

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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Index

Low Carbon Transport Plan	6
Step 0: Work plan and team.....	6
Step 1: Initial assessment	10
Context analysis.....	10
SWOT/CAME analysis	24
Step 2: Participatory process.....	26
Stakeholders' identification.....	26
Participatory process design and implementation.....	27
Suggestions for a Low Carbon Transport Plan.....	36
Step 3: Design of the plan.....	39
Definition of the current scenario	39
Definition of vision and objectives	40
Definition of actions and indicators	41
Development of future scenarios.....	45
Step 4: Monitoring and funding	48
Monitoring LCTP implementation	48
Funding	51
Annex 1 – LCTP Measure Description.....	52
Annex 2 – Differences from LCTP draft version.....	64

Figures & Tables

Figure 1 – Passengers’ terminals in the Port of Malaga	16
Figure 2 – View from the sea of the Port of Malaga / Flight direct connections with international cities	17
Figure 3 – Distribution of the number of stops in the Port of Malaga	17
Figure 4 – Cruise tourism trends in Malaga until 2017	18
Figure 5 – Degree of tourism satisfaction with the city	19
Figure 6 – Annual cruise passengers and future trends	20
Figure 7 – Malaga in 8 hours initiative	21
Figure 8 – Routes within and around the port	22
Figure 9 – Diagram of the participatory process in LCTP Malaga.....	27
Figure 10 – Localization of visitors and residents survey areas	28
Figure 11 – Main challenges for sustainable urban mobility.....	29
Figure 12 – Communication flow among actors involved	30
Figure 13 - Main challenges in designing more sustainable transport alternatives that integrate cruise passengers in urban mobility	31
Figure 14 – Advantages and disadvantages perceived by interviewees about the main features of cruiser tourists.....	31
Figure 15 – Residents mobility aspects influenced by the presence of cruise tourists.....	32
Figure 16 - Main demands of the cultural, hostelry and commerce sector.	33
Figure 17 - Citizens’ perception on different topics influenced by cruise tourism	33
Figure 18- Most congested services and touristic areas according to citizens’ surveys	35
Figure 19 - Congestion in the streets in each of the three surveyed areas.....	35
Figure 20 – Classification and distribution of citizens’ LCTP suggestions.....	37
Table 1 – Initial work plan	8
Table 2 – Teamwork during the elaboration of the LCTP.....	9
Table 3 – Number of days in which the concentration of PM10 PM2.5 and O3 is higher than the recommended by the WHO.....	14
Table 4 – Study of experience/reputation of Malaga (left) & Passengers’ experience during their stay (right). By average.	19
Table 5 – Techniques applied to each stakeholder category	28
Table 6 – Malaga LCTP strategic axis 1, specific objectives, initiatives and indicators.	41
Table 7 – Malaga LCTP strategic axis 2, specific objectives, initiatives and indicators.	42
Table 8 – Malaga LCTP strategic axis 3, specific objectives, initiatives and indicators.	43
Table 9 – Malaga current trend and possible mobility scenarios (Horizon 2025).....	46
Table 10 – Malaga SUMP and Agenda 21 indicators related to the LCTP	50

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/m3)					
	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.

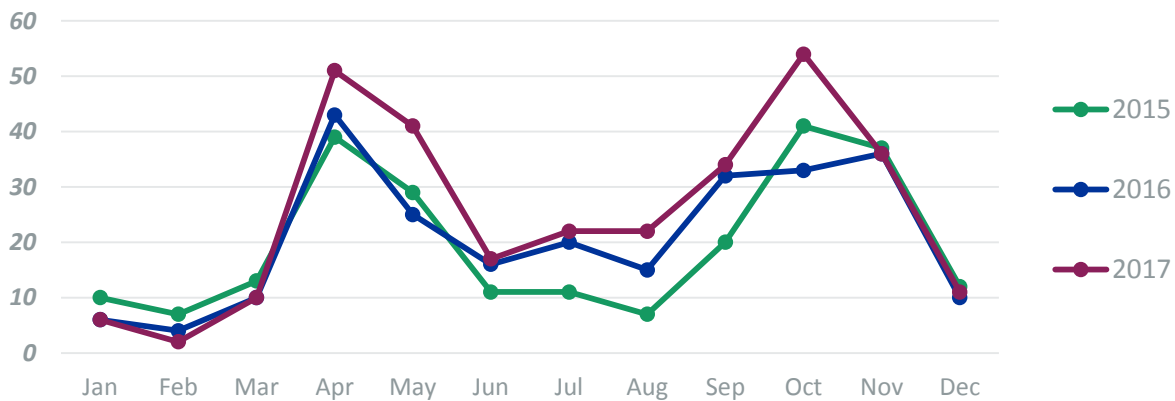


Figure 3 – Distribution of the number of stops in the Port of Malaga

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

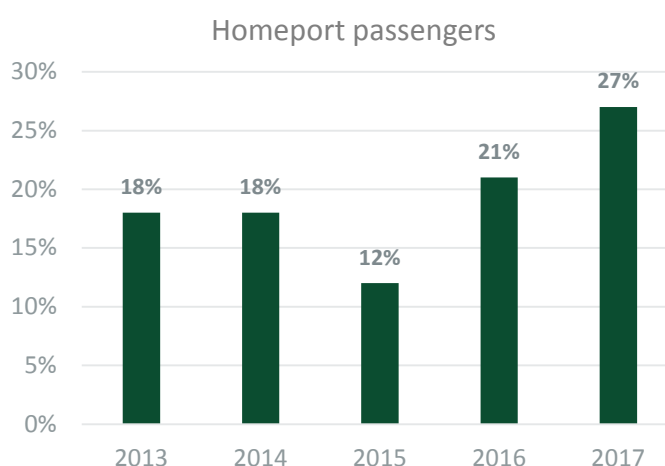


Figure 4 – Cruise tourism trends in Malaga until 2017

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.

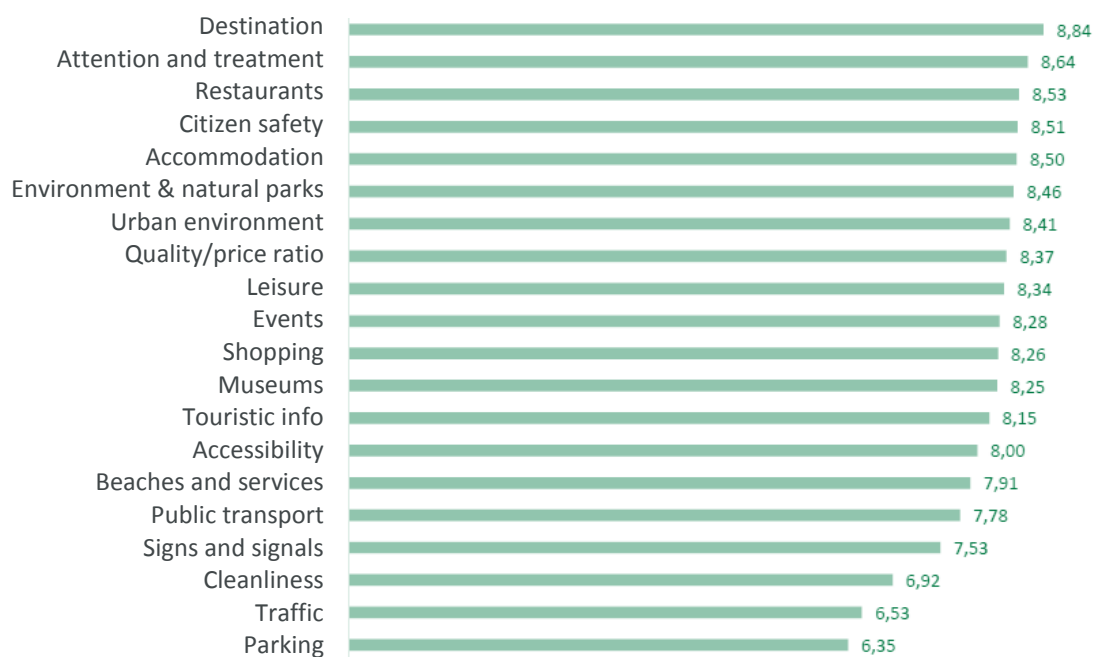


Figure 5 – Degree of tourism satisfaction with the city

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.

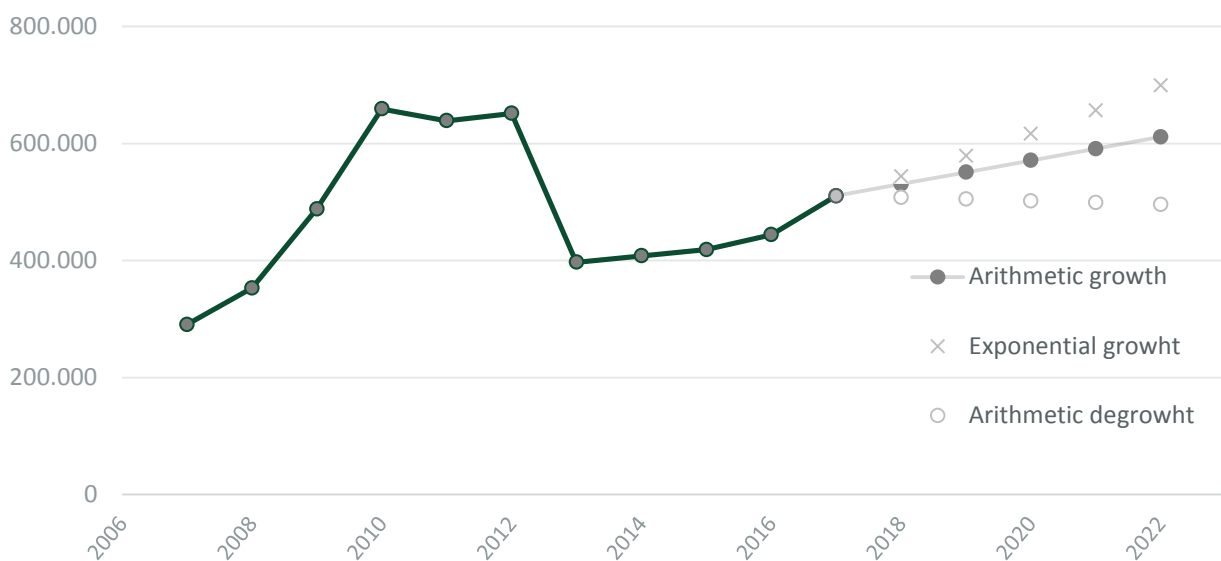


Figure 6 – Annual cruise passengers and future trends

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

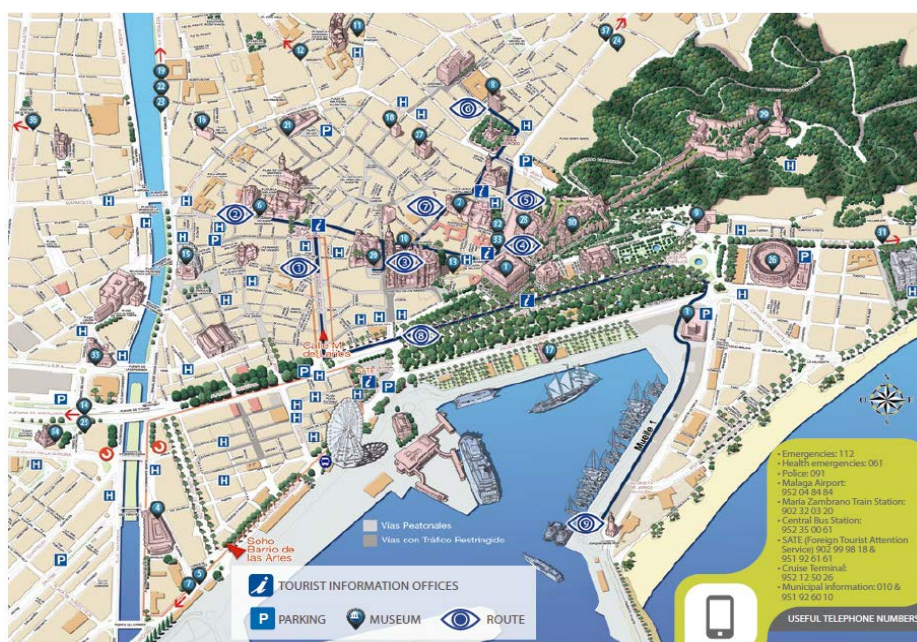
The Port of Malaga has nowadays no significant levels of congestion. On days with several cruise ships in port, the Port Authority, the private operators and the City Council work together to make sure everything runs smoothly.

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.

GAME 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

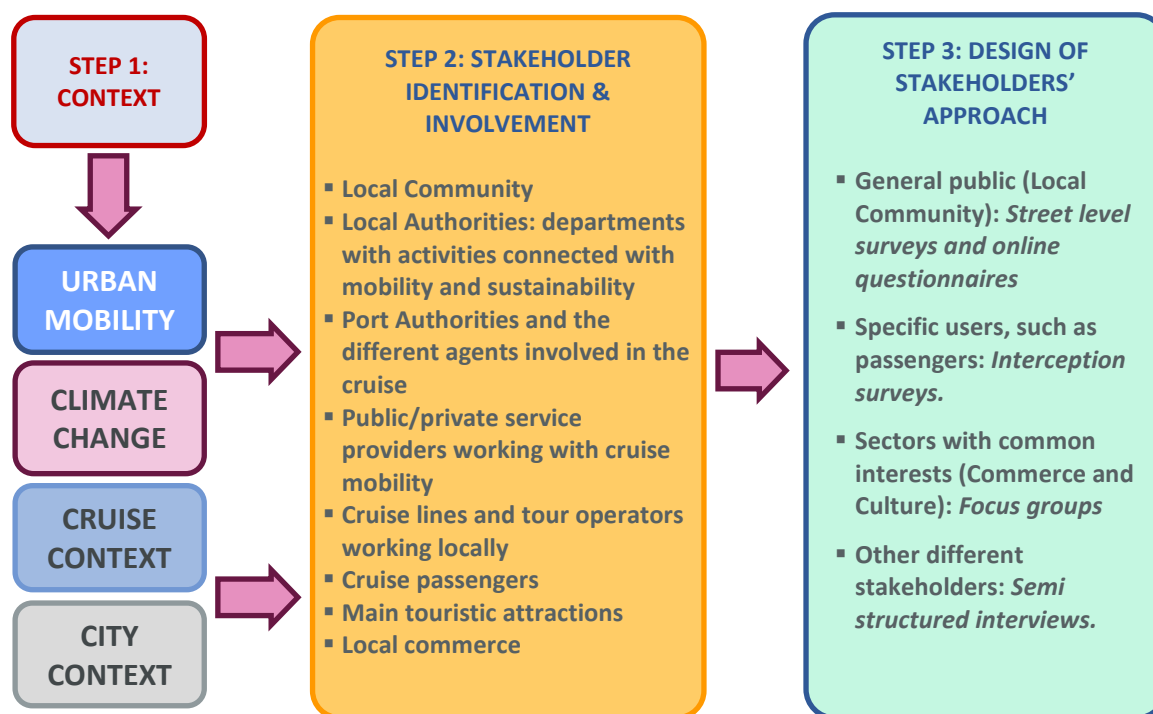


Figure 9 – Diagram of the participatory process in LCTP Malaga

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.

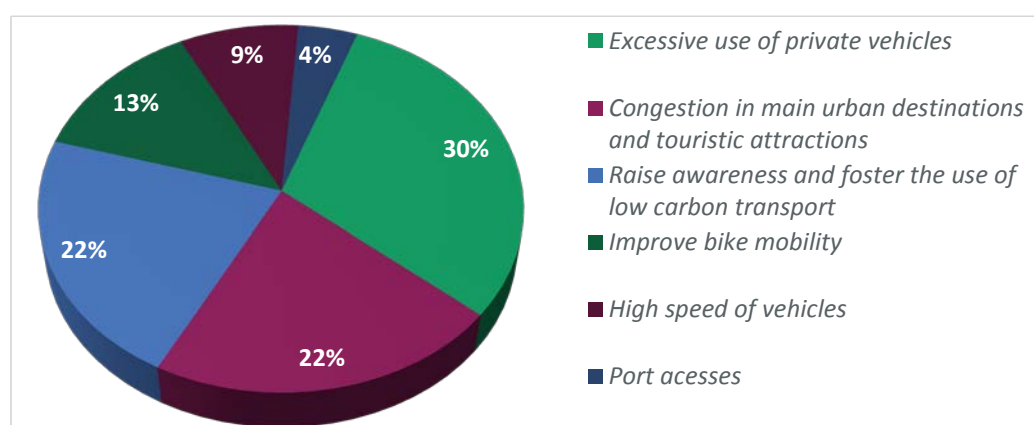
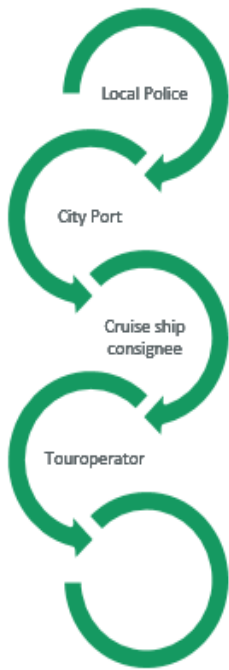


Figure 11 – Main challenges for sustainable urban mobility.

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.

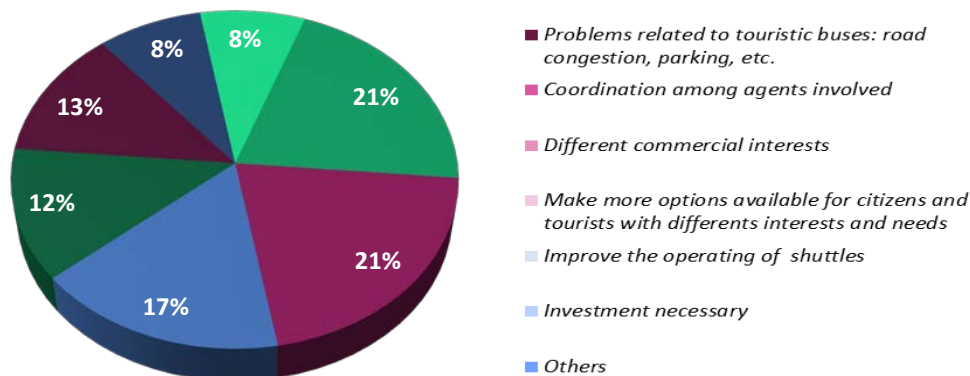


Figure 13 - Main challenges in designing more sustainable transport alternatives that integrate cruise passengers in urban mobility

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.

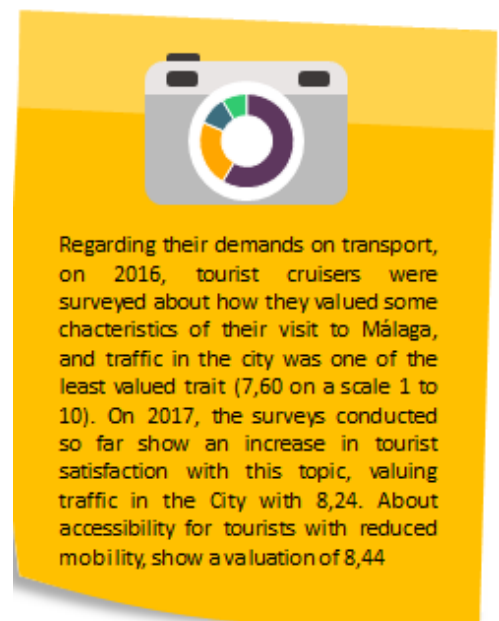
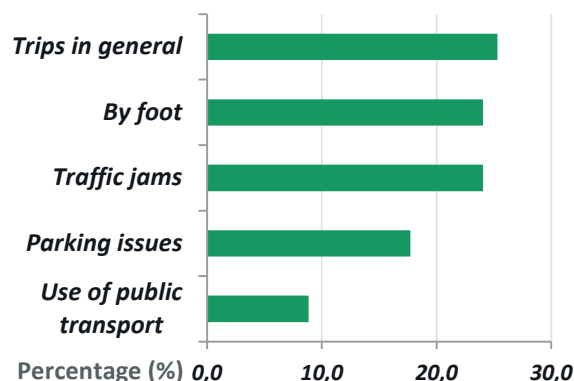


Figure 14 – Advantages and disadvantages perceived by interviewees about the main features of cruiser tourists

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.

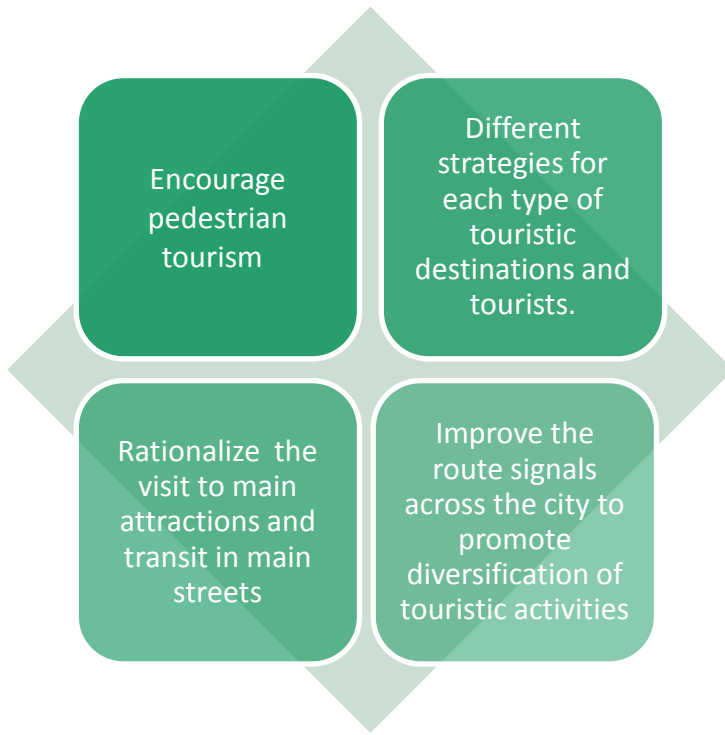


Figure 16 - Main demands of the cultural, hostelry and commerce sector.

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).

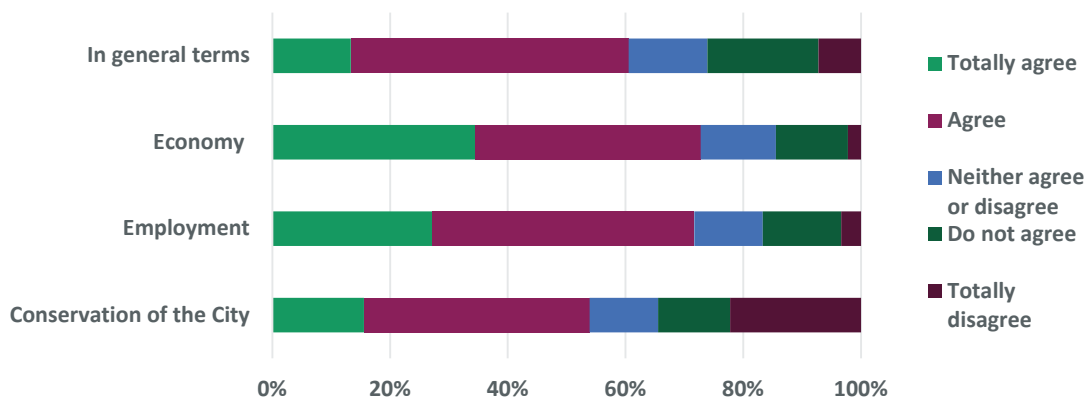


Figure 17 - Citizens' perception on different topics influenced by cruise tourism

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.



On 2016, cruise tourists assessed the diversification of activities in Málaga with 8,48 and rated how important satisfaction with mobility options available around the City (1= not important, 10= very important) was to them within the overall satisfaction of the trip with 7,24.



When tourists are asked about the level of occupancy of main touristic attractions, surveys from May to June 2017 state that almost 50% of them consider it adequate, while more than 30% describe them as slightly crowded.

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%).

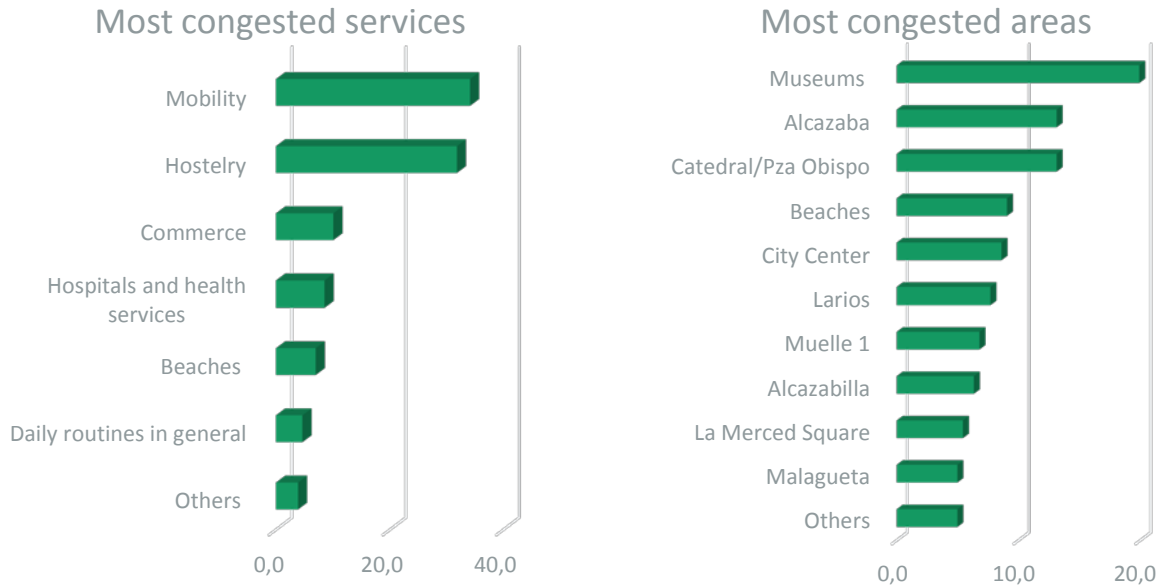


Figure 18- Most congested services and touristic areas according to citizens' surveys

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.

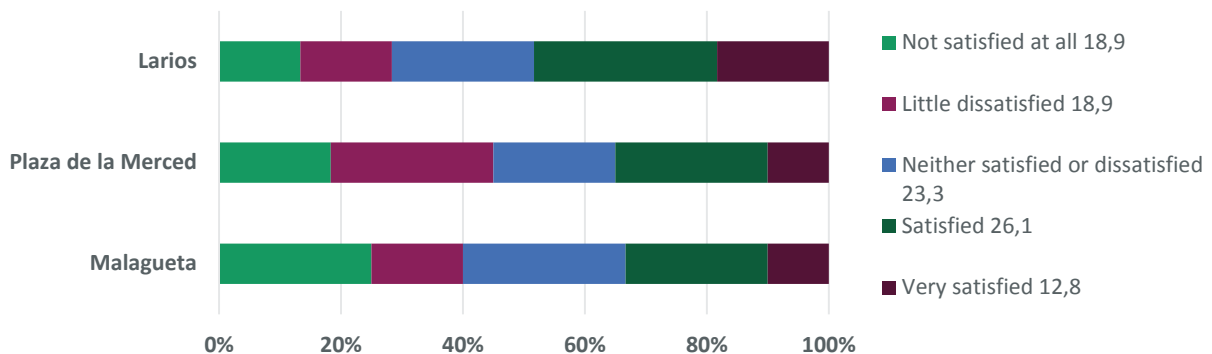


Figure 19 - Congestion in the streets in each of the three surveyed areas

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.

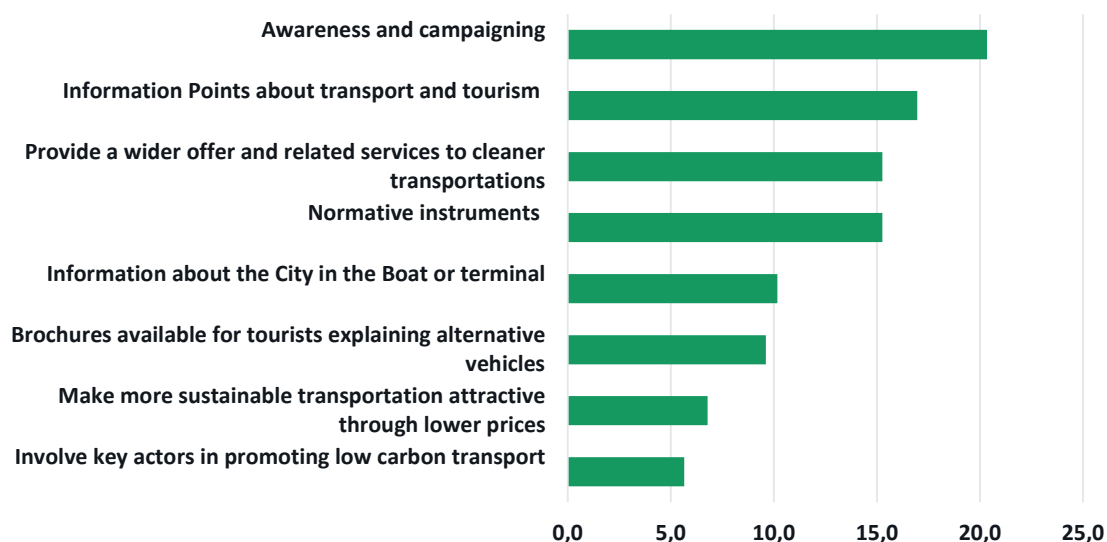


Figure 20 – Classification and distribution of citizens' LCTP suggestions

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))