initial activity in the development of the Low-Carbon Transport and Mobility Plan is to determine the timeline for implementing the Plan i.e. achieving the set goals. Therefore, a period of 10 years from the adoption of the Plan by the evaluation body of the project LOCATIONS was taken as a reference timeframe.

One of the two specific goals is to reduce the CO₂ emissions per cruise ship passenger by 5% in the given time frame. The following consumers which are connected to cruise ships and serve for the carriage of passengers/cargo at the destination are taken into consideration:

- Buses for organized excursions engaged by cruising companies (different bus operators);
- Shuttle bus for the carriage of cruise ship passengers to the city centre and vice versa;
- Vehicle for the disposal and carriage of waste;
- Vehicle for the disposal of waste waters.

For the purposes of calculating CO₂ emissions per passenger, the following data has been taken from the past three years:

- Cruise ship passenger traffic per years and piers;
- Retention of a cruise ship at the destination;
- Number of excursion buses per cruise ship;
- Destinations for which excursions are organized and their distances from the pier;
- Mileage that a shuttle bus makes in one round;
- Frequency of shuttle buses per cruise ship;
- Number of vehicles for the disposal of waste, oily and waste waters per cruise ship;
- Distances of the landfill and facilities for the treatment of oily and waste waters;
- The time it takes for buses to cross the distance from the breakwater to Road D404 and vice versa.
- The structure and characteristics of all vehicles.

Since good-quality data is a key prerequisite for successful making of the Plan context, and its result are the entry data for calculation of CO₂ emission per passenger, **systematic collection and processing of collected data** is one of the most important, if not the most important, activity of the Low-Carbon Transport and Mobility Plan.

Methodology used	Who, when and how?	Results
Interview	An interview with Mr. Rajko Jurman, President of the Commission for the Development of Cruise Ship Tourism in Rijeka, was held in April 2017 at the premises of the Port of Rijeka Authority. The interview was held in order to get as much information as possible about the current state of	Based on the information and documentation obtained, a foundation for the development of the Plan context was laid. Contacts from the Rijeka Tourist Board and mobility and transport

	infrastructure, tourist flows, issues and the development of cruise ship tourism in the city of Rijeka.	specialists who have already participated in the existing transport and mobility solutions connected with cruise ships were also obtained.
“Face to face” meetings	This type of meeting was held with the following stakeholders: the Rijeka Tourist Board, tourist agency ID Riva Tours, utility company Čistoća d.o.o., private companies: Dezinsekcija d.o.o., IND-EKO d.o.o. The meetings were held in order to get more information about cruise ship passenger flows and collection of waste, oily and waste waters from cruise ships.	Based on the information received, detailed statistics for development of the Plan context were obtained.
Surveying	The survey of tourists was carried out personally on the ground, while the survey of citizens was carried out via a digital poll.	Detailed survey results are presented in the Plan context , chapter 3.4.3.
PAME	After each meeting with individual stakeholders, a meeting between the Port of Rijeka Authority and REA Kvarner.	Analysis of information and data obtained from various stakeholders presented in the Plan context .
Delphi method	This type of method was applied to transport and mobility specialists after the Plan context was defined. Several meetings were held at which the initial measures were presented and then given to the Port of Rijeka Authority management for the ultimately acceptance.	Definition of goals and specific measures which will solve the existing problems and reduce the negative impacts of cruise ships on the city and the environment.
Scenarios	This type of method was applied to transport and mobility specialists in order to define a vision and different scenarios of the Plan. For each measure, an easier and more difficult implementation scenario was anticipated.	Definition of the vision and different measure scenarios .

Table 12. Methodologies used for data collection

1.3 STEP 3: DESIGN OF THE PLAN

1. DEFINITION OF THE CURRENT SCENARIO

The existing state and statistic of the passengers and goods flows related to cruise activity is detailed described in STEP 1, chapters 2 and 3.

2. DEFINITION OF VISION AND OBJECTIVES

VISION

As a new destination, Rijeka is aware of all negative impacts brought by the flow of tourists/goods related to cruise ships and looks into the future with the aspect of a sustainable way of developing the cruise ship tourism. A new berth is defined for cruise ships on the breakwater by the passenger terminal which will accept more than 90% of all cruise ships calling at this destination, and in a sustainable way transport all passengers to destinations all over the city, county and wider area. Sustainable way of transport is the lowest possible interaction of vehicles for transportation of passengers with the local traffic and promotion of cleaner, alternative types of transportation of cruise ship passengers/cargo.

GENERAL GOALS:

- To reduce the pollution and accelerate the flow of vehicles used for the transport of passengers/goods connected to cruise ships in order to reduce the jams at the connection point between the breakwater and Road D404;
- To promote alternative means of transport to the main destination attractions.

3. DEFINITION OF ACTIONS AND INDICATORS**1). Increasing the capacity of cruise berth at the breakwater**

This measure is a prerequisite for the implementation of all measures except M2. With the increase of the capacity of the breakwater pier, further development of cruising tourism in Rijeka will be ensured. By ensuring the acceptance of cruise ships at that location, multiple benefits are achieved:

- Use of the Brajdica Container Terminal as a pier for cruise ships is reduced,
- No interference with cargo traffic,
- Pier availability of 24 hours and reception of cruise ships at any time,
- Proximity of the city centre (walking distance),
- Attractive location (views of the whole city),
- Proximity of Road D404,
- Proximity of the passenger terminal.

There are two versions of implementation of this measure:

- a. Deepening of the pier on the inner side of the breakwater, which would enable the berthing of ships with a draught of 9 metres;
- b. Instalment of distancers to keep the cruise ship away from the pier, which would enable the berthing of ships with a draught of 8 metres.

2). Introducing the CNG drive into the municipal waste trucks

The existing vehicles for collection of waste are diesel vehicles. With the introduction of the CNG drive in vehicles for collection of waste which service cruise ships as part of regular activities, **the emission of greenhouse gases will be reduced.**

A CNG filling station already exists and it is mostly used for supplying the public transport vehicles.

Procurement of one vehicle to be used for collecting waste from cruise ships is anticipated.

3). Removal of bottleneck between the breakwater and the road D 404

There are two versions of implementation of this measure:

- a. A road that involves a reconstruction of the existing (rotating) bridge and a construction of a bridge next to the existing one in order to allow two-way traffic. The road is anticipated to pass over the existing halls on Delta to the intersection on D404.
- b. A road that involves a reconstruction of the existing bridge with alternating traffic. The road is envisaged to further pass Grobnička riva to the existing intersection on D404.

4). Introducing the electro scooters with charging station

This measure envisages a point with electric scooters and a charging station at the passenger terminal as well as at other points in the city. The aim is to offer cruise ship passengers an option to use simple personal means of transport for two persons to distances within 10 km from the rental point. In this way, an adventurous dimension of the tour of the city and its surroundings is opened to passengers, while simultaneously using an ecologically acceptable means of transport without CO2 emissions, which contributes to a better overall traffic situation.

Two variants of implementation of this measure are anticipated:

- a. Variant with a fixed battery in the scooter and two charging stations with two connectors;
- b. Variant with a replaceable battery in the scooter with one charging station and a module for charging 30 batteries.

5). Traditional shuttle boat on hybrid drive

This measure involves the examination of the interest of potential concessionaires for introducing traditional shuttle boats for local transportation Breakwater - Adamić Pier or Karolina Riječka Pier, or for sightseeing tours of the city and the surrounding coastal area (Port of Rijeka – Kantrida – Volosko - Opatija). Such a boat would be powered by a hybrid or a steam engine.

The aim is to offer cruise ship passengers an alternative aspect of maritime traffic via a traditional boat used at the end of the 19th and beginning of the 20th century for the carriage of passengers.

6). Installing the informative panel board at the Port Passenger Terminal

Two variants of implementation of this measure are anticipated:

- a. Installation of one interactive information panel on the passenger terminal;
- b. Installation of three interactive information panels on Trsat, complex Benčić and on the passenger terminal.

4. DEVELOPMENT OF FUTURE SCENARIOS

Due to the complexity of the context and many external factors which may affect the implementation of this Plan, this chapter describes the possible scenarios of the implementation of measures. It is impossible to anticipate all potential scenarios, so three scenarios are selected in accordance with the recommendations of the Manual for the Development of this Plan. Chapter 3.4.4. brings 10-year forecasts of cruise ship traffic flows which are also defined according to the scenarios from this chapter. Those forecasts were taken into consideration when calculating the CO2 emissions. Below is a description of each scenario and their impact on the achievement of goals set out in this Plan.

MEASURE		SCENARIO 1	SCENARIO 2	SCENARIO 3
M1	a	x	✓	x
	b	x	x	✓
M2		x	✓	✓
M3	a	x	✓	✓
	b	x	✓	x
M4	a	x	✓	x
	b	x	x	✓
M5		x	✓	✓
M6	a	x	✓	✓
	b	x	✓	x

1.4 STEP 4: MONITORING AND FUNDING

1.4.1 MONITORING LCTP IMPLEMENTATION

The implementation of the plan is defined in three parts:

1. Acceptance of the plan by the Port of Rijeka Authority;
2. Implementation of measures with the given timeframe. The Port of Rijeka Authority is responsible for the implementation of the Plan within the given time frame in coordination with key stakeholders who have supported the implementation of measures (support letter). This Plan proposes the coordinator is a person from the Port of Rijeka Authority responsible for the development of cruise ship tourism in Rijeka;
3. Monitoring and control of the implementation of measures. The monitoring and control of the implementation of measures and their results differs in this part. The body in charge of monitoring and controlling the implementation of measures is the Port of Rijeka Authority i.e. its management. Its main task is to monitor the work of the coordinator and support the implementation of measures.

1.4.2 FUNDING

MEASURE 1	INCREASE OF THE CAPACITY OF THE PIER FOR CRUISE SHIPS AT THE LOCATION BREAKWATER		
ACTIVITY	Design documentation	Building permits	Works

AMOUNT (V1)	20.000,00 €	/	1.000.000,00 €
AMOUNT (V2)	10.000,00 €	/	400.000,00 €
RESPONSIBILITY OF	Port of Rijeka Authority	Port of Rijeka Authority	Port of Rijeka Authority
SOURCE OF FINANCING	Port of Rijeka Authority's resources	/	Port of Rijeka Authority's resources

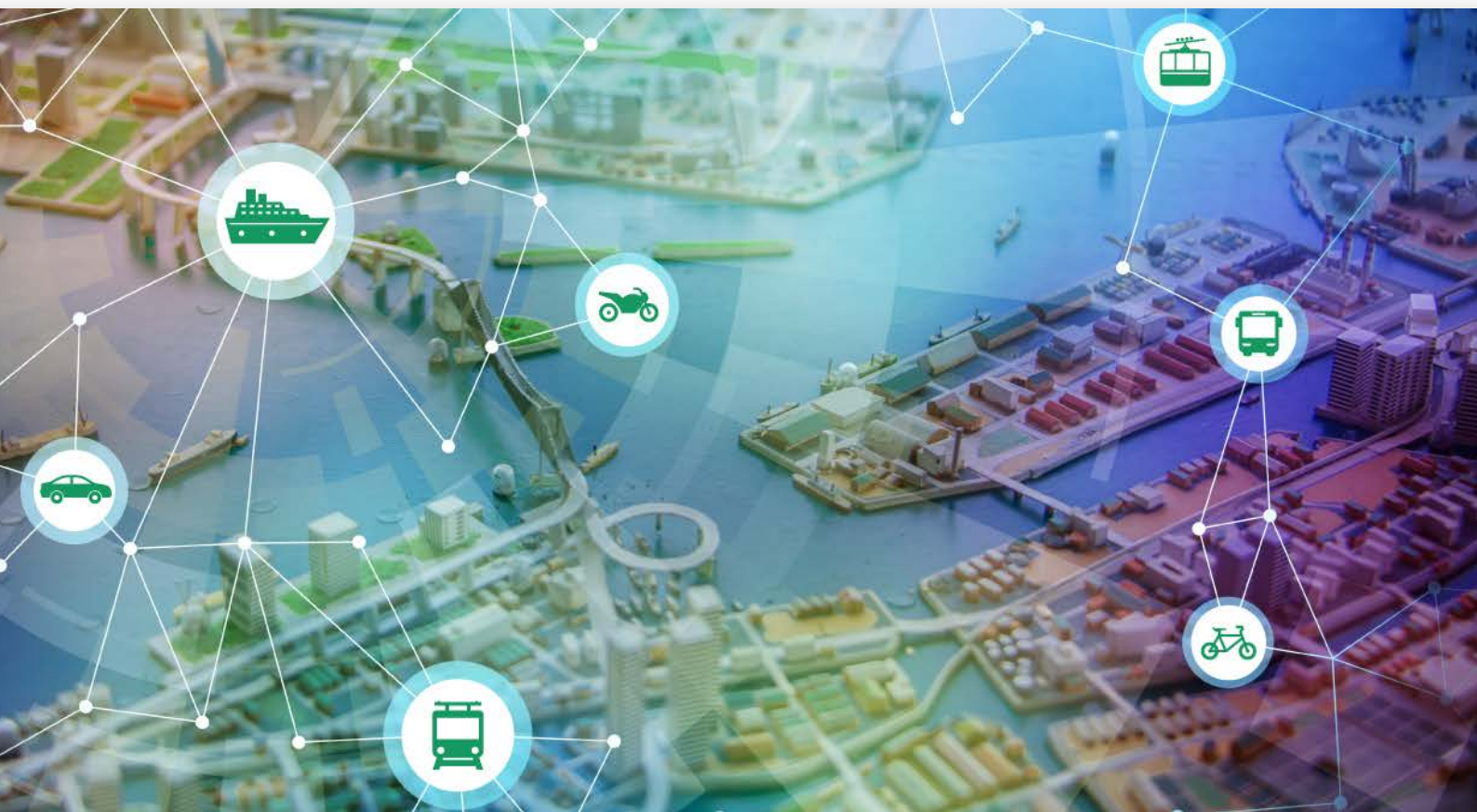
MEASURE 2	INTRODUCTION OF THE CNG DRIVE IN WASTE DISPOSAL VEHICLES		
ACTIVITY	Services of the introduction of CNG drive in waste disposal vehicles		
AMOUNT	65.000,00 €		
RESPONSIBILITY OF	Čistoća d.o.o.		
SOURCE OF FINANCING	Čistoća d.o.o., Regional funds, IEE programme		

MEASURE 3	ELIMINATION OF THE BOTTLENECK BETWEEN THE BREAKWATER AND ROAD D404		
ACTIVITY	Design documentation	Building permits	Works
AMOUNT (V1)	20.000,00 €	/	850.000,00 €
AMOUNT (V2)	8.000,00 €	/	160.000,00 €
RESPONSIBILITY OF	Port of Rijeka Authority	Port of Rijeka Authority	Port of Rijeka Authority
SOURCE OF FINANCING	Port of Rijeka Authority's resources		Port of Rijeka Authority's resources

MEASURE 4	INTRODUCTION OF ELECTRIC SCOOTERS AND CHARGING STATIONS			
ACTIVITY	Concession tender	Installation of charging station	Procurement of electric scooters	Connection, arrangement of location
AMOUNT (V1)	/	12.000,00 €	30.000,00 €	3.000,00 €
AMOUNT (V2)	/	9.000,00 €	30.000,00 €	3.000,00 €
RESPONSIBILITY OF	Port of Rijeka Authority	Concessionaire	Concessionaire	Concessionaire
SOURCE OF FINANCING	Port of Rijeka Authority's resources	Concessionaire, Regional/national funds, IEE programme	Concessionaire, Regional/national funds, IEE programme	Concessionaire, Regional/national funds, IEE programme

MEASURE 5	TRADITIONAL SHUTTLE BOAT	
ACTIVITY	Eol for concession	Production of the concession tender
AMOUNT	/	/
RESPONSIBILITY OF	Port of Rijeka Authority	Port of Rijeka Authority
SOURCE OF FINANCING	/	/

MEASURE 6	INFORMATION PANEL ON THE PASSENGER TERMINAL
ACTIVITY	Installation of the panel
AMOUNT (V1)	6.600,00 €
AMOUNT (V2)	19.800,00 €
RESPONSIBILITY OF	Port of Rijeka Authority, Grad Rijeka
SOURCE OF FINANCING	Port of Rijeka Authority, Grad Rijeka



REPORT ON LCTP DRAFT - TRIESTE

**LOCATIONS - LOW CARBON TRANSPORT IN CRUISE DESTINATION
CITIES**

**WP3 - TESTING
ACTIVITY 3.5 MID-WAY STOCK-TAKE**

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1. INTRODUCTION

This document is drafted within the LOCATIONS project, co-funded by the Interreg MED Programme.

The LOCATIONS project - Low Carbon Transport in Cruise Destination Cities - aims to support public administrations of MED cruise cities in defining Low Carbon Transport Plans (LCPTs) tackling the impact of cruise passengers on the city mobility, envisaging low carbon mobility options and measures.

This LCTP concerns the city of Trieste, located in North Eastern Italy and was drafted by the Port Network Authority of the Eastern Adriatic Sea (Port of Trieste), LOCATIONS project partner. The Municipality of Trieste is Associated Partner in the project.

The Port Network Authority of the Eastern Adriatic Sea is not competent for planning the city's mobility outside the port areas. The uptake of the project's results, and more specifically the LCTP for Trieste elaborated by the Port Network Authority of the Eastern Adriatic Sea, is ensured by close cooperation and the participation of the Municipality of Trieste to the project as Associated Partner, underlining the strategic support the Municipality of Trieste provides to the project.

2. LOW CARBON TRANSPORT PLAN

2.0 STEP 0: WORK PLAN AND TEAM

Taking into consideration the specific competence of the Municipality of Trieste as planning and managing body in the implementation of urban mobility plans, the following table, structured in close consultation with the Municipality and the identified relevant stakeholders, reports the work-plan to guide the drafting of the LCTP for cruise passengers of the city of Trieste.

Preparation	1) Goals of the strategy	To gather the inputs of relevant stakeholders for the elaboration of the LCTP for the cruise passengers of Trieste
	2) Scope of the process	City level – Trieste
	3) Context	The City of Trieste (AP) will tender the SUMP in the next few weeks, to be finalized by the end of 2020. Therefore, the implementation of the LCTP will contribute to the elaboration of the SUMP.
	4) Identify participants and define their role	<ul style="list-style-type: none"> City of Trieste – policy maker, elaboration of the SUMP; Trieste Cruise Terminal – manager of the cruise terminal Chambers of Commerce of Trieste Italian General Confederation of Enterprises, Professions and Self-Employment
	5) Design the plan (Resources, timeline, funds, recruit participants)	<p>Timeline:</p> <ul style="list-style-type: none"> May – July 2017: interviews with stakeholders; August – September 2017: elaboration of the first draft; September 2017: feedback meetings with local stakeholders; October 2017: finalization of the draft LCTP – v0 May 2018: finalization of the second draft LCTP – v1 <p>Resources:</p> <ul style="list-style-type: none"> TPA staff; External experts for a specific contribution on sustainable train passenger options to reach Trieste.

The team of the port of Trieste comprised:

Organization	Name	Role in the organization	Task Owner
Port Network Authority of the Eastern Adriatic Sea, Port of Trieste	Alberto Cozzi	Project Manager	Elaboration of the first LCTP draft
	Anna Carobolante	Project Assistants	Stakeholders interviews and LCPT draft review
	Elisabetta Scala		
	Stefania Silvestri		

2.1 STEP 1: INITIAL ASSESSMENT

2.1.1 CONTEXT ANALYSIS

The concept of Low Carbon Transport Plan (LCPT) is closely linked to the Sustainable Urban Mobility Plan (SUMP), envisaged by the European Union within the Urban Mobility Package (COM(2013) 913).

Like the SUMP, an LCTP has as its main goal the improvement of the accessibility of urban areas and providing high-quality and sustainable mobility and transport to cruise passengers. As such, it should regard the needs of the 'functioning city' and its hinterland rather than a municipal administrative region.

Moreover, the LCTP is linked to an existing long-term strategy for the future development of the urban area and, in this context, for the future development of transport and mobility infrastructure and services.

Therefore, any LCTP should be directly linked to the city's SUMP or equivalent planning document, in order to integrate cruise-related and citizen-related mobility needs and solutions.

1. EU, NATIONAL, REGIONAL AND LOCAL FRAMEWORK OF REFERENCE

Relevant EU policies and documents are:

1. Air Quality Directive (2008/50/EC)
2. Action Plan on Urban Mobility (COM(2009)490)
3. EU2020 Strategy (COM(2010) 2020)
4. White Paper "Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system" (COM(2011)0144)
5. Urban Mobility Package (COM(2013) 913)
6. SUMP Guidelines by ELTIS (Urban Mobility Observatory)

The Italian national legislation does not envisage SUMPs or LCTPs to be mandatory for Italian municipalities.

Yet, Italian Law no. 340/2000 foresees a similar tool, i.e. the "Urban Mobility Plan", whose main objective is to plan the urban mobility system providing an organic set of actions on public transport and road infrastructures, P&R systems, ICT measures, transport demand management, mobility managers, traffic control and regulation systems, real-time information to users and passengers, plans and technologies to improve the distribution of goods at urban level.

The UMP is developed and approved by Italian municipalities on a voluntary basis.

In addition, the Decree of the Italian Ministry of Transport dated 4th August 2017, published on the Italian Official Journal no. 233 on October 5th 2017 issued the guidelines for the elaboration of SUMPs, applying art. 3 of the Legislative Decree no. 257/2016 in accordance with Dir. 2014/94/EU on alternative fuels.

The City of Trieste does not have an UMP, but in 2012 it approved the "General Plan of Urban Traffic" (PGTU – Piano Generale del Traffico Urbano), containing important analyses and policy actions concerning the mobility patterns in the city.

2. CURRENT CRUISE-RELATED FLOWS FEATURES, TRENDS, ETC., IN THE CITY/PORT

Although the statistic numbers on cruise-related flows are far from resembling those of other historic cruise cities (e.g. Venice), they show that the city of Trieste has become an important tourist destination, with a relevant growth rate compared to only a few years ago. Moreover, the cruise-related economy represents an important asset for Trieste with an estimated average of spending of 70 euros per cruiser registered in 2016.

The following table reports relevant statistics showing a positive trend over the past few years:

Year	Number of cruisers	Ships
2017	121.219	58
2016	145.991	61
2015	134.265	46
2014	44.236	22
2013	70.244	31
2012	70.807	40

In 2016, cruise liners moved the following passengers:

- Costa Crociere: 121,989 – 83.56%
- Thomson: 8,666 – 5.94%
- Others: 15,336 – 10.50%

As for 2017 the breakdown is represented as follows:

- Costa Crociere: 90,406 – 74,58 %
- Thomson Cruises: 8,557 – 7,06 %
- Pullmantur: 6,117 – 5,1 %
- Gran Circle Cruise Line: 637 – 0,53 %
- Others: 15,502 – 12,79 %

As outlined in the figure below, in 2012 the modal split was the following:

- 13% motorcycle
- 47% car
- 20% public transport
- 1% bicycle
- 19% walking

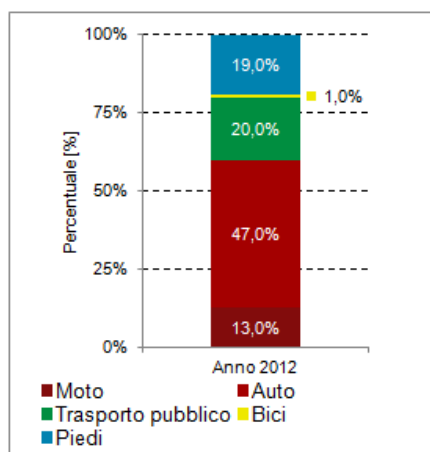


Figure 1 - Modal split in Trieste (PGTU, 2012)

The City of Trieste – AP in LOCATIONS – is participating in the CIVITAS PORTIS project¹, together with AREA Science Park and the Port of Trieste.

The main aims of the PORTIS project are to:

- Improve governance for an enhanced cooperation between cities and ports
- Create more sustainable and healthier city-port environments
- Shape more integrated transport infrastructure and mobility systems
- Improve the efficiency of urban freight transport

Against this background, the participation of the Port of Trieste within LOCATIONS must be viewed as complementary to the activities of the City of Trieste within PORTIS, the two institutions closely cooperating as to guarantee the best possible result for the city's inhabitants, tourists and cruise passengers. Indeed, through LOCATIONS the Port of Trieste will contribute to the parts of the SUMP of Trieste concerning cruise passengers, suggesting potential solutions to the City's government.

3. CRUISE-SECTOR MID- TO LONG-TERM (5 TO 10 YEARS) DEVELOPMENT TRENDS

Considering the general framework of the Adriatic cruise-sector development trends, in 2016 the Adriatic represented the area of the Mediterranean Sea with the highest positive variation in 2016 traffic compared to the previous year². Interviewed stakeholders in the specific context of Trieste cruise traffic segment noted an increase of concrete opportunities to go beyond this positive trend and underlined various still underestimate potentialities to be developed in the future. One of the strategic initiative envisaged in the coming years aims at providing a more positive framework than that emerging from the results of the previous year with regard to the implementation of new policies initiatives – SUMP - and the possible concentration of cruise related activities promoting new cultural and tourist activities in the Trieste Old Port areas.

¹ <http://civitas.eu/portis>

² Adriatic Sea Tourism Report 2017, Risposte Turismo, 2017 – http://www.adriaticseafortum.com/2017/Public/RisposteTurismo_AdriaticSeaTourismReport2017.pdf

La crescita dei primi 20 porti crocieristici italiani per passeggeri movimentati, variazioni 2016-2007 e 2016-2015

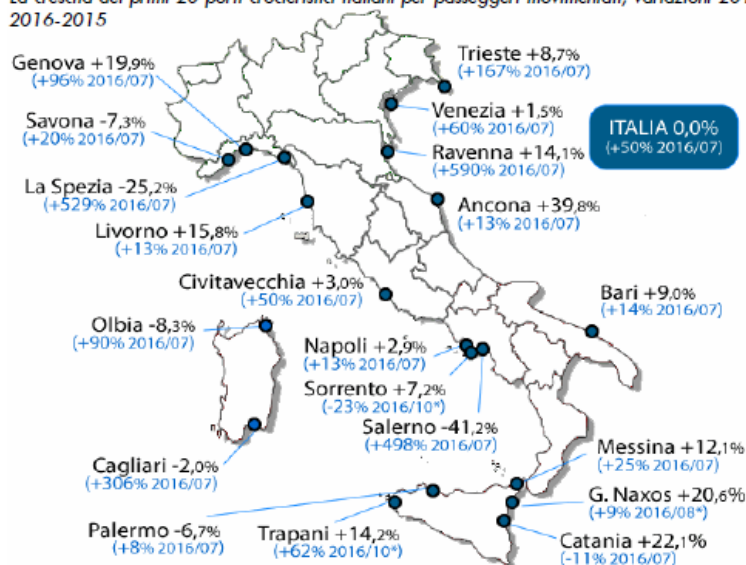


Figure 1 - Trend traffic in the top 20 Italian cruise ports determined on the bases of number of passengers. Variations value 2016/2007 and 2016/2015

In a long-term perspective, based on the previous positive cruise-related traffic trend and considering the current dedicated on-going initiatives under implementation, as the case of the SUMP and the EU funded project PORTIS, a further growth is expected in the coming years.

4. CURRENT CRUISE-RELATED MOBILITY AND TRANSPORT MANAGEMENT POLICIES AND PUBLIC & PRIVATE INITIATIVES ADDRESSING THE EXISTING FLOWS

The Trieste Terminal Passeggeri S.p.A. is located in the heart of Trieste city center, near the city's central square of Piazza dell'Unità d'Italia. Therefore it is easily accessible for cruise passengers on foot or by public transportation. The train station is 5-10 minutes away on foot from the structures. The local international airport of Trieste is located just 33 km away from the city center and it is accessible by a scheduled coach and from March 2018 the implementation of the new railway station of Trieste-Ronchi airport allows passengers to travel by train.

This location offers benefits for tourists who are immediately among museums, monuments, shops, restaurants in the city center, but also represents a serious concern in terms of mobility.

5. WEIGHTED LIST OF NEGATIVE IMPACTS LINKED TO CRUISE-RELATED FLOWS

The number of cruisers in Trieste is not as high as in other ports, such as Venice, but the central location of the cruise terminal impacts the city in terms of road congestion and consequent air and noise pollution.

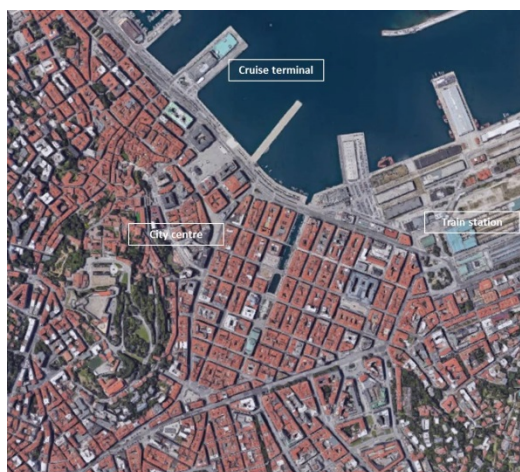
From the main negative externalities linked to cruise related flows:

- Air and noise pollution;
- Non-parking areas for citizens as a result of the closure of the areas adjacent to the terminal;

- Environmental externalities such as traffic congestion (vehicle n kilometres related to excess parking).

6. EXISTING ROAD NETWORK, TRANSPORT SERVICES AND INFRASTRUCTURE IN THE CITY/ PORT

As described above (sec. 4) the TTP location in the heart of the city centre offers benefits for tourists who are able to use all the existing road network, infrastructures and the public transport services. At the same time, they are immediately among museums, monuments, shops, restaurants in the city centre.



Thanks to this privileged position of the cruise terminal, tourists use the same mobility services and infrastructures of the citizens and currently there are not specific measures developed exclusively for their mobility. This positive aspect also represents a serious concern in terms of mobility and congestions and new measures and LCTP related policies dedicated to address this gaps is needed.

2.1.2 SWOT/CAME ANALYSIS

The following table shows the main strengths, weaknesses (internal), opportunities and threats (external) related to the cruise traffic in Trieste:

SWOT	Negative	Positive
Internal	<ul style="list-style-type: none"> • Cruise Terminal in the city center – impact on city mobility patterns • SUMP under implementation 	<ul style="list-style-type: none"> • Central location: cruise tourists can reach the city center walking • Train station located at 1 km from the cruise terminal • Efficient PT services

External	<ul style="list-style-type: none"> Strong competition from other cruise-destination cities in the Northern Adriatic (e.g. Venice) 	<ul style="list-style-type: none"> Possibility to offer low-carbon transport services (e-bikes, bike sharing) along the coast Interesting local touristic attractions reachable with LC means
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The following table summarises the CAME analysis:

	Threats	Opportunities
Weaknesses	Change in government policy identifying adaptive solutions towards sustainable mobility – SUMP adoption	Identify corrective strategies based on shared experiences, collected inputs and data
Strengths	Maintain positive results with on-going monitoring and revising activities	Explore new opportunities in cross sector collaboration (alignment of aims among stakeholders)

2.2 STEP 2: PARTICIPATORY PROCESS

1. STAKEHOLDERS IDENTIFICATION

The Port Network Authority of the Eastern Adriatic Sea identified and interviewed the following actors:

- 1) City of Trieste – as the only entity competent for developing mobility plans and options for citizens and tourists alike;
- 2) Trieste Terminal Passeggeri (TTP) – the cruise terminal operator;
- 3) Chambers of Commerce of Venezia Giulia – gathering companies and enterprises constantly in contact with tourists and cruisers.
- 4) Italian General Confederation of Enterprises, Professions and Self-Employment – gathering local SMEs

2. PARTICIPATORY PROCESS DESIGN AND IMPLEMENTATION

The interviews were held in June, July and September 2017, the outcome of which are summarised here below.

As indicated above, within the framework of the CIVITAS PORTIS project, the City of Trieste tendered the elaboration of the SUMP in the 3rd quarter of 2017. This procedure was closed in the 2nd quarter of 2018, when the LCTP elaborated by the Port of Trieste within LOCATIONS had to be finalised (April 2018).

Against this background, the **City of Trieste** welcomes the cooperation with the Port of Trieste within LOCATIONS, as it can provide useful suggestions for low-carbon mobility options for the cruise passengers to be better studied and analysed within the SUMP.

As far as possible actions to be taken, the City of Trieste suggested the following:

- Increasing the number of bike sharing stations;
- Upgrade of the existing coach station currently located next to the railway station;
- Dedicated public transport connections between the railway station and the cruise terminal;
- Smartphone APP with way finding options (already foreseen in the PORTIS project);
- Constant exchange of information on the arrival of cruise ships between TTP and the City's government and the upload of the relevant information on the City's web portal.

In addition, with the perspective of new opportunities to valorise culture-related activities, the **City of Trieste** suggested the creation of a collaborative framework with cruise ship-owners in order to promote guided walking tour packages involving the existing local tourist guide associations.

The company managing the cruise terminal, **TTP**, highlighted the result of recent surveys, revealing that around 150.000 cruise passengers visited Trieste in 2016 bringing a positive impact on the local economy estimated in 20 million euros.

This important contribution to the local economy is referred both to the terminal related activities (freight forwarders, security dedicated staff and service providers), and to the commercial activities in the city centre (such as restaurants and hotels which attract both cruise passengers and staff employed on board, that can reach the number of 500 employees spending even more than a classical passenger).

As far as the impact on the city's mobility patterns is concerned, TTP assessed it as sustainable, since the current administration is able to prevent and to manage the normal flow of passengers, and all requirements in terms of mobility are previously scheduled: the majority of passengers arrive by plane or by car and they can easily find a parking dedicated area with a shuttle connection to the departure terminal. There are a few passengers coming by train with no impact on urban mobility thanks to the proximity of the Trieste railway station to the cruise terminal. The only case that could negatively impact on mobility occurs in case of emergencies, when the administration is not able to foresee and thus properly organize the arrival of the ship.

In this regard, one critical aspect to be considered is climate change effects, with the persistence of high winter temperatures causing frequent fogs on the Northern Adriatic Sea, determining cruise vessels delays and re-ordering of the ports of destination. The increased number of emergency calls during the current year is becoming an everyday issue in the TTP management – in fact, the port of Trieste is less affected by fog than Venice, causing last minute rescheduling of cruise calls to Trieste. In particular, critical issues and

challenges arise due to weak connectivity to key rail transport services, determining the use of buses and coaches affecting the city centre to transfer cruise passengers.

Moreover, from January 2017 until October 2017 occurrence of dense fog laying on the Venetian lagoon forced more than six cruise ships to change itinerary and sail to Trieste. This 'last minute', unpredicted arrival of cruise vessels in Trieste reached the number of around 5,000 passengers in transit managed by the terminal, demonstrating how TTP is efficiently responsive during these critical situations and how Trieste is recognised as port of reference for emergency calls in the Adriatic.

TTP outlined the need to identify a more stable, dedicated policy line agreed between key institutional and private actors, building on the already existing collaborative approach. Indeed, stronger cooperation and a common understanding of key challenges and long-term objectives are crucial, because a cruise destination change or a large delay puts everything behind schedule affecting severely passengers' and ship companies' plans as well as Trieste urban mobility framework and tourist infrastructures capacity.

More specifically, with regard to LC mobility options, one of the major problems that cruise passengers had to face was linked to the lack of a direct transport connection to the nearest international airport, located in Ronchi dei Legionari. In this respect, the Industrial Plan 2016-2020 of Friuli Venezia Giulia Autonomous Region ensured from March 2018 the connection of the airport to the Trieste-Venice railway being a first important step to provide tourists and cruise passengers with new sustainable solutions.

At the same time, **TTP** underlined that a potential opportunity may be the idea of creating a new way for the tram of Opicina in the proximity of the seafront and other type of solutions valorising the less-known touristic sites that can be reached by low carbon transport means.

In general, it was highlighted that fairs and promotional events are not enough to pave the way for the growth of this sector, but a coordinated local marketing action involving stakeholders from the public and private sectors is needed.

The **Chambers of Commerce** convened with TTP in considering the impact of the cruise passengers on the city's economic development as positive.

As far as mobility is concerned, LC mobility solutions have to be thought according to the different profile of cruise passengers. Moreover, the characteristics of the port itself affect the type of solutions that can be suggested (i.e. a shuttle bus for passengers arriving at Ronchi Airport and dedicated parking areas for cruise passengers arriving by car).

For this reason, there is the need to enhance the integration between the urban mobility framework and the connections with the most important touristic and logistic nodes. In the first case, a focused attention should be paid to the relevance of intelligent traffic signs in order to provide users with clear information on entrance and exit ways. Particular attention should be paid to the importance of inter-modality based connections for routes that are currently not fully exploited by passengers.

In general, the dialogue between the shipping companies and the economic stakeholders is of great importance ending up in a mediation and agreements in order to make Trieste an even more attractive cruise destination city. A recent example of this type of collaboration is represented by the development of an APP including 100 different touristic destinations that is addressed to different users with the aim to

valorise less-known tourist sites (i.e. the city of Palmanova that has been recently acknowledged as a UNESCO site).

Following this approach, a network between minor ports could be implemented to enhance the tourism seasonal adjustment, thus bringing new opportunities for the local population living in less known sites.

The last interview with the **Italian General Confederation of Enterprises, Professions and Self-Employment - Trieste city division**, was carried out in September 2017. During this interview session, a substantial agreement to the previously interviewed stakeholders' considerations and suggestions was underlined, in particular regarding identified LCT possible, further initiatives and the necessity to achieve a better coordination between stakeholders to implement effective and integrated LCT solutions.

At the same time, although the high level of difficulty in achieving formal agreements between cruise shipping operators and local public/private actors appeared fully recognized, stakeholders from the Italian General Confederation of Enterprises, Professions and Self-Employment – Trieste city division outlined two great opportunities in establishing this type of partnerships:

- promote *ad hoc* cruise tours offering Italian culture based experiences, where the cruise passengers can choose to join different destinations tour using LCT based trips to lesser known travel locations and discover their offerings in terms of historical traditions (i.e. visits of the Karst hills offering packages that include wine and food tours);
- empower synergy in information services on existing LCT solutions and Trieste city tour plans dedicated to various cruiser profiles on-board (i.e. integrating cruise tour packages with information campaign on existing web portals and open source apps).

2.3 STEP 3: DESIGN OF THE PLAN

The methodology used for the design of the LCTP is based on the training developed by CIRCE during the Capacity Building Seminar held in Málaga on April 5th – 7th and the table of contents sent on July 5th 2017.

Both the Capacity Building Seminar and the table of contents, together with the simulation held at the 2nd Project Steering Committee held in Ravenna on May 22nd-24th proved to be useful tools to develop the LCTP for Trieste.

As far as the participatory process is concerned, it can be summarised as follows:

Project Name	Objectives	Topic*				Participants	Time		€
		Knowledge	Maturity	Complexity	Controversial		Event	Total	1-4

Trieste LCTP	To gather the inputs of relevant stakeholders for the elaboration of the LCTP: 1) gather information; 2) suggestions of potential LC mobility options.	+/-	-	m	+/-	<ul style="list-style-type: none"> - City of Trieste - Trieste Cruise Terminal - Chambers of Commerce - Italian General Confederation of Enterprises, Professions and Self-Employment 	May-July 2017; September 2017		
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For detailed description on the elaboration of the draft LCTP see the previous section.

1. DEFINITION OF THE CURRENT SCENARIO



As it can be easily noted from the picture above and map below, the cruise terminal is located directly within the city centre, on the main square and near most of the city's touristic attractions.

On one side, this is positive, since cruisers wishing to visit the city can walk through it as they disembark. On the other side, such a central location impacts on the residents, since cruisers wishing to arrive to the terminal or departing from it for local excursions mainly use private vehicles and buses, respectively.

This LCTP tackles these challenges. It was drafted in close cooperation with the Municipality of Trieste, which is the public entity responsible for planning the city's mobility.

2. DEFINITION OF VISION AND OBJECTIVES

The Port of Trieste has consistently invested in low-carbon and sustainable measures over the last few years.

First and foremost, the new Port Master Plan was approved with integrated EIA and ESA evaluation. Also, it is the only Italian Port Authority that is certified with 9001:2015 and 14001:2015 standard, ensuring that sustainability is embedded in the port development operations for the years to come.

Additionally, the port of Trieste is the first Italian port for intermodal traffic, with 8,681 trains in 2017 – specific statistics are described in the chapters below.

Therefore, the participation in a project focusing on low-carbon mobility for cruisers is a natural prosecution of the port authority's current and future strategy, devoted to supporting low-carbon and environmentally friendly transport solutions.

The Port Network Authority of the Eastern Adriatic Sea intends to extend the approach adopted to decrease the impact of the port operations on the environment also to the cruise sector.

Therefore, since it is not the competent actor for planning the mobility outside the port areas, through the LCTP the Port Network Authority of the Eastern Adriatic Sea wishes to provide the city administration with suggestions and contributions on the low-carbon mobility of cruise passengers to be included in the SUMP, that it is currently developing within the CIVITAS PORTIS project.

Within LOCATIONS, the Port Network Authority of the Eastern Adriatic Sea will implement action no. 1 – analysis of the public transport (train) options available for reaching Trieste. This study would also alleviate the impact of unforeseen cruisers flows caused by events such as fog in other ports – as highlighted by TTP in the chapter above.

3. DEFINITION OF ACTIONS AND INDICATORS

Through *ad hoc* interviews with the competent stakeholders, the Port Network Authority of the Eastern Adriatic Sea has identified the following set of measures able to contribute to the specific goal of reducing the traffic congestion in the city centre and consequent environmental downsides caused by cruise passengers:

1. Analysis of the PT (train/bus) options available for reaching Trieste;
2. Increase of bike sharing stations;
3. Study on dedicated public transport service between the train station and the cruise terminal;
4. APP for way finding in the city (already foreseen in the CIVITAS PORTIS project);
5. Webpage on the city portal with information for cruise passengers, suggesting LC transport options.

The table below summarises the actions, indicators, timeframe and responsible stakeholders:

Action no. 1	start/end	outcome	indicator	source of data	responsibility for monitoring	monitoring/schedule	description and methodology
Analysis of the PT (train/bus) options available for reaching Trieste	M1 - M12	Analysis on PT options to reach Trieste and the cruise terminal	number of cruise passengers using PT options	Port of Trieste	Port of Trieste	M12	Within LOCATIONS, the Port of Trieste will develop an analysis for PT options for cruisers as a technical report supporting the implementation of the LCPT
Action no. 2	start/end	outcome	indicator	source of data	responsibility for monitoring	monitoring/schedule	description and methodology
bike sharing stations	M12 - M24	bike sharing stations available	bike sharing station	Municipality	Municipality	M24	The increase of bike sharing stations strategically located in the city and near the cruise terminal would provide additional LC mobility options for cruisers visiting the city. This action is already foreseen in the CIVITAS PORTIS project.
Action no. 3	start/end	outcome	indicator	source of data	responsibility for monitoring	monitoring/schedule	description and methodology

Study on dedicated public transport service between the train station and the cruise terminal	M12 - M24	study on dedicated PT services for cruise passengers	number of cruise passengers using PT options	Municipality	Municipality	M24	The cruise terminal is close to the train station (1 km). A study may analyse the potential for dedicated PT services between the train station and the cruise terminal, including financial viability
Action no. 4	start/end	outcome	indicator	source of data	responsibility for monitoring	monitoring/schedule	description and methodology
APP for way finding (already foreseen in the CIVITAS PORTIS project)	M12 - M24	APP for way finding	number of downloads of the APP	Municipality	Municipality	M24	Way finding is a useful tool to guide tourists, providing information on the cultural heritage of the city as well as LC mobility options available to reach them
Action no. 5	start/end	outcome	indicator	source of data	responsibility for monitoring	monitoring/schedule	description and methodology
Webpage on the city portal with information for cruise passengers, suggesting LC transport options	M12 - M24	webpage on the city portal	number of visits to the webpage	Municipality	Municipality	M24	The city portal may be endowed with a page dedicated to cruise passengers, providing touristic and LC accessibility information

4. DEVELOPMENT OF FUTURE SCENARIOS

The following scenario-based approach allows to examine the potential impacts of the above-mentioned actions. In fact, the purpose of scenario analysis is to explore several possible futures in a systematic way³.

For the purpose of the LCTP, three different scenarios were envisaged:

- **Business as usual (BAU):** none of the actions is implemented;

³ Peter Schwartz, *The Art of the Long View* (1996)

- **Likely:** only actions 1, 3, and 5 implemented;
- **Best:** All actions implemented.

The **BAU** scenario implies that none of the above-mentioned actions is implemented, as if the LCTP were not adopted by the relevant stakeholders.

Although highly improbable, given the strong political commitment of the local community, such a scenario must be considered as the baseline.

The **likely** scenario foresees the adoption of the following actions:

1. Action no. 1: Analysis of the PT (train) options available for reaching Trieste;
2. Action no. 3: Study on dedicated public transport service between the train station and the cruise terminal;
3. Action no. 5: Webpage on the city portal with information for cruise passengers, suggesting LC transport options.

These actions are either already foreseen during the project implementation with dedicated budget already allocated (Action no. 1) or are “light” actions requiring limited budget and commitment.

The **best** scenario implies the adoption of all identified measures, i.e. those of the moderate scenario plus:

1. Action no. 2: bike sharing stations;
2. Action no. 4: APP for way finding (already foreseen in the CIVITAS PORTIS project).

These two actions require additional funds and increased political commitment.

2.4 STEP 4: MONITORING AND FUNDING

2.4.1 MONITORING LCTP IMPLEMENTATION

The Port of Trieste is not competent for planning the mobility outside the port areas. Thus, preparing the LCTP, the Port worked in close consultation with the Municipality of Trieste, which is the public entity responsible for planning the city’s mobility and LOCATIONS Associated Partner.

The Port of Trieste is responsible for the elaboration of LCTP that would contribute to the cruise-related content of the city’s SUMP, considering also the measures that the City of Trieste will develop within the CIVITAS PORTIS project.

The Port will implement the measure within its institutional role – i.e. Action 1 – the other measures being yielded to the City of Trieste for their uptake.

2.4.2 FUNDING

The following table summarises costs for implemented the above-mentioned activities, also identifying potential funding schemes:

Action 1	start/end		Cost category					
			staff	description	subcontracting	description	investments	description

Analysis of the PT (train) options available for reaching Trieste	M1-M12	amount			60.000,00 €	External expertise for the PT option analysis		
		source of funding			LOCATIONS			
Action 2	start/end		staff	description	subcontracting	description	investments	description
bike sharing stations - Municipality	M12-M24	amount					50.000,00 €	Purchase of e-bikes and installation of the station
		source of funding					own funds/Interreg funds	
Action 3	start/end		staff	description	subcontracting	description	investments	description
Study on dedicated public transport service between the train station and the cruise terminal - Municipality	M12-M24	amount			50.000,00 €	External expertise for the study on dedicated PT service for the cruise terminal)		
		source of funding			own funds/Interreg funds			
Action 4	start/end		staff	description	subcontracting	description	investments	description
way finding - Municipality (already foreseen in the CIVITAS PORTIS project)	M12-M24	amount					50.000,00 €	Purchase and installation of totems
		source of funding					own funds/Interreg funds	
Action 5	start/end		staff	description	subcontracting	description	investments	description
Webpage on the city portal with	M12-M24	amount			5.000,00 €			Upgrade of the city web portal

information for cruise passengers, suggesting LC transport options - Municipality		source of fundin g			own funds/Interreg funds			
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ANNEX 1 – LCTP MEASURE DESCRIPTION TEMPLATE

1. Analysis of the Public Transport options available for reaching Trieste

Within LOCATIONS, the Port of Trieste will develop an analysis for Public Transport options for cruise passengers as a technical report supporting the implementation of the Low Carbon Transport Plan.

The analysis mainly focuses on the railway capacity of the local context (Friuli Venezia Giulia Region) to be able to welcome the increase of tourists in general, with specific focus on cruise passengers with the ultimate aim to provide them with alternative public transport solutions to easily reach the city centre and the cruise terminal of Trieste.

Against this background the new implementation (March 2018) of the railway station of the Trieste Airport (Ronchi dei Legionari Station) is an important step towards this new direction and this new link can be exploited by cruise passengers arriving by plane as a sustainable and comfortable solution to reach Trieste.

As an indicator for this measure the Port of Trieste will use as basis for the analysis the number of cruise passengers using public transport options, with main focus on trains.

The costs of the analysis will be covered by LOCATIONS funds with an estimated cost of 60,000 through a subcontracting procedure.

2. Increase of bike sharing stations

Among the major challenges proposed by the Urban Traffic Master Plan of 2013 there is the establishment of new pedestrian areas, walking and cycling paths. These interventions aims at implementing pedestrian and bicycle connections between the main facilities surrounding the areas of great interests. This change of habits can lead citizens to adopt a different lifestyle as far as mobility is concerned but may also be welcomed by tourists with the chance to use the bike sharing services.

The increase of bike sharing stations strategically located in the city centre and near the cruise terminal would provide additional Low Carbon mobility options for cruisers visiting the city. This action is already foreseen and is going to be implemented through the CIVITAS PORTIS project.

This transport service could be implemented along the coastal area of the city thus offering opportunities to the cruisers who want to be more independent and do not want to follow fixed packages offered by the cruise companies: as far as mobility is concerned, LC mobility solutions have to be thought according to the different profile of the cruise passengers.

The implementation of the future bike sharing system can be hindered by the following factors:

The orography of the city (the presence of gradients mainly in the part of the old town) that may be mitigated by creating cycle paths on the flat, for example along the coast to be strategically located near the cruise terminal. Moreover intermodal alternatives may be offered connecting the flat and the tableland and the possibility to use electric bikes as alternative solutions along the coast.

The quantifiable indicator of this measure will be represented by the percentage of traffic reduction, the percentage of cycle mobility increase and the number of bike sharing system users.

The purchase of e-bikes and the installation of the station will be covered by own fund and by Interreg funds amounting to 50,000 Euros.

3. Study on dedicated public transport service between the train station and the cruise terminal

The city of Trieste is offering a pier for cruise ships that is the city's main square in the very city center.

That facility offers huge benefits for tourists who are immediately among museums, monuments, shops, restaurants of the city center but represents also a serious concern in terms of mobility.

A better connection between the cruise terminal and the railway station that is only 1 km far would be a step towards the implementation of efficient mobility services facilitating tourists in their movements within the city.

A study may analyse the potential for dedicated Public Transport services between the train station and the cruise terminal, including financial viability.

With the recent implementation of the railway station at Trieste airport (Ronchi dei Legionari) an increase of the passengers flow arriving at the train station of the city will force to rethink the local mobility patterns, providing passengers with more transport options that include sustainable solutions.

The costs of the action will be covered by own funds and Interreg funds with an estimated cost of 50,000 Euros through a subcontracting procedure.

4. APP for way finding in the city

In recent years the city has witnessed an increasing number of ships arriving in the city with a growing number of tourists who need to move around and to get information about the main cultural and historical sites and who are not fully satisfied by the information and services provided so far also by the cruise companies.

Besides this the city has experienced many changes in the mobility asset which need to be further promoted and enhanced among citizens and tourists with clear and accessible information.

In order to provide more detailed information and to promote the use of low carbon transport solutions the Port of Trieste will develop an App for Way finding in the city.

The app is a useful tool to guide tourists, providing very easy but complete and up-to-date information about how to move in the city, included information on the cultural heritage of the city and on itineraries around historical sites. The App will be freely downloadable from tourist promotion websites and therefore facilitate tourists in their movements within the city, mainly for those who spend short time in the city and need quick information to walk.

The number of downloads of the APP will represent the indicator of this action to be included in the low carbon transport plan.

The success of this measure will depend partially on the publicity of the tool itself and this is the reason why the cooperation among all stakeholders in charge of the tourist offer management is crucial.

The design and implementation of the App will be covered both by own funds and Interreg funds and the estimated investment consists of 50,000 Euros.

5. Webpage on the city portal

The city portal (<http://www.retecivica.trieste.it/>) is an institutional website which is managed by the municipality of Trieste collecting all the useful information to get to know Trieste under many aspects providing users and mainly citizens with news on tourism, mobility, transport modes, welfare services, environmental issues, cultural events and exhibitions that will be held within the city.

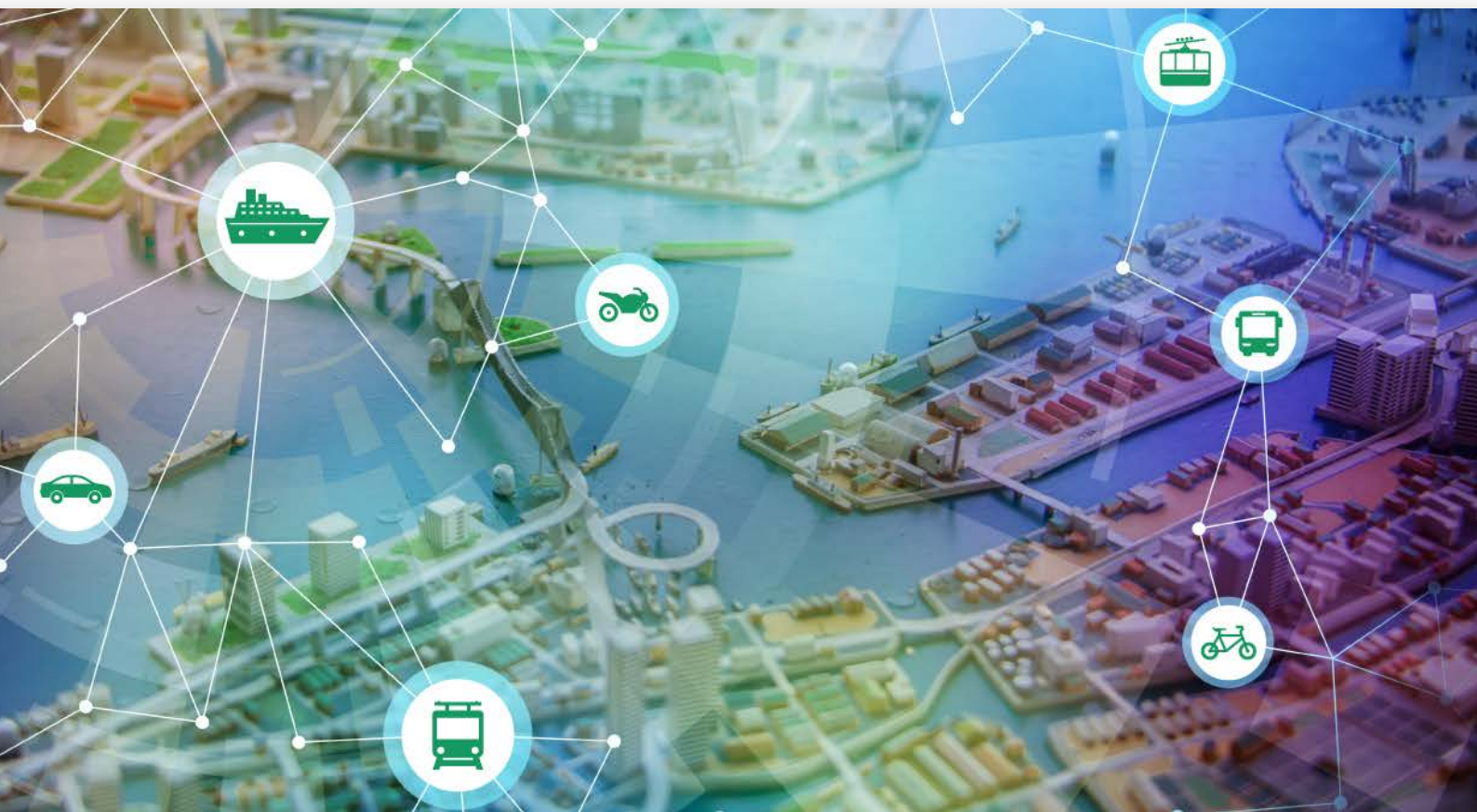
The action aims at the creation of a specific webpage on the city portal which may be endowed with information targeted for cruise passengers, suggesting low carbon transport options and providing touristic, cultural and low carbon accessibility information.

The indicator for this action will be represented by the number of visits to the webpage and by the increase of tourist visits to cultural sites.

The innovative approach of the action consists in the tool of tourism promotion through alternative mobility choices.

As for the efficient implementation of this measure it will depend on the publicity of the tool itself and on the cooperation among all stakeholders in charge of the tourist offer management is crucial: the Municipality that is in charge of the management of the city portal and with tourist promotion agencies that work on the territory.

The webpage is going to be implemented by external experts through a subcontracting procedure with an estimated cost of 5,000 Euros that will partially derive from own funds and partially from Interreg funds.



Template for the report on LCTP draft

LOCATIONS - Low Carbon Transport in Cruise Destination Cities

WP3 – Testing

Activity 3.5 Mid-way stock-take

Grad Zadar (City of Zadar)

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1. Introduction

1.1 The template

This template, based on Deliverable 3.3.1 (Capacity Building Manual, final version dated 14/03/2017) which serves as reference, is to be used to produce a synthetic report in English providing all essential information on the finalized LCTPs.

The template consists of 5 sections (or steps), namely 'Work-plan and team', 'Initial assessment', 'Participatory process', 'Design of the plan', 'Monitoring and funding'.

The report has to be completed in all its sections in English, respecting the format and the number of characters. Please use diagrams and bullet point lists whenever possible to facilitate evaluation.

The report has to be sent no later than May 15, 2018 in a Word format to:

mmarcof@fcirce.es; locations@area.trieste.it

Those partners that decided to produce full versions of their LCTPs in English, should send them to the same addresses. It is advisable to fill in the report in any case, to facilitate the assessment.

LCTP synthetic reports and/or full translations will be used to carry out LCTP evaluation.

2. Low Carbon Transport Plan

2.0 Step 0: Work plan and team

The City of Zadar (EU Funds Administration Department; Administrative Department for Spatial Planning and construction and Administration Department for Utility activities and protection of the Environment) and outer experts: for the implementation of EU projects - DRIOPE d.o.o. and transport – assistant professor Dino Županović, PhD participated in drafting the LCTP plan. The herein mentioned project team was created with the goal of gathering stakeholders from legislative and executive authorities, experts in the preparation and implementation of EU projects and experts from the field of transport. Details on the members of the project team are illustrated in Table 1.

Table 1: Details of the project team in charge of defining LCTP within the LOCATIONS project

PARTICIPANTS			TASKS
NAME	ORGANIZATION	ROLE	
Šime Erlić	City of Zadar Administrative Department for EU Funds	Head of Department for EU Funds	Public procurement for external expert; Responsibility for LCTP drafting, implementation and funding; Communication with Stakeholders; Defining tourist interview structure
Ivana Vrsaljko	City of Zadar Administrative Department for EU Funds	Senior associate Department for EU Funds	
Valentina Jačan	DRIOPE	CEO	Legislative and strategic (EU, national, regional, local) documents analysis; Transportation system data analysis (state-of-the-art); Assembling relevant data for LCTP; Interview results analysis; Defining possible objectives, activities and indicators; Defining various possible scenarios; Preparing draft LCTP and synthetic report version(s); Communication with stakeholders
Roko Baljak	DRIOPE		
Associate Professor Dino Zupanovic, PhD	DRIOPE	Traffic &Transportation External Expert	

During the process of drafting the LCTP process, contacts have been realized with the city Administrative Department for Spatial Planning and Administrative Department for Utility Activities and Protection of the Environment as main stakeholders in the later process of LCPT application monitoring and financial implementation. It was agreed that all contacts with the aforementioned offices would be coordinated through the Administrative Department for EU Funds. In cooperation with an external expert and the existing transport- technology solutions as well as the spatial (geospatial) possibilities, the initial set of goals, activities and indicators was proposed, which would be included and define the LCTP.

Based on the defined tasks, the most important stakeholders were determined and included in the later drafting process, and they participated in the activities connected with cruising tourism in the City of Zadar region whereby their roles, importance and possibility of contributing to the drafting of LCTP were precisely determined. A detailed list of stakeholders is illustrated in Chapter 2.2 Step 2: Participatory process / 1. Stakeholders identification

2.1 Step 1: Initial assessment

2.1.1 Context analysis

1. EU, national, regional and local framework of reference.

The Port of Zadar is classified as a port of comprehensive TEN-T network. It is a port open to public transport of particular international interest for the Republic of Croatia. International, state and local functions are performed in the port of Zadar, and it is the second port on the Croatian coast according to the number of transported passengers. Freight transport is limited due to physical limitations and the proximity of the port of Rijeka. The development of the port is directed towards road and railway transport, passenger transport and cruise ship transport. The passenger transport taking place in the port is approximately 2.5 million passengers and 350 thousand vehicles. Listed below are the strategical documents at city, county and national level with the pertaining goals, priorities and measures that refer directly and are connected to the drafting of LCTP with the LOCATIONS project.

City of Zadar Development Strategy

Strategic Goal 1. Preservation and sustainable development of space and improvement of the city's infrastructure system

- Priority 1.3. Development of the city's traffic network
 - Measure 1.3.4. Development of maritime infrastructure and services, and support to the port of Gaženica port as a port of international significance
 - Measure 1.3.5. Improving the public transport system and creating preconditions for the development of intermodal transport
 - Measure 1.3.6. Development of bicycle traffic
- Priority 1.4. Sustainable energy management and increased share of renewable energy sources
 - Measure 1.4.1. Encouraging the use of renewable energy sources

Urban Development Strategy of Zadar

Objective 3. Sustainable management of spatial resources with improved quality of urban environment

- Priority 3.1 Improving transport connectivity and sustainable urban mobility
 - Measure 3.1.2. Improving public and suburban transportation systems
 - Measure 3.1.7. Improvement of intermodal infrastructure and traffic in the dormancy of ITS UP
 - Measure 3.1.8. Development of pedestrian and bicycle traffic

Zadar County Strategy

- Priority 2.4. Improved transport network and increased multimodality
 - Measure 2.4.2. Improving the public transport system and creating preconditions for the development of intermodal transport
 - Measure 2.4.5. Promotion and development of cycling traffic

National Traffic Development Strategy

General Purposes:

CO1 - Change the distribution of passenger traffic in support of public transport and modes of transport with zero emission of harmful gases. This includes public transport in agglomerations and the local regional context (trams, local bus lines, etc.), rail transport, public transport by sea, regional and remote bus services as well as pedestrians and cyclists.

CO7 - Increase the interoperability of the transport system (public transport, rail, road, maritime and air traffic and inland waterway traffic).

Specific objectives for public transport and forms of transport with zero emission of harmful gases:

SC4 - Increase efficiency and reduce the economic impact of public transport management and organization.

SC5 - Increasing the attractiveness of the public transport by improving the fleet management and modernization concepts

General measures:

G.4 Increasing multimodality in passenger traffic and the development of intermodal passenger nodes

G.12 Decrease of negative impacts of transportation on the environment

Specific measures

City, suburban and regional traffic

U.5 Increasing multimodality

2. Current cruise-related flows features, trends, etc., in the city/port

With the construction of Zadar passenger port Gaženica with all the inner roads, terminal buildings and car lots conditions have been acquired for passenger and car embarking and disembarking according to the following capacities:

- 7 ferryboats on local lines length 50-150 meters in length;
- 2 ships of international navigation 150-200 meters in length;
- 3 ships on cruising trips 200-350 meters in length as well as the possibility of accommodating RO-RO ships on the same moles.

The data on the number of arrivals, passengers and crew members on cruise ships for the period from 2010 to 2018 are illustrated in the following tables and graphs. Table 2 and Graph 1 show a continuous increase in the number of arrivals and passengers in Zadar. Projections for 2018 are 139 foreign ships for cruise trips, 180,000 passengers and 70,00 crew members in Zadar Port.

Table 2: Number of arrivals, passengers and cruiser crew members in Zadar port in the period from 2010 to 2018

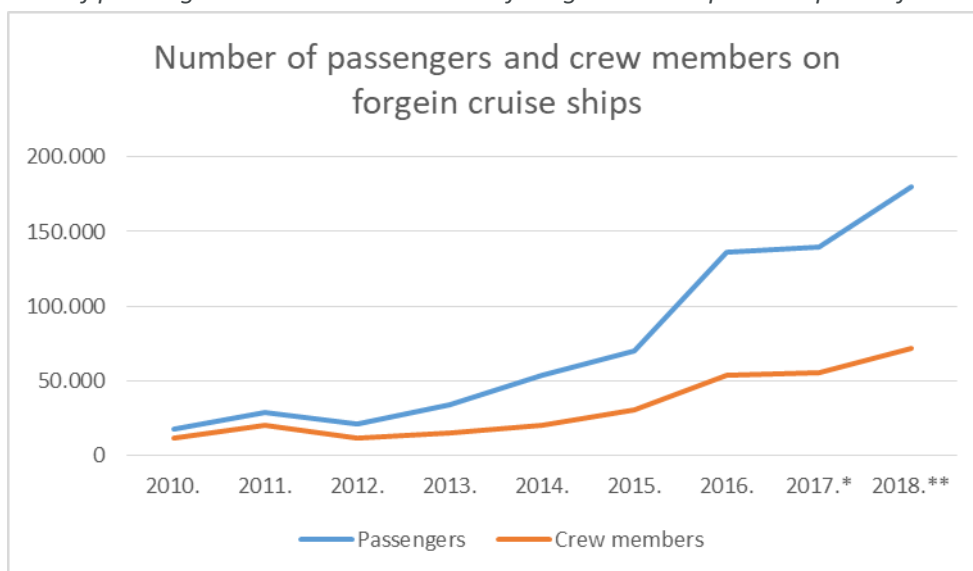
Year	Arrivals	Passengers	Crew members
2010.	80	17.157	11.224
2011.	72	28.667	20.176
2012.	57	20.958	11.171
2013.	69	33.647	15.024
2014.	77	53.791	20.247

2015.	92	70.366	30.513
2016.	114	136.462	53.400
2017.*	105	140.000	55.000
2018.**	139	180.000	72.000
* by end of year			
** projections according to announcements			

Graph 1: Number of foreign cruise ship arrivals in the period from 2010 to 2018



Graph 2: Number of passengers and crew members on foreign cruise ships in the period from 2010 to 2018

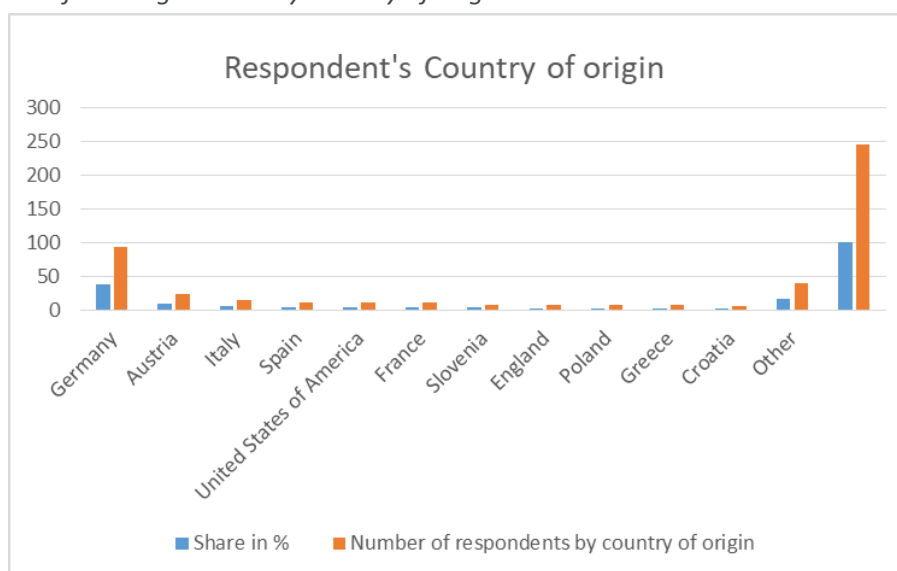


Since the port of Zadar presently functions exclusively as a port of call, there are no data on the origin and destination of cruise tourists as well as their distribution according to the multimodal split of their arrival. However, taking into consideration the proximity of the airport and the excellent road connection and passenger port terminal capacity, future expectations are (and efforts are being made) to make Zadar Port a home port.

Research on passenger and crew activity in a destination has been performed with the method of surveys. The basic content of the research covers the socio-demographic profile of passengers, activities in the destination, satisfaction with the destination service and suggestions on service improvement. Information on the movement of passengers within the port have been acquired through interviews of Zadar Port authority employees and by observing the movement and organization within the international pier of the port. Research has been performed on a sample of 245 examinees in the period from 10/9/2017 to 10/10/2017. The following results have been acquired from analysis of the gathered data.

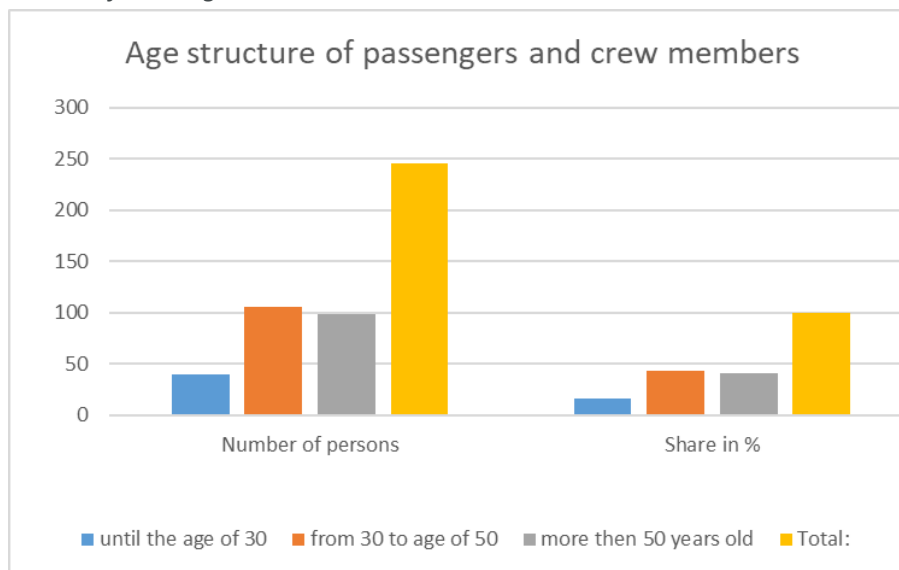
The division of cruise cruising tourists by country of origin is illustrated in Graph 3. Based on the illustrated, it is evident that the highest average of cruise ship tourists derives from European Union countries; Germany - 38.2%, Austria - 9.8%, Italy - 6.2%, Spain - 5%, France - 5%, followed by the USA – 5% and other countries - 16.7%.

Graph 3 3: Division of cruising tourists by country of origin



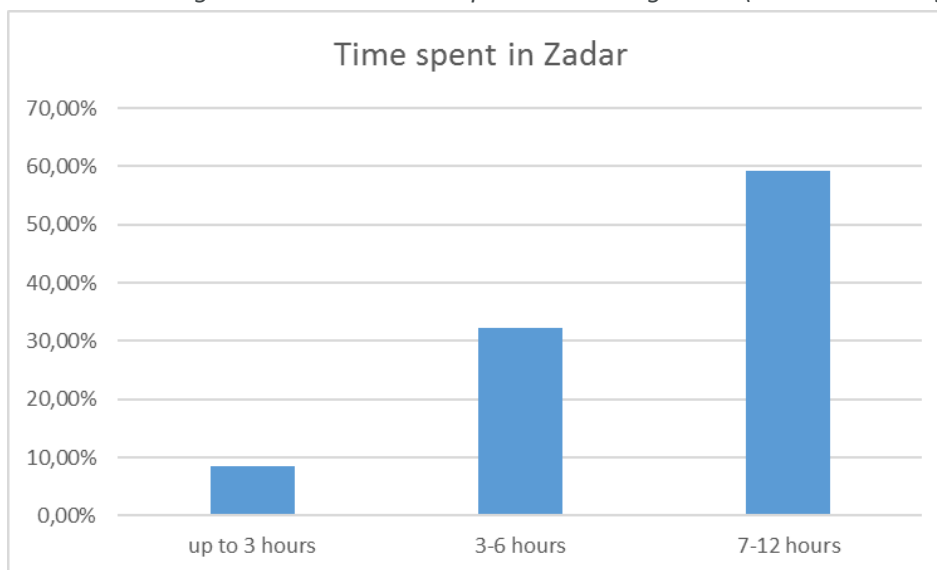
Graph 4 illustrates the age structure of cruising tourists; younger than 30 – 16.3%, from 30 to 50 years of age - 44%, and older than 50 – 40.4%. During the analysis of the stated data, the period of data collection is to be taken into consideration, the postseason period where guests of older age traditionally travel respectively, which also influences the modality of their transportation.

Graph 4: Age structure of cruising tourists



The greatest number of examinees – 54.18% spent from 7 to 12 hours in Zadar, 32.24% spent from 3 to 6 hours, while 8.57% spent up to 3 hours. Interesting to mention is the significantly shorter stay of the ship crew members in the destination – mainly up to 3 hours, and the reason is their work tasks on the ship.

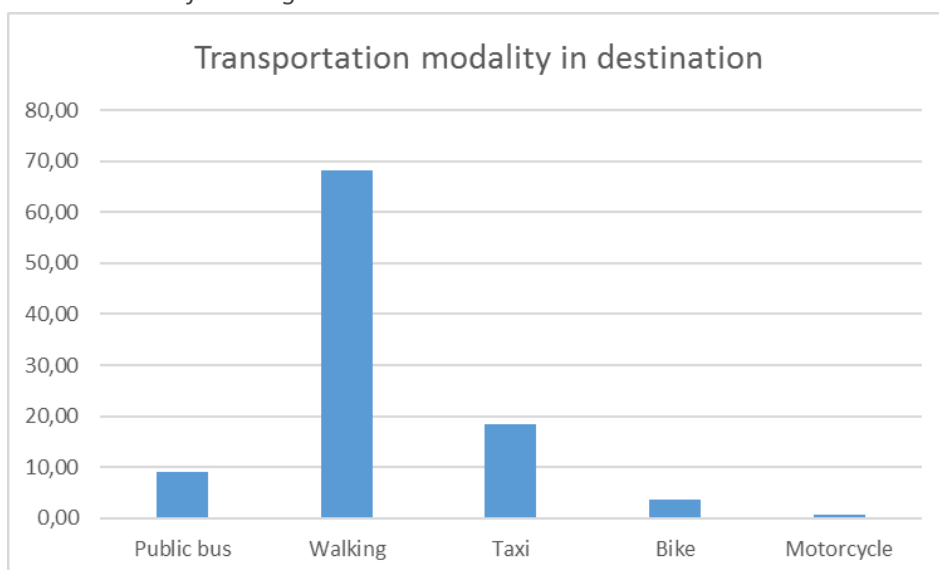
Graph 5: Distribution according to the time a tourist spends in visiting Zadar (and surroundings)



Due to the excellent road connection, besides a visit to Zadar and its surroundings cruising tourists are offered visits to the nearby national parks of Krka and Kornati (local tourist boats only), which was chosen by 31% of examinees. A majority of 69% of examinees did not choose organized excursions to other cities or destinations in the Zadar proximity but were transported by shuttle buses to the old nucleus of the City of Zadar.

Tourists who wished to visit the small town of Nin did so most often in rented taxis. A modal division of the means of transport is illustrated in Graph 6.

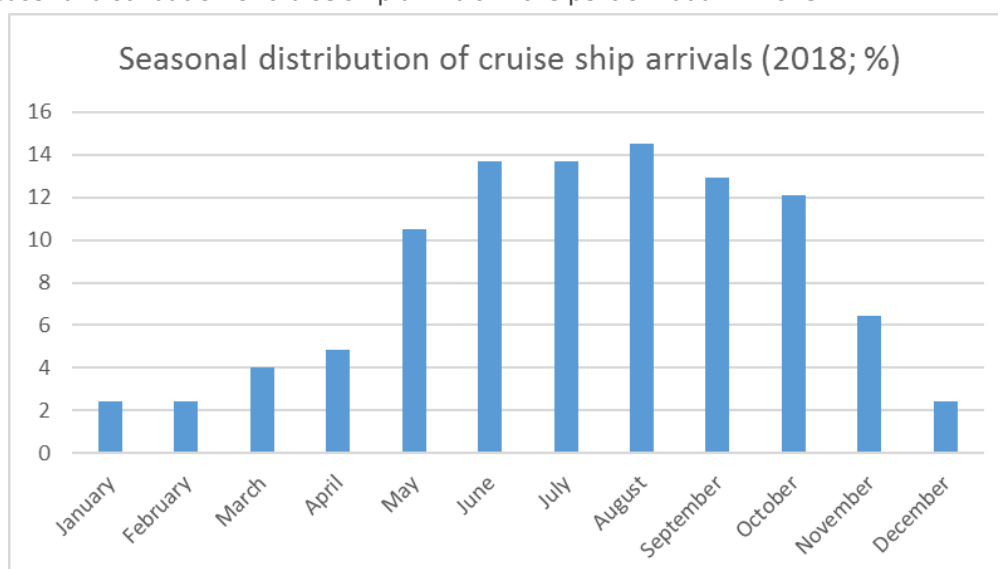
Graph 6: Modal distribution of cruising tourists and crew members



Public Transportation – PT; buses) was used by 9.0% of examinees. However, this data is not relevant for it was later established that examinees had incorrectly assorted shuttle bus transport under PT. Walking was chosen by 68.2%, which also does not represent a reference data for it was also later established that tourists had incorrectly classified sightseeing (walking) of the old nucleus of the City of Zadar as none of the offered/ walking. Taxi transport service was used by 18.4% of examinees, and that was most often used by crew members who wished to reach the destination, the center of the City of Zadar respectively, as soon as possible, and examinees visiting the nearby localities (Biograd na moru, Nin). A small percentage of examinees used motorcycle and bicycles most often rented for a short period as well as crew members who used bicycles to move around the port area.

The seasonal distribution of cruise ship arrivals in the port of Zadar is illustrated in Graph 7.

Graph 7: Seasonal distribution of cruise ship arrivals in the port of Zadar in 2018



3. Cruise-sector mid- to long-term (5 to 10 years) development trends

Development trends on the number of cruise ship arrivals and their passengers in the port of Zadar have been drawn up during 2015 and 2016 and have shown to be correct for they followed the real trend of their number. A detailed overview is illustrated in Table 3 where it is visible that continuous increase of cruiser calls is expected in the port of Zadar, and in line with this and increase in the number of passengers. In comparison with year 2018, an increase of 22.25% is foreseen by 2020, 36.78% between 2020 and 2025 after which the trend foresees a decreasing percentage in the number of passengers to 17.97% by 2030, and 15.48% by 2035.

Table 3: Forecast in the number of cruise ship and passenger arrivals in the period from 2018-2035

Cruise traffic							
	Total	Pax transit	home port	Total	Number of calls		
					large	medium	small
2018	169 421	144 741	24 680	289	23	57	210
2020	217 907	179 697	38 210	350	30	72	249
2025	344 690	279 920	64 770	532	52	103	377
2030	420 215	335 681	84 534	634	69	112	452
2035	497 181	389 146	108 035	729	88	118	524

4. Current cruise-related mobility and transport management policies and public & private initiatives addressing the existing flows.

The port of Zadar is at a distance of approx. 3.5 km from the historical nucleus of the City of Zadar in southeastern direction. A fast road connects the port directly to highway A1 and the nearby airport as well as state road D8 connection with the City of Zadar and its city traffic network. There is also a railway track between the port and the city (there is no infrastructure for passenger reception in the port). It was closed to traffic in mid-2014 and it is foreseen for the route to be arranged as a new cycling trail tower the inner-city center. It is possible to reach the city on foot from the port following the attractive walkway by the sea or the sidewalk that follows the state road. The geospatial position of the port of Zadar is illustrated in Figure 1. There is a taxi and PT station the port area. The most frequent means of transport of cruising tourists between the terminal and the inner-city center are shuttle buses managed by concessionaires (the concession granted by Zadar Port Authority).

Figure 1: The geospatial position of the historical nucleus of the City of Zadar and the port of Zadar (terminal)



5. Weighted list of negative impacts linked to cruise-related flows

With the relocation of the sea port from the inner-city center of the City of Zadar to Gaženica Port, great relief of the city road network has been achieved whereby the main negative consequences have disappeared – congestions, the reduction in the number of vehicles entering the city area, particularly the inner-city which also resulted in a reduction of gas emission as well as noise level. Albeit to a much smaller extent, problems have, however, appeared in connection with the transport of cruising tourists between Gaženica Port and the inner-city center in terms of optimal route choice of shuttle buses, and primarily the location – terminal of passenger exchange (embarking / disembarking) in the inner-city center. The appearance of shuttle buses in the inner-city traffic undoubtedly influences the reduction of the level of service, and, as such, the increase in the congestion of the mentioned network. A list of negative influences of cruising tourism thus arises from the aforesaid:

1. Congestion of the road traffic network caused by shuttle buses entering the inner-city center
2. Congestion of the road traffic network caused by inadequate stopping of shuttle buses in the inner-city center area

6. Existing road network, transport services and infrastructure in the city/ port

The port of Zadar is connected with the inner-city center by the following modalities: public bus transport – PT, taxi, shuttle buses, pedestrian zone, while the introduction of bicycles is in process. Considering the

specific and international character of cruising tourists (reception in the limited traffic zone), the most frequent form of their transport between the terminal and their destination is represented by shuttle buses managed by concessionaires (concession granted by the Zadar Port Authority). In leaving the international terminal, it has been made possible for cruising tourists to use all modalities but it is necessary to emphasize that the city public transport timetable is not adapted to the arrival /departure of cruiser ships but completely subject to the timetable of local ferry lines connecting the nearby islands with Zadar. Due to this, shuttle buses represent the primary means of cruising tourist transport to the inner-city center. Taxi transport (located outside of the international terminal) is mostly used by the crew members due to the speed and easy accessibility to most destinations.

2.1.2 SWOT/CAME analysis

Table 4: SWOT analysis

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> ✓ Modern passenger terminal ✓ Attractive tourist destination with rich cultural heritage ✓ Geospatial location with multimodal transportation connections ✓ Safety of the cruise vessels and passengers 	<ul style="list-style-type: none"> ✓ Lack of adequate shuttle bus terminal within inner city center ✓ Lack of ITS and other traffic optimization systems ✓ Master plan/SUMP have not been defined yet ✓ Insufficiency/inadequate national legislation regarding ecological port/terminal facilities and services ✓ Port remains to be port of call not home port
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> ✓ Defining shuttle bus terminal location within inner city center ✓ Defining new cycling routes between terminal and inner city center ✓ Regulating vehicle emissions within the inner-city center ✓ Stimulating/subsidizing electrical/hybrid/LPG PT/taxi vehicles ✓ Optimization of the traffic light system (ITS implementation - implies PT priority) ✓ Becoming a home port ✓ Defining local and regional development strategies ✓ Positive tourism trends ✓ Quality Increasing of other touristic offers ✓ Access to green/sustainable energy sources 	<ul style="list-style-type: none"> ✓ Insufficient political engagement for the implementation of the LCPT (City of Zadar does not have jurisdiction over the Port of Zadar) ✓ Disturbances in tourist emitting markets ✓ Environmental pollution

- ✓ Creating new business opportunities for SME
- ✓ Expected stability of the Region

Table 5: CAME analysis

Corrective Strategy	Adaptive Strategy
Use EU and local/national funding strategies for implementing LC solutions.	Use city authorities to support the adoption of LC solutions including SUMP/SEAP.
Maintaining Strategy	Exploring Strategy
Further development of sustainable cruise tourism policies.	Implementation of ITS to support LC solutions.

2.2 Step 2: Participatory process

1. Stakeholders identification

In order to define the LCTP goals and measures for the needs of the LOCATIONS project, joined stakeholders were determined, as well as those who showed interest in cruising tourism in the City of Zadar area. They are the City of Zadar (administrative departments for: EU funds, spatial planning and utility activities and protection of the environment), Zadar Port Authority, the concessioner performing tourist transport service between the terminal and the inner-city center (Terra Travel), Liburnija as the city public transport service (PT – public transportation), Zadra Nova as the carrier of development activities and projects of the City of Zadar and Zadar County, and Zadar City Tourist Office. Cruising tourists belong to a special group among which a survey was carried out as additional basis for defining the LCPT goals and measures with the goal of achieving a better insight and understanding of the existing state-of-the-art system. Additional support throughout the entire LCTP drafting process was realized with the assistance of an external expert from the field of transport. The main role, as well as the bearer of the entire project, is definitely the City of Zadar with its pertaining offices. Table 6 illustrates the importance and influence of the stakeholders.

Table 6: The importance and influence of the stakeholders in the development, implementation and monitoring of LCPT

Importance/Interest	
Low	High

Influence/Power	High		City of Zadar Zadar Port Authority DRIOPE
	Low	Liburnija Zadra Nova	Cruise Tourists Terra Travel

2. Participatory process design and implementation

In order to define the LCTP strategy, goals and measures during the preparation phase of the LOCATION project joined stakeholders were determined, as well as those who showed interest in cruising tourism in the City of Zadar area. They are the City of Zadar (administrative departments for: EU funds, spatial planning and utility activities and protection of the environment), Zadar Port Authority, the concessioner performing tourist transport service between the terminal and the inner-city center (PT – public transportation), ZADRA NOVA as the carrier of development activities and projects of the City of Zadar and Zadar County and DRIOPE company as an expert in the implementation of EU projects and offering advice in the field of transport. A survey was performed among cruising tourists with the goal of achieving from them a better insight in the state-of-the art system and its perception. The description of stakeholders is illustrated below and the assessment of their importance is illustrated in Table 7.

Table 7: Participatory process meetings structure (timetable and conclusions)

PARTICIPANTS	DATE	CONTRIBUTION/CONCLUSIONS
<i>First Round</i>		
City of Zadar (COZ), Zadar Port Authority (ZPA)	11/05/2017	Initial local meeting; Defining baseline for LCTP; Public procurement for external expertise
COZ, ZPA, REA Kvarner (REAK)	19/07/2017	Presentations of possible stakeholders; review of available transportation system data
Cruise Tourists	10/09/2017 10/10/2017	Interviewing process; Acquisition of input data
COZ, ZPA, Liburnija	01/10/2017	Defining current system state regarding PT lines and future plans between terminal and inner city center
COZ, DRIOPE	06/10/2017	Initial meeting with external expert; Presenting gathered data; Setting baseline objectives, actions and indicators for LCTP
COZ, ZPA, Terra Travel	10/10/2017	Acquiring additional data regarding shuttle bus concessionaire and their business model
<i>Second Round</i>		
COZ, DRIOPE, ZPA, Terra Travel, ZADRA	31/01/2018	Presenting draft of LCTP and gathering stakeholders' feedback
COZ, DRIOPE	06/02/2018	Finalizing LCTP draft and fine-tuning – strategy, objectives, actions, and indicators.

COZ, DRIOPE, ZADRA	10/04/2018	Insight into ongoing and planned projects related to LCTP
COZ, DRIOPE, REAK	02/05/2018	Final check on LCTP synthetic report
COZ, ZPA, Terra Travel	04/05/2018	Presenting final LCTP and informing about its implementation in concessionaire business model

Zadar Port Authority has been a relevant stakeholder that has given the most data from research as they have given a permission to ask their passengers about their view on transport and Zadar in general. This data has been the starting point for all further analysis of LOCATIONS project. Liburnija Zadar has already shown initiative in acquiring a new set of low-carbon emission buses, which will make an immediate impact on low-carbon emissions as well as increase the general effectiveness of public transport in Zadar. Bus connecting of Gaženica and the inner-city center remains under monitoring process to achieve its optimization. Terra Travel has been a resourceful stakeholder for providing access to tourist data regarding their current position as commissionaire in the Port of Zadar. All stakeholders have been resourceful stakeholders in the process of providing input data for state-of-the-art analysis as well as providing insight into future trend predictions. DRIOPE was involved regarding traffic and transportation expertise.

2.3 Step 3: Design of the plan

1. Definition of the current scenario

Projections for 2018 anticipate 139 arrivals of cruise ships according to the announced arrivals, with about 180,000 passengers. Regarding analyzed interview data, approximately 69% of cruise passengers have chosen to visit the Old Town center of Zadar by shuttle buses. The shuttle bus service is operated by concessionaires from the Port terminal to the inner-city center in a total length of approx. 3.5 km in each direction. Since the Port of Zadar is not under the jurisdiction of the City of Zadar, rather on both national jurisdiction and concessionaire's management there is no direct possibility for the City of Zadar to influence shuttle bus procurement and operations management. Cruise tourists can also use the PT – Liburnija bus line and taxis. Since the Port of Zadar by design represents a regional multimodal point, it is also incorporating the local ferry lines terminal (the City of Zadar has several outlying inhabited islands whose population migrates on a daily basis for schooling and work purposes). Therefore, at the present primary optimization criteria of the existing bus PT line timetable is to match local ferry lines rather than cruise ship arrivals. Adjusting the PT bus line with cruise ship arrivals would represent a great challenge for PT provider Liburnija in both organizational and financial manner with a questionable outcome. Another aggravating fact in this process represents the location of PT bus station located outside the restricted terminal area and therefore not as attractive for cruise passenger's use.

Interview analysis defined exclusive usage of taxis by cruise ship crewmembers, therefore identifying shuttle bus transportation as the most important modality for the City of Zadar cruise tourism. Regarding shuttle bus(es) circulation, currently there are three different routes for shuttle busses to reach the inner-city center, leaving each driver with the decision on which route to utilize. Also varying shuttle bus capacities and their usage came into focus during state-of-the-art analysis stressing out some discrepancies and leaving space for further optimizations. Although this process might sound simple, objectively it might not be easily achievable without better cooperation between cruise ship operator(s), Port Authority and

shuttle bus(es) concessionaire(s). Currently only legally necessary volume of information exchange is present between cruise companies, Port Authority of Zadar and shuttle bus concessionaires.

Within the City of Zadar, a major issue regarding cruise tourists shuttle bus transportation pinpointed inadequate shuttle bus terminal (both capacity and location) as the weakest point causing shuttle buses to enter the inner-city center and cause traffic congestions, which can furthermore have negative synergic influence on inner city traffic flows, especially during the summer/tourist season. In manner of addressing and solving this problem, the City of Zadar has already implemented measures in the form of dedicating a certain number of existing parking slots as provisory shuttle bus terminal.

2. Definition of vision and objectives

The main vision is to focus on establishing a sustainable transport system for the future between the Port and the City of Zadar based on synergic effects of three objectives: *state-of-the-art analysis*, *decreasing shuttle bus/PT vehicle emissions*, altogether making a plausible *reduction of inner city traffic congestions*, especially during the summer/tourist season. Measures contained within the named objectives incorporate optimization of shuttle bus capacities, defining their traversing routes, implementation of legislative acts defining PT emissions within the inner-city center, defining location(s) of shuttle bus terminal(s) and defining new and alternative cycling routes for cruise tourists to reach the inner-city center. The City of Zadar is also actively encouraging interested shuttle bus operators and PT authorities to engage in the commercialization initiative and to bring forward the change to zero emission public transport in the City. Electric shuttle/urban buses also represent an alternative solution that could lead towards reducing emissions in PT. However, implementing electrical powered buses also incurs much higher investment costs in both buses and accompanying charging infrastructure compared to conventional diesel buses. In addition, their adoption by concessionaires is questionable in the near future due to their lack of flexibility in terms of the concessionaire's business plan.

3. Definition of actions and indicators

The definition of actions and indicators within the LOCATIONS project fall under three main objectives: *State-of-the-art analysis*, *decreasing of shuttle/PT vehicle emissions* and *reducing inner-city traffic congestions caused by shuttle/PT vehicles*. The first objective was set to provide state-of-the-art system analysis based upon which the second objective with accompanying set of actions and indicators was set. The third objective was set as a logical result of the second objective's action implementation.

Table 8: Definition of objectives, actions and indicators within LOCATIONS project

	Implementation (Month)	Output	Indicators
Objective 1 - State-of-the-Art Analysis			
Action 1.1 State-Of-The-Art System Analysis	6-13	Acquiring data defining current process state	Number of passengers and their transportation modalities
Objective 2 - Decreasing shuttle/PT vehicle emissions			
Action 2.1 Shuttle bus capacity optimization	13-21 (24+)	Shuttle bus number optimization	Average number of passengers per shuttle bus

Action 2.2 Defining primary and alternate shuttle bus routes	13-21	Travel time optimization between port and inner city center	Duration of travel times on designated travel routes
Action 2.3 Proposal/acceptance of legislative defining maximum allowed shuttle bus/PT emissions in inner city area	13-21 (24+)	Proposal/ acceptance of legislative defining maximum allowed shuttle bus/PT emissions in inner city area	Number of submitted legislative acts
Action 2.4 Defining locations for shuttle bus terminals	13-21	Defined locations of shuttle bus terminals	Number of defined shuttle bus locations
Action 2.5 Defining new cycling/walking routed between port and inner city center	13-21 (24+)	Defining new cycling/walking routes	Length of newly introduced cycling/walking routes
Objective 3 - Reducing inner city traffic congestions caused by shuttle/PT vehicles			
Action 3.1 Inner city center traffic congestion decrease	13-21 (24+)	City center traffic congestion decrease	Number of shuttle busses entering inner city

4. Development of future scenarios

The “Do-nothing” scenario implicates retaining the current state of the system which is not probable as certain measures, LCTP measures at least, in the experimental mode have been implemented (provisory inner-city terminal).

The most probable scenario is based upon defining the shuttle bus terminal within the inner-city center and defining legislative regarding the allowed vehicle exhaust emissions within the inner-city center.

The best possible case of improvement of the existing state implies the implementation of multiple solutions of reducing exhaust emissions in the inner-city center and the wider area of the City of Zadar. The primary goal should be directed towards the construction of a shuttle terminal in the inner-city center of the City of Zadar aimed at reducing the negative influence of traffic congestions. The following activity implies the determining of the shuttle bus route between the port of Gaženica and the inner-city center of the City of Zadar, whereby it is important to determine the accurate route distribution (determine the primary and secondary routes) taking into consideration that it most often concerns convoys (platoon) of shuttle buses. It is important, at the same time, to monitor the full capacity of the shuttle bus during passenger/visitor boarding in the port of Gaženica, in order to achieve the optimal capacity of the shuttle bus, achieve the optimal quantity of emission gases according to mileage per transported passenger respectively. With the goal of achieving maximum ecological acceptability, it is necessary for the City of Zadar to determine through legislature the limits – minimum value of emission gases (EURO norms) for vehicles trafficking in the City of Zadar area. It is additionally necessary to encourage the use of ecologically acceptable propulsion units in vehicles trafficking in the City of Zadar area, particularly in the port of

Gaženica route – inner-city center in the form of hybrid (gasoline-electric) and / or gasoline units with LPG (liquid petroleum) installment. The best possible case is the use of only shuttle buses on electricity.

The following goal is the conversion of the existing railway route lines into cycling trails on the attractive and geographically suitable (flat) coastline area between the port of Gaženica and the inner-city center of the City of Zadar, as well as from the inner-city center towards the north-western parts of the city (Borik, Puntamika, Nin), with direct influence on the expansion of the Zadar City tourist offer contributing directly to its tourist attractiveness by paying particular attention to the rising trend of cycling tourism.

Table 9: Review of implications regarding possible LCTP action(s)/scenario implementation

Objective 1 - State-of-the-Art Analysis			
<i>Scenario</i>	<i>"Do-nothing"</i>	<i>Most probable</i>	<i>Best possible</i>
Action 1.1 State-Of-The-Art System Analysis	YES	YES	YES
Objective 2 - Decrease of shuttle/PT vehicle emissions			
Action 2.1 Shuttle bus capacity optimization	NO	NO	YES
Action 2.2 Defining primary and alternate shuttle bus routes	NO	NO	YES
Action 2.3 Proposal/acceptance of legislative defining maximum allowed shuttle bus/PT emissions in inner city area	NO	YES	YES
Action 2.4 Defining locations for shuttle bus terminals	NO	YES	YES
Action 2.5 Defining new cycling/walking routed between port and inner city center	NO	NO	YES
Objective 3 - Reducing inner city traffic congestions caused by shuttle/PT vehicles			
Action 3.1 Inner city center traffic congestion decrease	NO	YES	YES

2.4 Step 4: Monitoring and funding

2.4.1 Monitoring LCTP implementation

The foreseen monitoring and implementation of defined objectives, actions and indicators belongs solely to the City of Zadar regarding its jurisdiction. The presentation and detailed overview of the monitoring and funding process is available in table 10.

Table 10: Monitoring and funding process overview

City of Zadar = COZ	Start-End (Month)	Amount Source	Costs Classification					
			Staff	Description	External Expertise	Description	Investments	Description
Activity 1.1 State-Of-The-Art System Analysis	6-13	-	City of Zadar, Zadar Port Authority, Terra Travel, DZ	Allocated through LOCATIONS & COZ	Yes	Allocated through LOCATIONS & COZ	Not needed*	*Funding by LOCATIONS and COZ
Activity 2.1 Shuttle bus capacity optimization	13-21 (24+)	-	City of Zadar, Shuttle bus concessionaires, DZ	Allocated through LOCATIONS & COZ	Yes	Allocated through LOCATIONS & COZ	Not needed*	*Funding by LOCATIONS and COZ
Activity 2.2 Defining primary and alternate shuttle bus routes	13-21	-	City of Zadar	Allocated through LOCATIONS & COZ	Yes	Allocated through LOCATIONS & COZ	Not needed*	*Funding by COZ and LOCATIONS
Activity 2.3 Proposal/acceptance of legislative defining maximum allowed shuttle bus/PT emissions in inner city area	13-21 (24+)	-	City of Zadar	Allocated through LOCATIONS & COZ	Yes	Allocated through LOCATIONS & COZ	Not needed*	*Funding by COZ and LOCATIONS
Activity 2.4 Defining shuttle bus terminal location	13-21	-	City of Zadar	Allocated through LOCATIONS & COZ	Yes	Allocated through LOCATIONS & COZ	Not needed*	*Funding by COZ and LOCATIONS
Activity 2.5 Defining new cycling/walking routed between port and inner city center	13-21 (24+)	-	City of Zadar, Zadar Tourist Board	Allocated through LOCATIONS & COZ	Yes	Allocated through LOCATIONS & COZ	Not needed*	*Funding by COZ, LOCATIONS and other/future EU projects
Activity 3.1 Inner city center traffic congestion decrease	13-21 (24+)	-	City of Zadar	Allocated through LOCATIONS & COZ	Yes	Allocated through LOCATIONS & COZ	Not needed*	*Funding by COZ, LOCATIONS and other/future EU projects

* The term "Not needed" is referring that all planned actions represent "soft" measures whose planned implementation is through the City of Zadar departments and will not require additional funding.

2.4.2 Funding

Since the planned “soft” measures within the LOCATIONS project should at a certain point of time lead to the implementation of “hard” measures in order to improve the overall system usability, planned funding for implementation of such measures is through the following institutions and projects:

- City of Zadar
- City of Zadar participating EU projects
- EU projects: ITU; CB-GREEN; Urban Green Belts; MOBILITAS; IRENE; OptiTrans; LivingStreets; CHESTNUT
- Future EU Projects
- Zadar Port Authority
- Nacional funding (OP Competitiveness and cohesion)

Regarding the varying complexity and combinations of possible implementations (i.e. e-busses and charging infrastructure), costs could vary in-between 1,000,000.00 EUR to several million EUR regarding the number of e-buses purchased and not counting possible subsidies for concessionaires operating shuttle bus lines between the Port of Zadar and the inner-city center to support them in the acquisition of zero-emitting shuttle buses.

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ANNEX 1 – LCTP measure description template

1). State-Of-The-Art System Analysis

Measure implementation comprised of analysing all relevant strategical documents regarding cruise tourism and traffic-transportation on both national and local levels in order to provide insight into the designated ways of development. It comprised series of meetings with local stakeholders to identify their roles and level of involvement (importance) regarding cruise tourism in the City of Zadar (COZ). Additionally, the interviewing of cruise passengers/tourists provided necessary data and information regarding their perspective on the current system state-of-the-art. The critical issue was to gather as much as possible information from all parties involved. This measure represents a starting point for defining all other measures presented.

2). Shuttle bus capacity optimization

Since Port of Zadar is located about 3 km from inner-city center, most commonly shuttle busses operated by concessionaires are used for transferring cruise passengers back and forth to the terminal. Due to specific circumstances of not knowing the exact number of tourists for transfers as well as multiple concessionaires, presence situations occur where shuttle busses are not optimally occupied, i.e. a certain number of seats can remain unoccupied. Critical issues can be recognized through a varying number of passengers regarding different cruiser sizes calls along with the fact that the Port of Zadar is not within the jurisdiction of COZ making it difficult to achieve complete shuttle bus capacity optimization. Certain measures can be taken by COZ since all shuttles are transferring tourists into the inner-city center. Therefore, COZ could influence concessionaires through: 1) education about the positive effects on reducing the number of shuttle vehicles used; 2) Adjusting shuttle vehicle size; 3) Providing benefits for using shuttles with lower (zero) emissions; 4) Providing certain penalties/rewards for non/optimally occupied shuttles. This measure falls under the category of soft measures meaning it is cheaper/easier to implement. If the applied measure could provide benefits for all parties: 1) concessionaires could lower their operational costs by optimizing their shuttle fleet; 2) COZ would reduce unnecessary shuttle entrances into the city; 3) Allowing convenient cruise passengers' transfers, reducing transfer time and extending visitation time.





LOW CARBON TRANSPORT PLAN OF CITY OF ZADAR

3). Defining primary and alternate shuttle bus routes

Measure implementation comprises of defining the primary and secondary route connecting cruise terminal with the inner city center. Using real time traffic information shuttle (and taxi) drivers should receive instructions on the preferred (shortest arrival time) route to take. Three critical issues arise from this measure's implementation: 1) Definition of named routes by the COZ; 2) Distribution of real time traffic information towards shuttle (and taxi) drives; 3) Actual tracking of routes taken by shuttle (and taxi) drivers. Accordingly, the first issue is definable as there are two available routes. The second issue solution comprises of incorporating the currently available real time distribution system available through vehicle built-in navigation systems that are already capable of receiving real time traffic information and recalculate routes accordingly. The second approach would be through city enabled ITS. The third issue solution is to require all shuttle vehicles to have fleet tracking alike devices allowing COZ to track their movements as a part of COZ ITS. Depending on the implementation approach, this method falls into soft, hard or both categories. Cruise passengers' benefit from this measure's implementation would be more conveniently transfers of cruise tourists, saving time on transfers and extending their visitation time.

4). Legislative defining maximum allowed shuttle/PT vehicles emissions in the inner-city area

Measure implementation comprises of COZ as local authority able to define and adopt legislation regarding maximum allowed shuttle (and other PT) vehicles' emissions stimulating the adoption of more environmentally acceptable shuttle and PT vehicles (i.e. higher EURO norm, e-Shuttles or LPG powered vehicles). The critical issue within this measure implementation is manifested through possible higher investment costs for concessionaires (both shuttles and taxis) although their mitigation is possible by providing a certain implementation grace period. This measure falls under both soft (from the COZ point of view) and hard (from the concessionaires' point of view) measure category. This measure does not directly affect cruise passengers but has an overall environmentally friendly effect.





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5). Defining locations of shuttle vehicles terminals

Defining shuttle terminals within the inner-city center is of major relevance to the successful implementation of LCTP as it directly affects shuttle impact on COZ traffic flows. The determination of shuttle terminal(s) needs to be determined in such a manner so as to allow easy access for shuttles whilst minimizing the negative shuttle influence on COZ inner traffic flows as well as providing cruise passengers easy access to the inner-city center. The critical issue is for COZ to define the most appropriate terminal(s) location(s) regarding available geospatial locations. This measure falls under hard measures, as it requires a certain level of construction work. This measure is participated to allow more convenient cruise passengers' transfers, reducing transfer time and extending visitation time.

6). Defining new cycling/walking route between the port and the inner-city center

Measure implementation comprises of COZ and responsible national authority cooperation in order to set a new cycling/walking route by using the existing railway corridor since it is no longer in use. Additionally, extending the existing walking route following the seashore leading from the inner-city center to Punta Bajlo is also possible. The critical issue within this measure implementation lies within the willingness of responsible national authority to provide the necessary approvals and land use conversion. This measure falls under soft and hard measures and needs national level authority approval for successful implementation. This measure would provide cruise passengers (and all other tourists as well) an attractive way of reaching the inner-city center and even the connection to adjacent settlements like Zaton.

7). Inner-city center traffic flow optimization

This measure implementation depends on the implementation of measure no. 5 and its effect of minimizing negative shuttle influence on COZ inner traffic flows. Additionally, the enhancement of its positive effects is achievable through planned implementation of ITS solution(s) providing additional services to all traffic users (i.e. parking space guidance system). The segregation of shuttles from the inner-





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city flows should produce various positive effects on COZ inner-city flows. The measure's critical issue is a strong relation to successful implementation of measure no. 5. This measure falls under the category of soft measures and has a dependency on the successful implementation of other measure. This measure has no direct effect on cruise passengers' needs, but is participated to allow more convenient transfers, reducing transfer time and extending visitation time.





3.7.1. Report on the evaluation of the first 7 LCTPs.

LOCATIONS - Low Carbon Transport in Cruise Destination Cities

Activity 3.7. Evaluation of the 7 complete lctps

A. Allué
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CIRCE
AREA
WP 3

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Preface

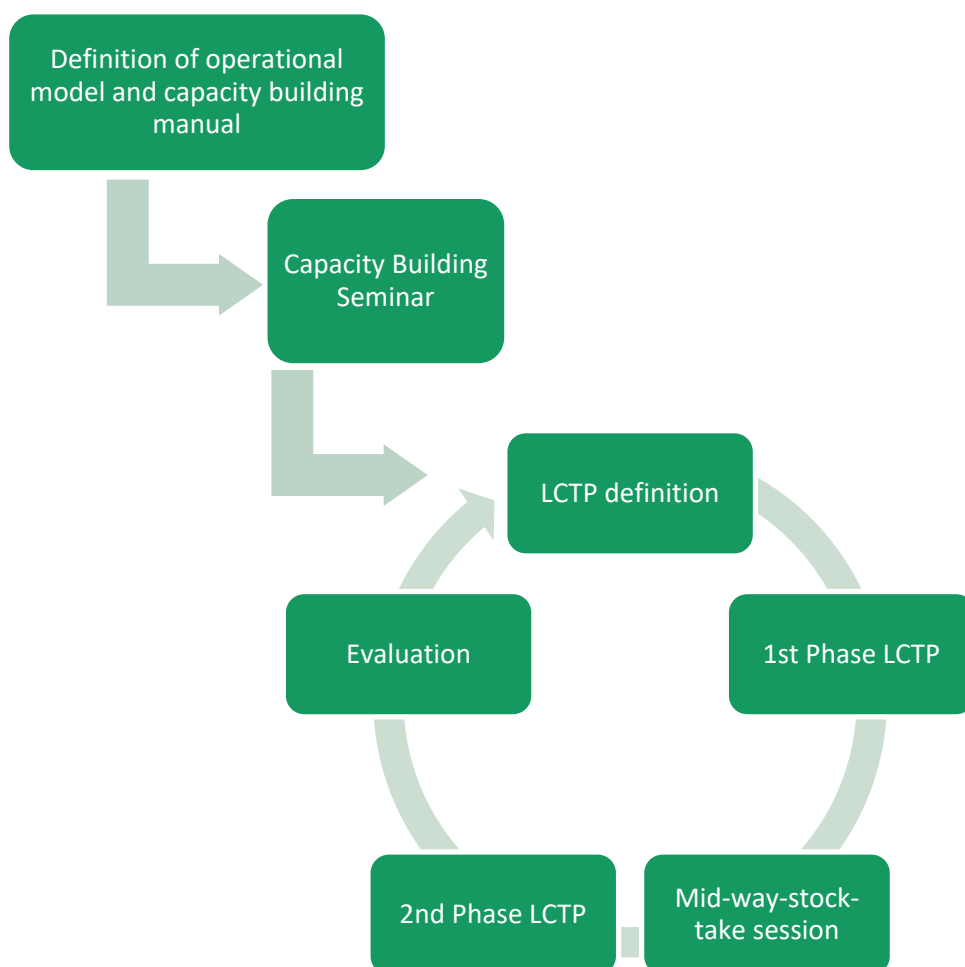
As LCTPs are being finalized, the tools and methodologies produced under WP4 *Transferring*, specially the evaluation pack (comprising quality standards and procedures) are used to carry out a thorough evaluation of the plans. In further stages, dedicated feasibility studies and financing solutions are developed to prepare the actual implementation of the plans.

The evaluations and their results are a crucial stage for the testing as well as an opening for the transferring and capitalization stages. Evaluation allows identifying potential difficulties in LCTP elaboration, for instance, in the availability of certain data, engaging certain strategic stakeholders or other issues that can contribute to a more useful lessons learnt for LOCATIONS project.

Background

The 'Testing' phase of LOCATIONS was conceived to start from outlining the approach that would be followed by the 7 cities, that would be shared with all partners in a Capacity Building Seminar where the operational model was presented. The mid-way stock take session served to reflect on the progress of LCTPs in different national contexts for mutual learning and the potential improvement of plans.

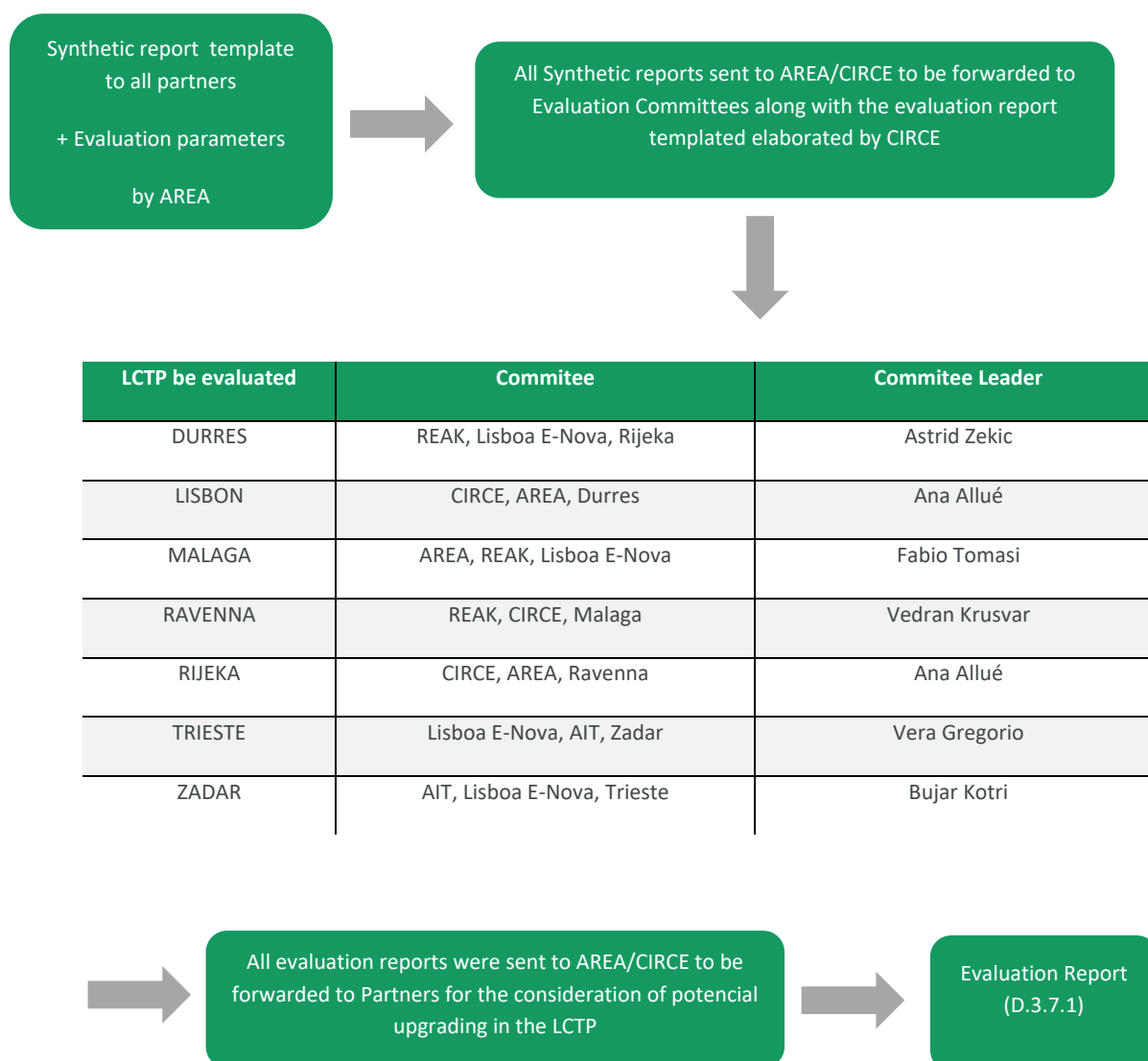
Figure 1. LCTP progress



Evaluation methodology

Deliverable 4.3.1 established the evaluation methodology in March 2017 for The All LCTPs by AREA and CTPS were evaluated during June 2017 evaluated according to the parameters reported under its section 'Evaluation parameters'. LCTP synthetic report template in English was circulated among partners, so LCTPs could be assessed by the consortium. Also, when a full translation of the LCTP was available partners could refer to it. Different committees were appointed to evaluate each LCTP.

Figure 2. Evaluation process



LCTP Evaluation

According to the sections and subsections contained in the 'LCTP synthetic report' template, replicated in the Evaluation Pack, and accompanied by a set of questions to focus on specific topics the results of the evaluation activity are presented.

Average scores of the sections and subsections and key topics range from 0 to 2, according to:

Table 1. Score scale for element

<i>Degree of satisfaction with the development of the element</i>	
<i>According to expectations</i>	2
<i>Below expectations</i>	1
<i>Not positively evaluated or inexistent element</i>	0

STEP 0: Work-plan and team (Average total score: 1,64)

- **Does the LCTP synthetic report contain a detailed description of the team involved in its production, including a brief description of the rationale behind the appointment of its members?**

Average score: 1,86

Nearly every LCTP obtained the highest score. The main issue was the justification for the team selection, meaning, why those organizations and people were appointed, was not sufficiently described.

- **Was a work-plan drafted before the development of the LCTP? Is there a description of its implementation? Were there any major deviations from the original plan?**

Average score: 1,43

This evaluation question intended to clarify whether the implementation was comprehensively described from the drafting to the subsequent updates that according to expected or unexpected deviations could bring. This last issue, regarding the notification of deviations was missing from most LCTPs. Durres, Ravenna, Trieste and Zadar, according to evaluators, were scored lower as implementation was considered to be insufficiently described.

STEP 1: Initial assessment (Average total score: 1,68)

- **Does the plan describe the EU, national and local framework of reference?**

Average score: 1,86

Nearly all LCTP included a thorough description of different geographical scopes.

- **Is there an analysis of cruise-related passengers and freight flows, features, origin and destination trends?**

Average: 1,86

Current flows and trends seem to be accessible information. Only Trieste missed to deliver a complete analysis of trends.

- **Is there an estimation of prospective local sector development trends for the coming 5 to 10 years?**

Average: 1,86

Expected volume of passenger flows was not provided in some cases. This is the case of Durres and Trieste.

There were some particularities, such as, Lisbon basing its calculation in secondary sources with a scope greater than the city level or Ravenna lacking of a proper justification about the presented result.

The other cities, despite the good evaluation, did not explain the methodology for the projection. A standardization is recommended.

- **Is there an outline of current cruise-related transport and mobility management policies and initiatives addressing the existing flows?**

Average score: 1,43

With the exception of Durres, Malaga and Ravenna, policies and initiatives were not presented at port level. The description was not cruise-related, but city wide. Some of the included information might have been described in other sections, such as local context or road network and transport services.

- **Is there a description of negative impacts (externalities) of cruise-related flows?**

Average score: 1,86

Although most of the cities received the maximum score, and there was a description of externalities, evaluators expected more detail in impacts of cruise activity. Also, emphasis could have been done on the weight/importance of each identified problematic. This deeper analysis, would allow a wider identification of stakeholders and topics of discussion during the participation phase, in order to make it as much comprehensive as possible, tackling every potential issue related to cruise passengers mobility.

- **Is there an accurate description of the existing road network, transport services and infrastructure relevant for cruise-related passengers and freight flows in the city and port?**

Average score: 1,86

This was accomplished by nearly all LCTPs with barely comments from evaluators.

- **Is there a SWOT analysis?**

Average score: 1,86

The analysis was carried on and completed in all the LCTPs. Only Rijeka received 1 point because SWOT analysis did not focus on cruise tourism.

- **Is there a CAME analysis?**

Average score: 1,29

This key point shows the lowest score of the questions approached by LCTPs, whether it was due to lack of requested depth and level of detail, or directly, was missing from the document.

STEP 2: Participatory process (Average total score: 1,93)

- **Were stakeholders comprehensively identified for the development of the plan? Is there sufficient information about their relevance for the process and the expected contributions? Are they sufficient in quantitative and qualitative terms?**

Average score: 1,86

Nearly all LCTPs received the higher score for the identification of stakeholders and the relevance of their contributions for the participatory process. Processes included high profile contributors, representing stakeholder groups that could provide valuable insight for the understanding of the problem, as well as, engage decision makers that could boost the integration of the LCTP in city planning.

- **Is the participatory process described? Are reached conclusions reported? Were at least two meetings conducted in the territory? Is the number of meetings or other consultation methods adequate?**

Average score: 2

This key question holds the higher score for every LCTP, since all documents, clearly gathered a well-developed and effective process, complying with the aim of the task: reaching knowledge that it is embedded in the interaction of agents involved in sustainable mobility in the city and the cruise tourism activity.

STEP 3: Design of the plan (Average total score: 1,54)

- **Is there a definition of the current scenario? Is it developed according to data, information and feedback obtained and described in steps 1 and 2?**

Average score: 1,43

In general terms, a more detailed description was required by evaluators regarding the definition of the current scenario, based on previous steps. In particular, Durres, Malaga, Zadar and Ravenna presented an appropriate definition of the current scenario, although a more specific description could have been done.

Lisbon and Trieste presented the current problematics and challenges, but further developing was recommended.

Current scenario definition was missing in the case of Rijeka.

- **Is there a clear definition of the vision underpinning the LCTP? Is there an outline of the plan's objectives?**

Average score: 1,43

Only nearly half of the LCTPs (Durres, Lisbon and Málaga) achieved the higher score. A remarkable summary diagram was included in Lisbon LCTP that clearly presented the link between vision, objectives and measures. Less clear definition was achieved by the rest of LCTPs, that presented in common definition vision and objectives. Structuring this information, is highly advisable.

- **Is there a clear definition of the envisaged actions? Is there a set of SMART indicators to measure the effectiveness of the actions' implementation?**

Average score: 1,57

First, on the LCTP that did not develop an appropriate definition of vision and objectives, the selection and description of measures lacked of sufficient fundament. Strategic vision and measures were not clearly linked, generating confusion even if measures were well defined. Second, indicators were insufficiently developed according with the SMART methodology: deadlines missing, quantitative goal not declared, etc.

- **Does the plan contain prospective scenarios? Do they depict future contexts depending on the more or less effective implementation of the actions contained in the LCTP (e.g. do-nothing, sufficient, optimal implementation scenarios)?**

Average score: 1,71

With few exceptions, this requirement was sufficiently fulfilled by LCTPs.

Step 4: Monitoring and funding (Average total score: 1,71)

- **Is there a clear description of the monitoring system to supervise the implementation of the LCTP's actions? Is the monitoring plan aligned with those envisaged in the city's local SEAP/SECAP, SUMP and/or other general energy and transport plans?**

Average score: 1,71

Most of LCTPs properly described the monitoring system and its indicators, with few exceptions, that received suggestion to continue further developing this section.

- **Is there an estimated budget for the implementation of each action contained in the LCTP? Is there an indication of the source of funding together with the estimation of costs?**

Average score: 1,71

It is worth highlighting the section elaborated by Durrës, Ravenna, Rijeka and Trieste that presented a very well developed budget, while Lisbon and Málaga were advised to continue researching on the budget description and possible financial sources.

Results and Lessons Learnt

The overall assessment of LCTP was quite satisfying since all partners reached a score higher than 7, which was established by AREA parameters included in the evaluation pack (D.4.3.1.) the turning point for plans, to be considered good and acceptable, with possibly minor improvements to be implemented during the 'Capitalizing' stage.

Table 2. LCTP scores

Average score	Durrës	Lisbon	Málaga	Ravenna	Rijeka	Trieste	Zadar
8,28	9,7	7,7	9	9	7,3	7,4	7,9

Each LCTP has received their individual report to improve their respective document, however, some common advice for the upgrading of documents (and for the transferring activities as well for the most successful replication process):

STEP 0: Work-plan and Team (Average total score: 1.64/2), more detail in the description of the drafting of the implementation is required, specially, about deviations. This can results in very useful information for the drafting of future plans, as it can be used as lessons learnt in the earlier stage.

STEP 1: Initial Assessment (Average total score: 1.68/2), did not present major difficulties for its accomplishment, as information seemed to be accessible, available and sufficient. However, outline of current cruise related transport and mobility management policies, was less fulfilled as in some cases, it was described in general terms, and not specifically to cruise tourism. Availability of specialized sources must be checked and reviewed. It is worth mentioning that the CAME analysis, was lacking of insufficiently described in some cases, being the poorest average score. This is a tool with great potential and partners should make the most of it.

STEP 2: Participatory Process (Average total score: 1.93/2) was the section with higher score, being a useful tool for all LCTPS in the collecting of valuable insight of the problem and engaging stakeholders that can support or directly promote the LCTP integration in the mobility plans of the city. All partners identified key

agents in the field and managed them to commit their contribution to the drafting of the LCTP, allowing the inclusion of actual needs and expectations of citizens and the identification of potential barriers or opportunities for low carbon transport plans. This is crucial step in building the LCTP, as it prepares the community and stakeholders for its actual implementation, through informative and participative activities.

STEP 3: Design of the Plan (Average total score: 1.54/2), presented significant leeway for improvement as more detail in description should be provided in most cases for current scenario, vision and objectives, as well as, the foundation for envisaged actions and the selection of SMART indicators. A better of structure of the information provided in this section is highly advised, also, quantification of objectives for a clearer set of the scenario that LCTP targets.

STEP 4: Monitoring and funding (Average total score: 1.71/2), mainly leads partners who received a comment related to this issue, to review the estimated budgets for envisaged actions and an early assessment of potential funding sources to implement those actions. Some partners have already included some improvements in the documents evaluated in this phase of the project:

Table 3. LCTP revision according to the Evaluation Report

LCTP revision according to the Evaluation Report	
Trieste	No changes have been made. Annex 1 in the final version has been complemented with the study dedicated to the capacity of the railway network of FVG region to accommodate cruise-related flows (action no. 1 of the LCTP of Trieste).
Ravenna	Ravenna team worked specially to define clearer specific objectives in relation to the strategies already developed, since this comment was highlighted in more than one section. All comments that were made by evaluators were considered in order to improve the LCTP (such as clarifications about the work plan, improvement of maps and figures, production of new maps to better describe some points and other points mentioned were revised)
Lisbon	Lisbon E-Nova team will analyze the Evaluating report and will introduce adjustments to the text of the LCTP, according to the comments we consider relevant and crucial, together with the Lisbon Municipality. CML will transfer part of the external expertise budget allocated on WP3, to WP5 to engage someone to support the city of Lisbon on mapping the problems, the existing mobility networks and proposed actions - as we believe that's essential to define exactly the actions and consequently, to guarantee the better effectiveness of the plan.
Málaga	Spanish team specially worked in the improvement of the definition of values in SMART indicators and the description of necessary budget for funding measures, as these topics showed a lower score. In addition, all comments that were made by evaluators (even being highly scored) were addressed to produce a definitive version as much detailed as possible (therefore, questions such as: description of critical points and different scenarios, stakeholder's relevance explanation, and others mentioned, were revised).
Durrës	Complete the future projections of cruise ships and passengers. Develop a description for CAME analyzing.
Rijeka	Rijeka LCTP team worked on re-organizing and finalising the LCTP according to comments from the evaluation. The most relevant changes have done in the 3rd STEP "Design of the plan" where we added the current scenario and revised the vision and objectives of the plan. Beside that some minor changes are done in the "Initial assessment" where we made a re-organization, added a CAME analysis and defined the methodology of cruise passengers and related flows forecast. In the "Participatory process" we described a two phase methodology plan.
Zadar	The city of Zadar did not make any changes in LCTP.

Annexes