

**Innovations in
Sustainable Urban
Mobility Plans**

**for low-carbon
urban transport**

InnovaSUMP
Interreg Europe



European Union
European Regional
Development Fund

Action Plan for Nicosia



**Δήμος Λευκωσίας
Nicosia Municipality**

June 2019

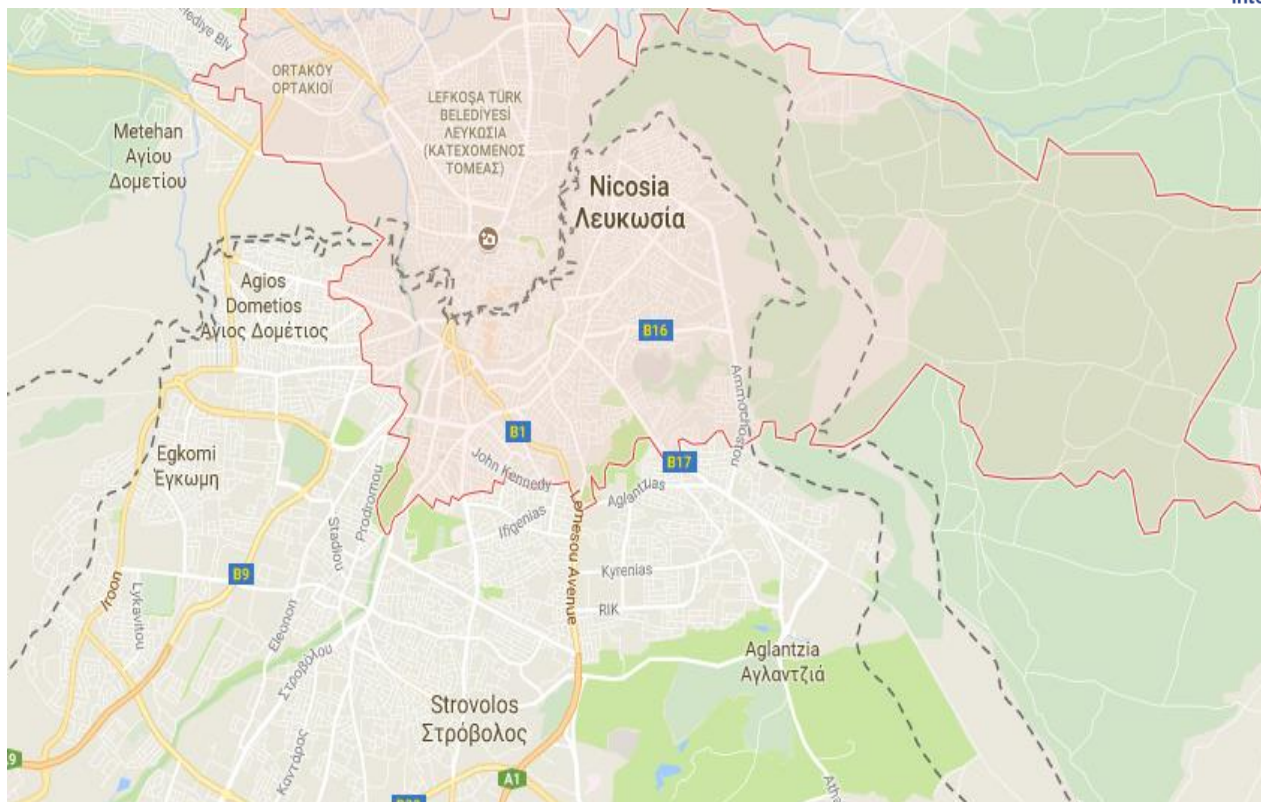


Figure 1 Map of Nicosia Area

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June 2019

Interreg Europe Programme

Interreg Europe Programme of interregional cooperation helps regional and local governments across Europe to develop and deliver better policy. By creating an environment and opportunities for sharing solutions, the aim is to ensure that government investment, innovation and implementation efforts all lead to integrated and sustainable impact for people and place.

By building on its forerunner, INTERREG IVC_(2007-2013), Interreg Europe aims to get maximum return from the EUR 359 million financed by the European Regional Development Fund (ERDF) for 2014-2020.

Solutions exist that can help European regions become the best that they can be. Today, the EU's emphasis is very much on paving the way for regions to realise their full potential – by helping them to capitalise on their innate strengths while tapping into opportunities that offer possibilities for economic, social and environmental progress.

To achieve this goal, Interreg Europe offers opportunities for regional and local public authorities across Europe to share ideas and experience on public policy in practice, therefore improving strategies for their citizens and communities.

InnovaSUMP Project

The InnovaSUMP project aims at introducing:

- a) New innovations, enhancements & advances in preparation, elaboration, consultation, adoption, implementation, evaluation & monitoring of Sustainable Urban Mobility Plans (SUMP), based on the EU established methodology, for sustainable lowcarbon urban transport & mobility policies & measures promotion, funding, implementation & enhancement.
- b) Policies & measures that promote the use of & investments in sustainable mobility solutions, can be included in SUMP, i.e.: high quality PT systems, alternative/clean fuels, electric vehicles, smart ticketing, urban freight logistics, active modes of cycling & walking, new forms of car ownership & use, access control, congestion charging, fair & efficient pricing, ICT mobile applications, ITS transport telematics infrastructure, FTS/DRT, Intermodality improvements for 'seamless' travel, links with Smart Cities mobility initiatives, etc; including stakeholder engagement, public participation, consultation procedures, social media applications, policy formulation and adoption by city and transport authorities, polycentric SUMP approach for regional and district authorities.
- c) Policy & institutional implications for advances in implementing & funding innovative sustainable mobility solutions.
- d) Contribution of SUMP process innovations to: urban regeneration, social inclusion, equity considerations, economy, competitiveness, effective PPPs, citizen society empowerment, cohesion, links with the 'Urban Mobility Package 2013', links with SEAP, mid-term review of White paper & Europe2020 targets.
- e) Enhancements to SUMP Methodology: Promotion of low-carbon mobility solutions, Travel behaviour research & potential user response analyses, Integrating pricing & financing measures, Planning for visitors at tourism destinations, SUMP-SEAP-SECAP Integration.

InnovaSUMP Project Partnership



InnovaSUMP facilitates the take-up of Sustainable Urban Mobility Plans, with innovations on travel behaviour, pricing and financing, planning for tourism and sustainable energy, towards low-carbon transport solutions

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FOREWORD



Nicosia, has a rich and diverse history of many years. The city has been in continuous habitation for over 4500 years (since the beginning of the Bronze Age, 2500 years BC) and has been the administrative, political, economic, financial and cultural heart of Cyprus for over a millennium.

Today, Nicosia claims the unfortunate title of Europe's last divided capital and the only divided capital city in the world. The semi-occupied, divided capital of Cyprus is living testament to the country's troublesome modern history, the injustices our people have faced and the challenges the city faces on a daily basis. The Buffer Zone dividing our city has come to define its character and its citizens.

We, the citizens of Nicosia, refuse to remain idle observers of the status quo. We accept the responsibility and have taken on the challenge of effecting progress and prosperity for our city and its citizens, in anticipation of the day when it will finally be re-unified. We realise that heritage and culture, education and entrepreneurship are the city's greatest assets and drivers for a vibrant and prosperous future.

To realise our vision and achieve our goals we have turned for assistance from both national and EU sources. Over the last years, Nicosia has benefitted significantly from the European Union's Regional Policy, a true example of solidarity. With that support we have begun conserving, revitalizing and developing the divided city of Nicosia into a sustainable and smart city and one in a position to address today's economic, social and environmental needs and challenges.

To that end, we are extremely pleased to be participating in the InnovaSUMP project which will expand our knowledge in implementing innovative sustainable mobility solutions to further enhance our Sustainable Urban Mobility Plan.

Constantinos Yiorkadjis



Mayor of Nicosia

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Contents

Foreword	5
Acknowledgements.....	6
Contents.....	7
Executive Summary	8
Brief Description of Nicosia’s Municipality features	9
Description of the Policy Instrument.....	11
Introduction.....	12
SUMP status, general description and requirements	12
Vision and Goals	13
Action Titles / Headings	13
Monitoring process	13
Conclusions and Recommendations	14
Action Plan (main part).....	15
Action 1 Stated Preference Survey	18
Action 2 Update of Nicosia’s Integrated Mobility Master Plan (SUMP 2.0 with SECAP)	25
Action 3 Design and build intelligent bus stop shelters	27
Monitoring Procedures in Phase 2.....	29



ACTION PLAN FOR THE PROMOTION OF SUSTAINABLE URBAN MOBILITY PLANS AS INVESTMENTS FOR GROWTH AND JOBS, THROUGH THE IMPROVEMENT OF THE REGIONAL OPERATION PLAN

Executive Summary

The InnovaSUMP project's aim is to facilitate the take-up of innovative Sustainable Urban Mobility Plans (SUMP), focusing on regions and cities of low SUMP involvement to date, by providing the necessary expertise and showing the benefits, thus generating high leverage and ensuring strong commitment to sustainable urban mobility with low-carbon transport.

A Sustainable Urban Mobility Plan is designed to satisfy the mobility needs of people and businesses in cities and their surroundings for a better quality of life. It builds on existing planning practices and takes due consideration of integration, participation, and evaluation principles. The policies and measures defined in a Sustainable Urban Mobility Plan cover all modes and forms of transport in the entire urban agglomeration, including public and private, passenger and freight, motorised and non-motorised, moving and parking.

InnovaSUMP's overall goal is to Inclusion of innovations on travel behaviour, pricing and financing, planning for tourism and sustainable energy, towards low-carbon transport solutions, in the methodology of Sustainable Urban Mobility Plans. Additionally through the program, partners have the opportunity to exchange knowledge and skills of their local authorities, propose innovations, improvements and developments at all stages of SUMP's and promote the implementation of sustainable mobility solutions based on low carbon and innovative transport strategies and policies.

The main outcomes of the project are Action Plans. The Action plan includes innovative actions that have to be implemented by the partners within the project, their timetable, potential stakeholders, costs and sources of funding. That actions must corollary from the four pylon and additional from the inter-regional exchange of experience during the first period of the Program.

The objectives of the project are fully aligned with European, national and regional objectives for sustainable development, appropriate implement of "Sustainable Urban Master Plan" based on Travel Behavior, mentality, sustainable tourism, environmental protection and regional development.

This Action Plan aims to the achievement of the above mentioned objectives for the Municipality of Nicosia. In the first part of the Action Plan there is a brief description of the current situation and features of Municipality as well as for the "Sustainable Urban Mobility Plan" and Area Scheme Plan of Nicosia.

In the second part, there is a brief description of the policy instruments to be improved, thus the Regional Operational Plan of the Region of Nicosia, and the Sustainable Urban Mobility Plan of Nicosia.

In the final part of the Action Plan, the proposed activities are presented. They concern the implementation of several actions, in order to improve Nicosia's sustainability issues, in mobility and especially its public transportation service. Additional the innovative actions that are proposed will enhance citizens' way of thinking into a more Sustainable and Energy friendly point of view.

In particular, the Action Plan aims at:

- A) Travel Behaviour Stated Preference Survey
- B) Tourist guided route in the Old City via Mini Buses of Nicosia
- C) Update of Nicosia's Integrated Mobility Master Plan (SUMP 2.0 with SECAP)
- D) Design and build intelligent bus stop shelters

Brief Description of Nicosia's Municipality features

Being an island, Cyprus has a long sailing and trading history, being ideally situated between 3 continents: Europe, Asia and Africa. It has more than 600 km of coastal lines and 9 ports, including Limassol the only container terminal. The territory of 9,251 km is interconnected by 12,862 km of roads of which 257 km are highways, but there isn't any rail network [Cystat, 2014a].

When translated into GHG emissions, transport contributes to 22% to the total emissions of the country in 2014 (without LULUCF¹) and represents 30.5% of the emissions of the energy sector. Looking at the time line of the total GHG reported in Cyprus' National Inventory Report (NIR) [MOA, 2016], the emissions have been increasing by 53% between 1990 and 2010. A clear reduction occurred from 2010 on, continuing until 2013 (- 18% compared with 2010), before rising again in 2014 (app. +6% compared to 2013).

According to the above, Cyprus is heavily dependent on fossil fuels, representing 92% of the total energy consumption. A large part of these fuels are petroleum products, which have to be fully imported. This very high import dependency on expensive energy sources constitutes an important burden for the Cypriot economy and its political independency. The transport sector in Cyprus accounts for around one third of the domestic energy demand of Cyprus and is also totally dependent on fossil fuels. Moreover the combustion of fossil fuels is also a threat for the environment: the current climate change is caused by the emission of greenhouse gases, and air pollutant emissions raise a health issue.



Figure 2 Nicosia Area Plan [Nicosia Municipality]

¹ LULUCF: Category of the UNFCCC for reporting: "Land use, land-use change and forestry"

In 2017 was implemented the Nicosia Center Project which is a Development Plan in accordance with the Town Planning and Planning Law 90/70 and its subsequent amendments. The initial study of the Nicosia Central District Plan was drawn up by the private consultants of SKM Colin Buchanan, commissioned by the local authority concerned, the Nicosia Municipality.

The Area Plan as a legal document is part of the Local Plan according to the provisions of Article 13 of the Urban Planning and Planning Law.

The Area Plan has been prepared by fully recognizing that the change in Urban Policy alone is not enough to restore the center's vitality and the conviction that some of its current weaknesses will be addressed. For this reason, the Area Plan Policy Report is facilitated and supported by:

- 1) The entire set of actions, initiatives and changes, funding sources and mechanisms for implementing the necessary changes that accompany the Area Plan.
- 2) It includes control measures and interventions in the field and is a tool for implementing projects based on government policy.

The Nicosia District Plan is published in accordance with the provisions of subsections 2 and 3 of Article 18 of the Prefecture Urban Planning and Planning. (based on paragraphs (8) and (9) of article 18 of the Urban Planning Law.

As it is mentioned before, Nicosia municipality and its agglomeration, depends too heavily on private motorized transport. Nicosia, the Capital of the Republic of Cyprus, faces serious traffic problems. Too long, the urban transport policy has been characterized by a one sided focus on the private car. As a result, Cyprus has at present one of the highest car ownership ratios in the world (more than 700 cars per 1.000 inhabitants) and a very low use of green transport. In the Greater Nicosia Urban Area, the share of trips by Public Transport is only 3% and cycling even lower, 1.5%. The continuous increase of traffic problems has serious effects on the city's environment (air pollution, noise, etc.), road safety and the quality of life and as a result the city's attractiveness for business, shopping and living is reduced.

Nicosia Municipality and the Government of Cyprus had the ambition to ameliorate this situation, by increasing the share of Public Transport, Cycling and Walking and at the same time upgrading and completing the road network. The share of Public Transport Trips must be above 10% by the year 2020. In order to achieve these ambitious goals a sustained effort had to be made to implement a series of measures. Measures related to all Transport modes that complements and integrates with each other. In order to meet the need for co-ordinated agreed actions/measures the SUMP for Nicosia was developed. .

Thus, an additional innovation for Cyprus, can be presented is the SUMP of Nicosia. There is the only study on its detail and thematic value that has been conducted in the country and it is our main tool which guides as towards a sustainable and low carbon agenda regarding transport. As it is briefly going to be explain in the next chapter one of our proposed actions is the update of Nicosia's SUMP with reference on SECAP. This significant movement of the city will give solutions and specific actions in order to enhance the sustainability of Nicosia.

Description of the Policy Instrument

The Action Plan of Nicosia Municipality affects two policy Instruments the Operational Program (OP) and the SUMP of Nicosia.

The Operational Program "Competitiveness and Sustainable Development"(Jobs and Growth) is co-funded by the European Regional Development Fund (ERDF) and the Cohesion Fund and is one of the two Programs designed to make effective use of Cohesion Policy resources in 2014-2020.

Growth and Jobs program aims to strengthen the coherence between investment and the structural reforms priorities and focuses on the need to promote growth and employment in order to achieve Europe 2020 strategy objectives -- Structural Funds

In the context of the Competitiveness and Sustainable Development OP, interventions will be promoted to strengthen the competitiveness of the economy by promoting investment in Research and Innovation, Information and Communication Technologies and SME support, Interventions in the field of the Environment, Energy and Transport and interventions to promote integrated sustainable urban development in deprived areas.

The total budget of the Program amounts to € 661m, of which € 561.8m. (85%) will come from the ERDF and the Cohesion Fund, while the remaining 15% will come from national resources.

On the other hand the SUMP of Nicosia is the only study on its detail and thematic value that has been conducted in the country and it is our main tool which guides as towards a sustainable and low carbon agenda regarding transport. As it is briefly going to be explain in the next chapter one of our proposed actions is the update of Nicosia's SUMP with reference on SECAP. This significant movement of the city will give solutions and specific actions in order to enhance the sustainability of Nicosia.

Introduction

Nicosia Municipality has already implemented its own Sustainable Urban Mobility Plan. However through its participation at InnovaSUMP built its capacity and knowledge at new innovative practices, enhancements & advances in preparation, consultation, evaluation & monitoring of Sustainable Urban Mobility Plans (SUMP) and the reduction of CO2 emissions.

According to the first Workshop in Prague was concluded that before deciding on future policies, it is important to know the current travel behavior situation of the population through Citizens' Satisfaction Survey by examining the degree of satisfaction of the services transported (wind, accuracy and frequency of routes), Origin-Destination Survey, Distribution survey according to the mean of transport preferences.

On the second Thematic Workshop in Ravenna we had the opportunity to determine measures and actions on how to tackle the lack of information and additional how to promote alternative forms of mobility. The main solution that was mentioned was the necessity to integrate into the sustainable Mobility Plans also the information/measurements for tourists' trips (origin and destination) into the cities.

During the Workshop for "Pricing and Financing" was proposed a variety of good practices on Pricing and innovative ways to implement pilot actions and Sustainable mobility Projects through European Investments.

Moreover, the staff exchanges in Kordelio , Iasi and additional the Study Tour in Exeter was the best practical way to enhance our knowledge on improving infrastructure (cycling routes, pedestrian routes, public squares), develop innovative Transportation Control Centre which could be collect and analyse information and measures from the city in real time.

The main lesson, that concluded from all partners, during the first period of InnovaSUMP, is the connection and the importance of the four thematic units for the development of SUMP. The knowledge and experience that partners gain from the four thematic workshops, was the most important preparation for a city to develop its own SUMP with the best enabling services

SUMP status, general description and requirements

The Nicosia's SUMP is about achieving Sustainable Mobility, using Public Transport, Cycling and Walking as modes of transport that are best suited for the urban environment. Increasing densities in specific urban areas, in other words a Polycentric Spatial Development, is an important precondition to achieve growth in sustainable modes of transport. The Local Plan for Nicosia includes such a Polycentric Spatial Development. The Polycentric Nicosia needs excellent sustainable transport provisions that can compete with the private car.

This means:

- Put in place a proper Public Transport network with an excellent service
- Provide for safe cycling, in order to play a major role for short and medium length trips
- Create a pedestrian friendly Nicosia
- Balance the allocation of road space: Give space to the car where needed, but at the same time make sure that other modes of transport are well provided with appropriate infrastructure, where necessary by redistributing the available space in favour of sustainable means of transport.

Vision and Goals

The sustainable mobility plan of Nicosia would lead to improved public transport, public health and more attractive urban areas. As result health costs will decline, while productivity will increase, so there will be benefits for the economy. Such a system will also be fairer, as it will provide accessibility and opportunity for a wider range of people. While the type of job in the transport sector will change, there will be an increased number of jobs that support a healthy and sustainable economy.

Moreover, according to the updated SUMP, Nicosia would provide access and opportunity for all, while ensuring that transport is safe and secure to use and that it supports a sustainable economy. There would be zero (or minimal) emissions of carbon dioxide, air pollutants and noise from transport. A sustainable mobility sector would also ensure that nature is better protected, and that any adverse effects on it are minimised, while re-use and recycling of materials would be maximised.

Action Titles / Headings

- Action 1: Travel Behaviour Stated Preference Survey
- Action 2: Update of Nicosia's Integrated Mobility Master Plan (SUMP 2.0 with SECAP)
- Action 3: Design and build intelligent bus stop shelters

Monitoring process

The process and the framework of the proposed actions will be monitored by using several Performance Indicators. Through these indicators, the progress of the actions, in respect to the timeframe and the implementation stage, will be effectively checked. The Performance Indicators vary according to the actions. Some indicators will check whether the action has been implemented or not. The rest of the indicators will be monitored according to the specific indicators of Nicosia's Operational Programme "Jobs and Growth".

Conclusions and Recommendations

The main objective of the four actions that have been proposed in the Action Plan of InnovaSUMP is to ameliorate the current status of SUMP. Moreover, through the proposed actions, some new projects will be introduced. The four actions will promote the Sustainable Mobility and will have a positive impact on the reduction of greenhouse emissions.

Action Plan (main part)



Interreg Europe action plan template

Action Plan for the region of Nicosia

Part I – General information

Project: InnovaSUMP

Partner organisation(s) concerned: Nicosia Municipality

Country: Cyprus

NUTS2 region: CY1

Contact person: Charis Theocharous

Email address: Charis.Theocharous@nicosiamunicipality.org.cy

Phone number: +357 22797242

Part II – Policy context

The Action Plan aims to impact:	<input checked="" type="checkbox"/>	Investment for Growth and Jobs programme
	<input checked="" type="checkbox"/>	Nicosia's Sustainable Urban Mobility Plan (SUMP)
	<input type="checkbox"/>	European Territorial Cooperation programme
	<input type="checkbox"/>	Other regional development policy instrument

Name of the policy instrument(s) addressed:

1. The Operational Program "Competitiveness and Sustainable Development" (2014-2020).
2. Nicosia's Sustainable Urban Mobility Plan

Further details on the policy context and the way the action plan should contribute to improve the policy instruments:

The main relevant features of Nicosia's Operational Programme (NOP)-"Jobs and Growth Program" are:

Objective 04: Supporting the shift towards a low carbon economy in all sectors

Objective 06: Preserving and protecting the environment and promoting resource efficiency

Objective 07: Promoting sustainable transport and removing bottlenecks in key network infrastructures

Specific / selected investment are:

- 4b Promoting energy efficiency and renewable energy use in enterprises
- 4iii – Supporting energy efficiency, smart energy management and renewable energy use in public infrastructure, including in public buildings, and in the housing sector
- 6c – Conserving, protecting promoting and developing natural and cultural heritage
- 6e – Taking action to improve the urban environment, to revitalise cities, regenerate and reduce air pollution and promote noise reduction measures
- 7c, 7ii – Developing and improving environmentally – friendly and low carbon transport systems, in order to promote sustainable local mobility.

In particular Investment Priority 4vi, Specific Objective 4v.1 focuses on 'Improvement of mobility mainly in the Nicosia urban area'. Under this, the NOP explicitly is linked to the implementation of measures in the Nicosia SUMP.

The NOP is thus directly linked to Nicosia SUMP and its implementation. The NOP should be improved with innovations & enhancements in SUMP methodology and implementation advances as proposed by this InnovaSUMP project, particularly on new investments for low carbon urban transport and SUMP.

Through the implementation of our new projects that are financed by the programme and the feedback that we will provide during the operational period. The related indices will be our main tool of auditing and continuation of our goals.

Apart from the projects already foreseen in the NOP, the upgraded and enhanced SUMP will further improve the policy instrument with innovative approaches and effective measures for low carbon transport investments. In particular, the Nicosia SUMP will be upgraded with innovative approaches regarding travel behavior and potential user response analyses towards changing behaviour of transport users, mobility needs of visitors, integrated pricing and financing measures, ICT and ITS applications.

Improved governance will also impact on the policy instrument NOP through the innovative approaches to SUMP upgrading and implementation advances.

Part III – Details of the actions envisaged

ACTION 1:

Name of the action: Travel Behaviour Stated Preference Survey

1. Relevance to the project

One of the main innovations that have been investigated by the InnovaSUMP project is the inclusion of travel behaviour research & **potential user response analyses for new & emerging systems, technologies, policies & measures in the overall SUMP methodology**. The Stated Preference survey (SPS), is such an analysis technique, which helps in forecasting decisions, suggesting to respondents' questions about their possible choices in hypothetical situations given a specific set of conditions. They are especially useful where there is a need to assess consumers' behaviour when a new product/service is launched or substantially modified. The survey results are used as an input for a model aimed at predicting future behaviour, whereby the validity and reliability of the inferences of this model are a major concern.

More specifically, through a Stated Preference survey oriented to sustainable mobility, a Local Authority can investigate **which are the critical factors that drastically influence people to switch mode of travel are** (exact values of cost or time savings, safety, comfort etc.) or in other words which is the clear preference of the public towards a new transport scheme (receptivity to a new measure).

The 1st thematic Interregional Workshop on "Travel behaviour research and potential user response analyses" took place in Prague on the June 2017. During the Workshop useful user response analyses were presented that aimed to inform project partners about the advantages of **investigating citizen's response to price or travel time based regulations measures by formulating different scenarios with percentage changes and therefore identifying why people prefer one travel mode to another in the strategic transport planning of a local authority.**

Moreover, during the study tour in Devon County council it was presented its approach in travel behaviour research through encouraging behavioural change towards more sustainable modes of transport. Its approach was unique as it contains a collaboration between social scientists and statisticians, working and engaging with the public and using an advanced statistical model. Another travel behaviour case study, about the future connection of Thessaloniki's airport with the city, was presented by Aristotle University of Thessaloniki (advisory partner) during the workshop that took place in Thessaloniki. The presented case study aimed to predict future behavior of citizens on new transport systems through the identification of the end user and his characteristics.

By the elaboration of a well-structured stated preference that represents the reality and makes use of quality data, a Local Authority acquires a comparative advantage in the planning process of a SUMP due to the fact that it becomes clear if the new transport system will attract new passengers and moreover under which conditions the inhabitants will move from one transport mode to another. Therefore, the Authority **can design a new transport scheme with the appropriate characteristics and technical specifications (price policy, route frequency), a process which has as a result the best exploitation of human and financial recourses.**

Taking into consideration that one of the main objectives of the InnovaSUMP project is the optimization of the applicable SUMP methodology for City partners, it can be concluded that through the specific pilot action the SUMP for the City of Nicosia will have in advance useful inputs that will lead to the best implementation of future mobility solutions. Therefore the most important objective of the InnovaSUMP is fulfilled.

2. Nature of the action

Nicosia Municipality aims to elaborate, as a test process of a new approach, a **Stated Preference Survey for the future extension of Mini Buses routes in Nicosia's Old City and Commercial center** for the upgrade of the services both for tourists and inhabitants (employees and citizens). The new transport scheme is going to affect the economic and tourist activity of that specific area (Old City and Nicosia Business center). For this reason and taking into consideration the fact that tourist season lasts in Nicosia approximately six months (April – September) the data collection procession will be separated into two different time periods and therefore into two different samples.

- Two months during Winter in 7th Semester and it will be oriented to inhabitants and employees (300 questionnaires)
- Two months during Summer in 8th Semester and it will be oriented to tourists (300 questionnaires)

The purpose of the Stated preference is the examination of the willingness of Nicosia's citizens and tourists to switch mode for private cars (the major transport mode currently in Nicosia) to Mini Buses and to identify the key factors that critical affects the transport mode choice and also the exact values of those factors. Nicosia Municipality will test this new approach in one small area of Old City and Commercial Center and only for one mode (Mini Buses). Examples of critical factors that are under consideration at the moment to be included at the Stated preference survey are:

- The **price policy** of the Mini Buses that will motivate people to leave their private cars
- The required **travel time** reduction with mini buses so that people will switch to public transport from private cars
- The amount of **CO₂ emissions reduction** that will be succeeded by a public transport scheme compared to private cars **that will persuade people** (employees and tourists) to select the mini buses for their daily journeys and not a car
- **The willingness of local society to pay in order to finance a new transport scheme.** The exact amount of money that the local entrepreneurs and property owners are willing to pay for the implementation of a new transport project that is going to upgrade the accessibility of the area and therefore their profits and the value of their property (added value capture)

For the optimization of the data collection process an extended use of social media will be pursued in order to inform citizens and tourists for the content and the aims of the survey and an online bilingual app (English and Greek) will be developed for dissemination purposes. In the online app will be uploaded information about the scope of the survey, the results of the analysis and the most important conclusions.

Also the questionnaire will be written in Greek and English language as well.

To secure the quality of the survey and the best results of the pilot action, and to enhance the effectiveness and the efficiency of the applicable methods a University with expertise in the Field of Travel Behavior Surveys and Advanced Statistical Analysis will be hired to monitor and evaluate the survey. At the end of each phase (SP questionnaire configuration, Data collection – processing, Data visualization), the draft results will be sent to the University to evaluate to what degree the survey meets the needs of the project for which it is designed and conducted, whereas the data quality includes accuracy, timeliness, accessibility, comparability, and other quality dimensions. One of the main issues associated with survey quality is the degree of data accuracy, which manifests itself in sampling and non-sampling errors, with the former depending on how well the chosen sample represents the population and the latter including specification, measurement, non-response, frame, and data processing errors.

This small scale SP survey, **as it is going to be applied in a specific area since it concerns only the access to Old city and Nicosia Business Center with mini buses**, will be a useful input for the Travel behavior surveys that will be elaborated in the frame of the Upgrade SUMP for the city of Nicosia, having as intervention area the whole city of Nicosia. If this pilot is found useful, the method will be applied to other new modes and/or solutions, such as Tram, MaaS, e-Mobility, etc. The SP survey will be included in the SUMP Methodology and eventually in the improved policy instrument (Operational Plan). The survey will be included in the tender document of the new SUMP of the Nicosia that will be procured in the near future (in the next two years). The large scale Stated Preference Surveys will be based in the results, methods, questionnaire templates and techniques developed through the pilot surveys to upscale the knowledge acquired to the overall area and to compare the alternative future transport schemes with more complicated scenarios.

Finally it can be concluded that through the specific pilot action all four innovations of InnovaSUMP are being exploited as it does not only tackle with **Travel Behavior Surveys in general but also with the mobility choices of Tourists to tourism destination, the potential of the local society (entrepreneurs and land owners) to fund proportionally a new transport scheme that upgrades accessibility (innovative funding) to their shops and properties and therefore increases the overall attractiveness of the area and also whether both tourists and citizens will transfer to a more environmentally friendly transport mode compare to private vehicles that contributes energy consumption reduction** (potential integration of SUMP and SECAP)

3. Stakeholders involved





No current stakeholders will be involved in the implementation of this action. However, in order to secure the quality of the survey and to enhance the effectiveness and the efficiency of the applicable methods a University with expertise in the Field of Travel Behavior Surveys and Advanced Statistical

Analysis will be hired to monitor and evaluate the survey. At the end of each phase (SP questionnaire configuration, Data collection – processing, Data visualization), the draft results will be sent to the University to evaluate to what degree the survey meets the needs of the project for which it is designed and conducted, whereas the data quality includes accuracy, timeliness, accessibility, comparability, and other quality dimensions. One of the main issues associated with survey quality is the degree of data accuracy, which manifests itself in sampling and non-sampling errors, with the former depending on how well the chosen sample represents the population and the latter including specification, measurement, non-response, frame, and data processing errors.

4. Timeframe

August 2019 – December 2019

- Preparatory procedures from the Municipality (bureaucracy, market research)
- Tender Notice Publication (careful specification of the techniques, the procedures and the tools to be used): It refers to the preparation of the Official Document of the Tender Notice which describes briefly, the nature of the project, the procedures that should be followed by the contractor, the tools that should be used, and the amount of the questionnaires and the expected outcomes of the survey. The contractor will be responsible:
 - for the configuration of the questionnaires and the alternative scenarios of the survey
 - analysis of the data and the visualization of the results
 - development of the online application of the project
- Public competition to find a contractor (all the legal procedures according to legislation): The foreseen legal procedures according to legislation to find a contractor. It requires a time period for tenders submission and also a period for the evaluation of the tenders from the Municipality to identify the best offer with a price performance criterion
- Contractor assignment: the Municipality calls the Candidate Contractor with the best offer to provide the necessary documents (financial and capacity management) and sign the agreement.

	2019				
	August	September	October	November	December
<i>Preparatory procedures</i>					
<i>Tender Notice publication</i>					
<i>Public competition</i>					
<i>Contractor assignment</i>					

January 2020-June 2020

- **Configuration of questionnaires and the alternative mobility scenarios from the external expert:** The contractor will formulate all the questions that refer to the necessary sociodemographic characteristics of the respondents and will build also the alternative scenarios for the tourists and citizens (mini bus service compare to car), each of them will have different values for the examined attributes (cost, travel time and CO2 emissions) and also about the

entrepreneurs to find out their willingness to pay for the extension of the mini bus service in their area.

- Data collection during **non-tourist season by the staff member of the Municipality**(two months during autumn or winter)
 - 300 questionnaires collection with tablets
- In order to increase the efficiency of the survey and to disseminate its purpose and benefits a bilingual mobile app will be developed. In the app will be available information about the subject and the aim of the survey. After the analysis the most important results will be uploaded to the app. The application will be developed by the contractor
- Data analysis with appropriate statistical tools: It refers to the Descriptive Statistics analysis of the data base that will arise for the data collection (user sociodemographic characteristics) and also the Inductive Statistics about whether the characteristics of the traveller (age, income, education and work) determine the mode choice and the value of the attributes. Moreover during the data analysis will be investigated and identified quantitatively the values that determine the potential shift from one mode to another (e.g. for car to mini bus).
- Data visualization of the results with the appropriate software
 - It will be formulated the appropriate visualization process of the results with graphs and digital maps that lead to the extraction of useful conclusions.
- Delivery of results for tourist season: The formulation of the deliverables and their delivery to the Municipal Staff in order to evaluate them and propose corrections or some further analysis according to the tender Notice.

	2020					
	January	February	March	April	May	June
<i>Configuration of questionnaires</i>						
<i>Data collection</i>						
<i>Mobile app development</i>						
<i>Data analysis</i>						
<i>Data visualization</i>						
<i>Delivery of results</i>						

July 2020 – December 2020

- Data collection during **tourist season by the staff member of the Municipality** (two months during summer)
 - 300 questionnaires collection with tablets
- Data analysis with statistical tools: It refers to the Descriptive Statistics analysis of the data base

that will arise for the data collection (user sociodemographic characteristics) and also the Inductive Statistics about whether the characteristics of the traveller (age, income, work and education) determine the mode choice and the value of the attributes. Moreover during the data analysis will be investigated and identified quantitatively the values that determine the potential shift from one mode to another (e.g. for car to mini bus).

- Data visualization of the results with the appropriate software
 - It will be formulated the appropriate visualization process of the results with graphs and digital maps that lead to the extraction of useful conclusions.
- The online app that has been developed will be updated with new information about the survey and also will be possible to fill in the questionnaire. After the analysis of the survey the most important results will be uploaded to the app.
- Delivery of results for tourism season: The formulation of the deliverables and their delivery to the Municipal Staff in order to evaluate them and propose corrections or some further analysis according to the tender Notice.
- Nicosia Municipality will assign to a **University** the overall evaluation of the questionnaire and the results of the survey to secure the quality of the survey and the best results of the pilot action
- The main outputs of the 3rd semester are: The completion of the data collection for **tourist season**, the analysis of the results with use of statistical tools, the visualization of the results and the delivery of the results to the Municipality. Also the overall delivery of the results of the survey (both for tourist and non-tourist season).
- The results of the survey are going **to be directly exploited in the Nicosia's New SUMP that aims to specify the future sustainable mobility projects and effective measures that will be implemented in Nicosia over the next 10 years**. The results (desirable and deliverable travel time, cost and CO2 reduction) will be input to the new SUMP which will contain the specific proposal of the extension of the Mini Buses routes in Nicosia's Old City and Commercial centre, with the appropriate characteristics, that guarantee the attractiveness of the transport scheme and therefore its future success. Moreover, through the SP survey of the pilot action will be estimated the willingness to pay by the local society in terms of fares collection, revenues that will contribute towards the extension of the Mini Bus routes. **That knowledge will be used in the Action Plan of the Nicosia's SUMP about how a new project (mini bus routes extension and other low-carbon urban transport solutions) could be financed with alternative tools (in that case added value capture) and the specific amount of that contribution. In that way the effectiveness of the new SUMP will be increased due to the results of the pilot action.**

	2020					
	July	August	September	October	November	December
Data collection						
Mobile app update						
Data analysis						
Data visualization						
Delivery of results						
Evaluation from University						

5. Costs

The elaboration of the Travel behaviour Surveys consist of the following chapters:

- I. **Staff cost** (preparatory procedures, tender notice preparation, data collection of 300 questionnaires in non-tourist and 300 in tourist period with tablets, supervision of the survey in order to verify that the deliverables are according to the specifications of the tender notice): 22.500€ (1 man-month for the preparatory procedures and the tender notice preparation and 4man-months for the data collection 5*4.500€)
- II. **Office and administration:** 3.375€
- III. **External expertise:** 18.500€ (cost for configuration of questionnaires and the alternative mobility scenarios from the external expert, data analysis with statistical tools, data visualization of the results with the appropriate software, development of the online bilingual app about the dissemination of the survey and the data collection)
- IV. **External expertise:** 4.860€ (cost to assign to a University the overall evaluation of the project – the alternative scenarios and the results)

Overall budget: 49.235 €

6. Funding sources:

As Action 1 is our proposed Pilot Action which will be funded by InnovaSUMP project, after its approval.

ACTION 2

Name of the action: Update of Nicosia's Integrated Mobility Master Plan (SUMP 2.0 with SECAP)

1. Relevance to the project

The main scope of InnovaSUMP is to enhance the partners to implement or upgrade their own Sustainable Urban Mobility Plan. Due to the fact that Nicosia Municipality has already a SUMP, in our future plans is the implementation of an updated SUMP with references to SECAP. It is worth to mention that for the initial process of the updated Nicosia's SUMP, significant was the influence that provided from Lithuania's (Vilnius) good practice; which describes the process for selecting and analyzing thematic parts that are important for individual SUMP developers.

Additionally, according to the Results of working groups that accomplished during the Nicosia's Workshop on SUMP-SECAP, importance was the exchange of knowledge and experience between partners, on SUMP cycle steps. Furthermore, the 6th European Conference on Sustainable Urban Mobility Plans that took place in Groningen, and we participated there with InnovaSUMP as leader partner, was significant "mine of information" due to the fact that the main focus of the conference was on providing support to sustainable and active cities within the SUMP context, i.e. how to make cities more walkable and cycle-friendly. Moreover, The Updated SUMP guidelines were presented there for review by the SUMP community. Since their launch in 2013, the guidelines have become the main reference for the development of Sustainable Urban Mobility Plans and have been adopted widely across Europe. The Guidelines were updated to reflect recent trends in mobility, technology and society. At various sessions of the Conference, with different formats, participants provided their comments and feedback on the draft updated guidelines and gave their views on long-term planning for sustainable urban mobility.

It is worth mentioning that the harmonization of the two plans (SUMP-SECAP) has not been implemented in Cyprus again, although it is necessary. It will therefore affect the Operational Program "Jobs and Growth" in terms of funding and, at the same time, this action will also influence and be a fundamental principle in the design of the SUMP of other cities in Cyprus.

2. Nature of the action

The Municipality of Nicosia in cooperation with the Ministry of Transport will update the existing mobility plan of Nicosia to a new SUMP 2.0 taking into consideration the enhancements in the methodology investigated and produced by the InnovaSUMP project (Travel Behavior Surveys, Planning visitors at tourists destinations, Integration of pricing and financing measures) and with a clear inclusion of a harmonization process with the Sustainable Energy and Climate Action Plan (SECAP) and therefore actions oriented also to energy consumption and CO₂ emissions. Thus, the new SUMP will be also dealing with issues on climate change.

Sustainable Energy and Climate Action Plan is the strategic plan promoting energy efficiency, use of renewable energy sources and adaptation to climate change overall objective of reducing CO₂ emissions by a minimum of 40% by the year 2030.

Key sectors:

- Municipal buildings equipment/ facilities
- Tertiary (non-municipal) buildings equipment/facilities •Residential buildings
- Transport
- Public lighting
- Green public procurement
- Local energy production
- Land Use Planning,
- Environment & Biodiversity, Economy

3. Stakeholders involved

The procurement for the new SUMP of Nicosia with references to SECAP will be implemented with cooperation of Public Works Department, Ministry of Transport, Communications and work

4. Timeframe

The procurement for the study of SUMP with reference in SECAP will be done in December 2019. It is expected to be completed after 2 years.

5. Costs

The procurement process is in progress and the total cost may be approximately €600.000

6. Funding sources

The update of Nicosia's SUMP with elements of SECAP will be funded from the Operational Programme Jobs and Growth

ACTION 3

Name of the action: Design and build intelligent bus stop shelters

1. Relevance to the project :

The study Tour in Devon and the workshop in Prague, about Travel Behavior, were the main inspiration of considering our needs on improving the existing bus stop shelters. During the workshop of Travel Behavior in Prague mentioned the importance of having intelligent bus stop shelters and the significant affection that having this to bus users. In addition, it was mentioned that the bus stop is the first contact point between the passenger and the bus service. The space, the location, the design, and the operation of bus stops significantly influence transit system performance, customer satisfaction and customer safety. Bus shelters are among the facilities that are highly used by people in the city while commuting. Despite this high usage, they have remained the same technologically over the years. However, with new Internet of Things (IoT)-Intelligent technologies, bus shelters have the potential to be improved, providing a better experience to commuters, as well as creating value for businesses and public transport providers.

Additionally, the study tour in Devon was an inspiration of this action due to their contemporary and well-designed stop shelters in Central train station. The visit in Devon's Rail station and the exchange of knowledge, with Engineers of Devon Council, about the design and the ITS system of their bus stop shelters, were gave as the opportunity to get significant technical specifications on smart and intelligent shelters' design. The information that we receive from the study tour in Devon will help us to develop our new bus stop shelters according to the design and the specifications that characterize a contemporary, smart bus stop.

It is worth to mention that this action is an innovation for Cyprus, therefore it will significantly affect the SUMPs in Cyprus and will be a prerequisite for any new design. Also, because of the innovative nature of the action that will serve as a benchmark, it could affect its funding from EU. As such, an additional income could be provided by leveraging the infrastructure for a promotional material. The proceeds will be used exclusively to finance transport infrastructure projects.

2. Nature of the action:

For the first time, in the area of Nicosia, all of the Municipalities and some Communities of Nicosia have signed a memorandum, with the Ministry of Transport, Communication and Work, for the design and the construction of smart bus stop shelters. According to the memorandum, 1200 bus stop shelters will be replaced in the participated municipalities and communities. That procedure will be implemented in the next 2-3 years. Nicosia Municipality is the leader of the participants (Municipalities and Communities) and due to that it participates in the final decisions about the specifications and the design of the bus stop shelters. This project, of design and placement new intelligent bus stop shelters, is an innovative progress for Cyprus that could be integrated as an issue for new SUMP's development

and thus it could be funded from our Operational Program (Jobs and Growths)

3. Stakeholders involved:

Ministry of Transport, Communications and Works is mainly involved to that action as it is the main Governance Authority who has the ability and the responsibility for Transport issues and its decisions that affect the entire country. Moreover, the Ministry could be fund that Project from its own available funds or from other European investments.

4. Timeframe:

The Memorandum was signed on the 14th of February 2019. The design procedure of bus stop shelters completed and the procurement for structural design may be started on October 2019

The new bus shelters will start to be installed on second quarter of 2020. The whole process of the installation will be finished on 2 or 3 years.

5. Costs

Approximately €25.000 per bus shelter. In Greater Urban Area of Nicosia there are 1100 bus shelters.

6. Funding sources :

It will be funded from Ministry of Transport, Communications and works with a significant possibility of using an extra amount from European Investments (Investment for Growth and Jobs Programme

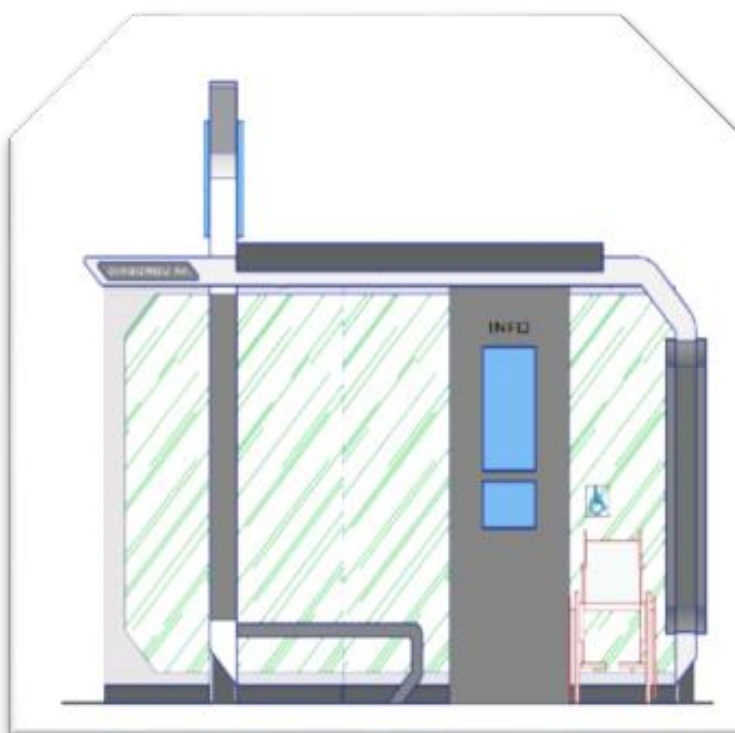


Figure 3 The Design of New Bus Stop Shelter

Monitoring Procedures in Phase 2

The indicators that will be used for each action are demonstrated below:

Action 1 Stated Preference Survey

- Number of questionnaires completed during Winter in 7th Semester (X/300)
- Number of questionnaires completed during Summer in 8th Semester (X/300)

Action 2 Update of Nicosia's Integrated Mobility Master Plan (SUMP 2.0 with SECAP)

- Upgrade SUMP with references in SECAP (yes or no)

Action 3 Design and build intelligent bus stop shelters

- Number of installed bus stop shelters in the urban area of Nicosia (X/50)

Date: 15/07/2019

Name of the organisation(s) :

Nicosia Municipality

Signatures of the relevant organisation(s):



BACK COVER



***InnovaSUMP facilitates
the take-up of
Sustainable Urban
Mobility Plans, with
innovations on travel
behaviour, pricing and
financing, planning for
tourism and sustainable
energy, towards low-
carbon transport
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