



SUMP for Metropolitan Area of Thessaloniki

**Thessaloniki Public Transport
Authority**

FINAL

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Sustainable Urban Mobility Plan

Executive Summary

The Thessaloniki SUMP is currently at the final stage of elaboration (pending final approval from the stakeholders / Mobility Forum), corresponding to the 3rd ELTIS+ milestone "Adopt SUMP".

Expected results (S.M.A.R.T. objectives):

- GROWTH OF P.T.
 - Total PT ridership +15% by 2016, +50% by 2020
 - Average PT occupancy +10% by 2016, +25% by 2020
 - Average PT commercial speed +10% by 2016, +25% by 2020
- DECREASE OF CAR FLOWS (IN CENTRAL AREA)
 - Off-street parking supply -10% by 2016, -30% by 2020
 - On-street parking supply -15% by 2016, -30% by 2020
- GROWTH OF ACTIVE TRANSPORT (in CENTRAL AREA)
 - Walking share in modal split +10% by 2016, +25% by 2020
 - Cycling share in modal split +10% by 2016, +15% by 2020
- POLLUTION ABATEMENT
 - Decrease of pollutant emissions already measured in the area (SO₂, O₃, CO, NO₂, PM₁₀) -10% by 2016, -25% by 2020

The Thessaloniki SUMP has been developed in the context of the ATTAC multi-national project (South-East Europe Programme). Resulting from this, the plan has been extensively discussed with the project partners (8 European cities). Moreover, the plan has been presented and discussed in important international fora (TRA 2012 ad 2013, POLIS, UITP a.s.o.). Finally, the plan has been the focal point of the 2012 European Mobility Week; as such, it has been thoroughly presented and disseminated.

The Thessaloniki SUMP covers the whole metropolitan area which includes 9 Municipalities. The definition of the coverage area was done in common with all the Mobility Forum members at the start of the planning process.

Starting point of the Thessaloniki SUMP was the following COMMON VISION elaborated and adopted by all stakeholders participating in the Mobility Forum, which in practice acts as the 'Parliament' for the Plan:

“The metropolitan area of Thessaloniki deserves a modern and sustainable transport system that connects people to the city. The connection to the city is not limited to providing convenient, fast, secure and affordable travel, but extends to ensuring quality in the natural, built and social environment. Urban transport is a product of collaboration between all stakeholders associated with the city towards a single system of urban and suburban transport & travel linking citizens and areas by means that support the economy, the environment and the quality of life”.

The Thessaloniki SUMP proposes 12 measure packages, as follows:

1. Integrated and Smart Electronic Fare Ticket Systems in Public Transport and parking fees
2. Bus Rapid Transit, bus priority at traffic lights
3. Information and Awareness campaigns (with and for citizens) to discourage the use of private car and promote the use of Public Transport
4. Promotion of TRAM system, complementary to the Metro, with new ways of financing, restructuring of current bus routes and accompanying urban regeneration facilities
5. Intermodality between Metro-Tram-Bus through the creation of appropriate interchanges and restructuring of bus stops
6. Maritime Public Transport System in the Thermaikos Gulf
7. Flexible Transit Systems in peri-urban areas
8. Integrated Parking Policy (Park and Ride, controlled parking system)
9. Pedestrian facilities and public space restructuring
10. Bike lanes
11. Bike Sharing System
12. Congestion charging and access control.

Finally, ThePTA has established a Quality Assessment Unit within the organisation, the main aims of which are (i) to assess the quality of public transport services through awareness-raising campaigns and user surveys at regular intervals, and (ii) to follow-up the implementation of the measures proposed within the SUMP.

General Context

Thessaloniki is the second largest urban conurbation in Greece with a population of almost one million inhabitants (official 2011 census data). There are 2.2 million passengers' daily trips taking place by all travel modes and PT share is approximated to 27% (OMPEP, 2000). Thessaloniki's PT system is expected to be enhanced with an underground metro line as early as 2018. The Urban Transport Organization of Thessaloniki (UTOT (OASTH)) is until today the sole PT operator in the area. The company holds a concession contract with the Greek Government allowing for exclusive right of operations. The PT system is composed by a total of 78 urban and suburban bus routes operated by a fleet of 621 various size vehicles. In 2011, 43 million vehicle-kms were executed and almost 180 million boardings were counted. The system is characterized by a low fare box recovery ratio and the state subsidy covered 68% of total 2011 expenses (OASTH, 2012). Improvement of delivered quality and rationalization of resources' allocation are regarded as necessary and effective actions for both attracting more users and reducing costs.

The introduction of Automatic Vehicle Location (AVL) equipment for the bus fleet taken place in 2005 and subsequent launch of real time passenger information system in 2007 can be regarded as investments aiming to improve performance and also to attract more users (Politis et al., 2010). Competitiveness of public transport will further grow after completion of the underground metro line which is currently under construction and will be ready in 2018.

ThePTA was established in 2001 and is responsible for the planning, coordination and supervision of PT in the metropolitan area of Thessaloniki. Until today, ThePTA's monitoring mechanism is relied upon a set of key indicators referring only to economic performance and PT availability. However, these indicators do not appear to have a clear connection between them or with a set of regularly updated strategic goals. Furthermore, passenger satisfaction indicators are not available. The latter is the reason for missing information on the PT aspects that cause serious user discomfort. As a result, public opinion feedback is only expressed by citizens who submit requests and /or complaints to the local PT agencies. Therefore, ThePTA cannot fully support and advise OASTH on any improvement actions. A standardized and clear process for exchanging data between the two agencies on all necessary performance topics has not yet been established. These issues along with the upcoming introduction of competitive tendering procedures (where ThePTA will play the role of the competent authority) create an urgent need for a comprehensive and continuous monitoring and assessment of PT services through an appropriately designed PMS. The establishment of such a system will also enable ThePTA to communicate both its activities and progress. By this means, pressure will be applied for necessary investments in the PT system as well as attaining strategic partnerships with other PT organizations in Greece and abroad. Below, more detailed information are provided about demographic and transport data.

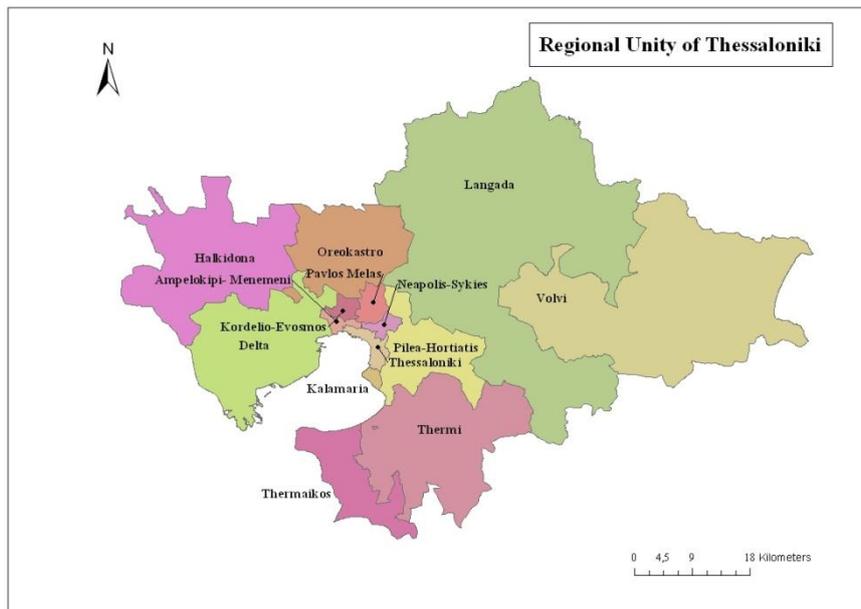
Transport data for the Regional Unity of Thessaloniki

Demographic and geographic analysis

Thessaloniki is the second largest city of Greece and the administrative, financial and cultural center of Northern Greece. The city is the capital of Thessaloniki Regional Unity and of the region of Central Macedonia and spreads over an area of 3.683km² with a population of 1,104,460 inhabitants.

It consists of the municipalities of Thessaloniki, Kalamaria, Kordelio-Evosmos, Neapolis-Sykies, Pavlos Melas, Ampelokipi-Menemeni, Pilea-Hortiatis, Thermi, Thermaikos, Halkidona, Delta, Oreokastro, Langada and Volvi. The agglomeration of Thessaloniki, consisting of the first seven aforementioned

municipalities, has the greatest urban density and is populated by approximately 820,000 inhabitants (2011 census).



Picture 1: Regional Unity of Thessaloniki

The population and the densities of the municipalities of the Regional Unity Thessaloniki are presented in Table 1.

Table 1: Population and densities of the municipalities of the Regional Unity Thessaloniki

Area	Total population	Percentage of the total population of the Regional Unity	Density (inhabitants per sq. km)
Municipality of Thessaloniki	322,240	29%	16,703.30
Municipality of Ampelokipi- Menemeni	51,670	5%	5,276.76
Municipality of Volvi	23,370	2%	29.85
Municipality of Delta	45,460	4%	146.13
Municipality of Thermaikos	50,100	5%	375.53
Municipality of Thermi	53,070	5%	138.89
Municipality of Kalamaria	91,270	8%	14,258.71
Municipality of Kordelio-Evosmos	101,010	9%	7,561.76
Municipality of Langada	40,800	4%	33.37

Area	Total population	Percentage of the total population of the Regional Unity	Density (inhabitants per sq. km)
Municipality of Neapolis-Sykies	84,500	8%	6,548.86
Municipality of PavlosMelas	98,870	9%	4,160.67
Municipality of Pilea-Hortiatis	70,210	6%	451.12
Municipality of Halkidona	33,560	3%	85.73
Municipality of Oreokastro	38,330	3%	175.94
Thessaloniki Regional Unity	1,104,460	100	299.90

The city is located in the western side of the Regional Unity of Thessaloniki, at the head of Thermaikos Gulf. It is built on the slopes of Kedrinos Hill surrounded to the north by the forest of Sheikh Sou. The coastline at the south as well as the existence of a mountainous bulk at the north, led to the inordinate growth of the urban sprawl (butterfly shape) at the eastern and western areas of the city (see Picture 5). Despite the fact that the population of the city is close to 1 million inhabitants, the width of the city centre is only 1.7 Km.



Picture 2: The butterfly shape of the urban sprawl of Thessaloniki

Thessaloniki wider area is articulated in three big sub areas:

- Thessaloniki metropolis: a cohesive department of the greater area that constitutes the backbone of the residential region
- The suburban area: an area that surrounds the cohesive department where various suburban settlements are established which are extensive except drawing residence, as well
- The remaining wider Thessaloniki area where, beside settlements and extended suburban residence, large cultivated agricultural territories are developed.

Considering the Metropolitan area one of the main characteristics of its spatial structure is the monocentric character, resulting from a big concentration and clustering of mainly commercial

enterprises in the city centre. However, during the last years a growth of central operations is observed also outside the Metropolitan area and the city of centre.

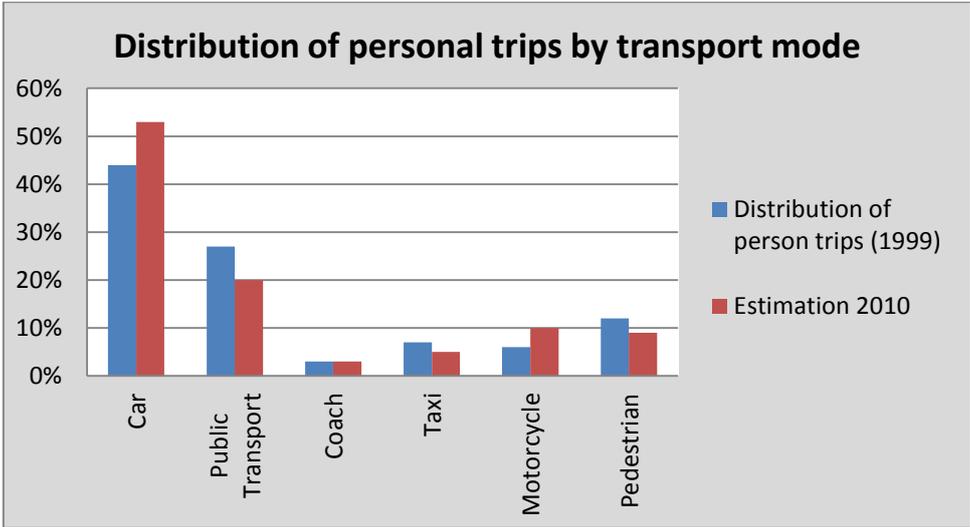
Mobility data

According to, the latest "General Study of Transport and Traffic for the Urban Area and the surroundings of Thessaloniki" (Ministry of Competitiveness, Infrastructure, Transport and Networks/ Organisation of Planning and Environmental Protection of Thessaloniki, Thessaloniki, 1999), nearly 25% out of 2.4 million motorized and non-motorized daily passenger travel have one or both ends of the journey to the city center. THEPTA conducted a Socio-Economic Study of the expansion of the Thessaloniki Metro to Kalamaria and the development of a Traffic Model (December 2011) where it was estimated that the car share reaches 55% in 2010 compared to 44% in 1999 (see Table 2).

Table 2: Distribution of personal trips by transport mode (1999 and the estimation of 2010)

Transport Mode	Distribution of person trips (1999)	Estimation 2010
Car	44%	52-58%
Public Transport	27%	18-21%
Coach	3%	2-4%
Taxi	7%	3-6%
Motorcycle	6%	6-10%
Pedestrian	12%	9-10%

Source: Socio-Economic Study of the expansion of the Thessaloniki Metro to Kalamaria and the development of a Traffic Model (December 2011)



Picture 3: Distribution of personal trips by transport mode (1999 and the estimation of 2010)
 Source: Socio-Economic Study of the expansion of the Thessaloniki Metro to Kalamaria and the development of a Traffic Model (December 2011)

According to the Socio-Economic Study of the expansion of the Thessaloniki Metro to Kalamaria and the development of a Traffic Model (December 2011) new updated transport data for the city of

Thessaloniki were estimated based on the General Study of Transport and Traffic for the Urban Area and the surroundings of Thessaloniki.1999.

The car ownership in the area of Thessaloniki is approximately 450 vehicles per 1.000 residents; approximately 400.000 private cars use the city network every day and 140.000 vehicles during peak hour. The above mobility figures have been reduced by at least 20% during the last 3 years of economic recession.

The mean speed per vehicle is 14 km/hour in the city center. The bus lanes are restricted in the Municipalities of Thessaloniki and Kalamaria. The average travel time for the journey of 8 to 4 km is about 30-45 minutes. During peak hours, the demand for public transport is very high while the capacity offered insufficient. The road network in the city centre is normally congested during morning and afternoon peak periods and as a result, delays are a common phenomenon for all vehicles directed to this specific area. Moreover, congestion creates all usual impacts such as environmental pollution, energy consumption and loss of quality of life. However, congestion phenomena are being reduced as a result of the economic crisis.

Roughly out of the total 2.4 million personal trips in Thessaloniki during a typical working day, approximately 450,000 boardings are made by public transport (18.8%). However, the actual number of users of public transport is estimated to be significantly higher due to the high ticket fraud.

Future modes of transport

The Public Transport system will be enhanced by an underground Metro system that has been under construction since 2006. The metro system will cost approximately 1 billion Euros and will be ready by 2018. The long construction period is mainly because of the many antiquities, which are being discovered during excavations. The first (main) Metro line - Phase 1 - is set to extend over 9.6 kilometers, includes 13 stations and it is expected to serve eventually 250.000 passengers per day. Kalamaria metro extension – Phase 2 - will operate almost simultaneously, having already secured funds and an estimated daily patronage of 60.000 passengers per day in 2016. Discussions are already underway for future extensions, in order for the metro network to also serve major transport generators and hubs of the city, notably the Macedonia Central Bus Station (intercity bus terminal) the Macedonia International Airport, major state hospitals etc. For the next programming period the priority that is set by the ATTIKO METRO S.A. company is the extension to Stavroupoli.

For many years is under consultation the design of marine urban transport. According to the latest actions a competition was held in February 2013 which concluded with the agreement between the Region of Central Macedonia, Municipalities of Thessaloniki, Thermaikos, Kalamaria and Egnatia Odos SA the latter to undertake the project: “Maritime urban transport of Thessaloniki- Studies Development - Issue Authorisation & Construction of Technical Infrastructure of Quay 5 - Stations”.

Finally, Thessaloniki Public Transport Authority in cooperation with AUTH investigates alternative scenarios constructing a tram system and the possible funding resources. The tram system is a measure that proposed to be implemented by the Sustainable Urban Mobility Plan for Thessaloniki metropolitan area, which has already been developed.

Municipality of Thessaloniki is investigating the feasibility of the construction of a funicular in Thessaloniki. Proposals for the horizontal and vertical alignment are under consideration with the Directorate of forests, of Byzantine Antiquities, the Public Transport Authority, etc. The funicular will connect the seaside of the city with the Upper Town (Old town) of the city and will terminate at the forest of the hill (Forest Theater).

The Vision

After the analysis of problems and the conclusion of the opportunities the Vision for the Metropolitan area is set, as follows:

“The metropolitan area of Thessaloniki deserves a modern and sustainable transport system that connects people to the city. The connection to the city is not limited to providing convenient, fast, secure and affordable travel, but extends to ensuring quality in natural, built and social environment. Urban transport is a product of collaboration between all stakeholders associated with the city towards a single system of urban and suburban transport & travel linking citizens and regions in ways that support the economy, environment and quality of life”.

Goal



The Thessaloniki SUMP is the first of its kind in Greece and it is based on the methodology proposed by ELTIS PLUS. Before setting the main goals, the analysis of current situation, the identification of the main stakeholders and the policy as well as political framework of a successful SUMP took place. ThePTA adapted to the particularities of the metropolitan area, the nature of the design and the characteristics of the stakeholders and users. The innovative framework of this SUMP is that it is elaborated in difficult times of crisis. In order to set the goal and objectives ThePTA requires active participation of all stakeholders, particularly local authorities and opinion makers. For this purpose the basic instrument of the SUMP elaboration is the Mobility Forum of Thessaloniki, which will be continued after the end of the ATTAC project as well.

The main challenges for Thessaloniki that should be determined in the SUMP are:

- Heavy dependence on private transport modes
- High congestion, mainly due to central area parking problems
- High levels of air & noise pollution
- Complex structure of decision-making jurisdiction and responsibilities in the domain of urban & transport planning (simultaneous involvement of national, regional & local authorities)
- Planning in a period of serious economic and social crisis.

Plans are being elaborated and discussed since the early 70s, without, however, robust and efficient processes that could lead to implementation. E.g. the Metro system is under construction for 14

years now and is being in a 10-year delay; the tram system is being discussed since the early 80s but no decisive study has been carried out to date.

Most of the effort of transport planning has been spent in road and traffic works.

A number of local authorities and other stakeholders (ThePTA, Institute for Mobility & Transport, Aristotle University) have been strongly involved in EC collaborative endeavours during the past 20 years.

The main objectives of the SUMP are:

- To limit or even ban the use of the car in the urban area and particularly in the city center
- Enhancing the use of public transport by creating new or utilizing existing infrastructure:
 - Fixed Track Public Transport modes
 - Urban Maritime Transport
 - Expansion of bus lanes and bus network redesign
 - Multimodal Interchange centers
 - Park & Ride
 - Establishing an integrated and Smart Electronic Fare Ticket Systems in Public Transport
 - Collaboration with other key stakeholders of the city to develop a system for urban mobility management and traffic control.
- To encourage the use of other environmentally friendly modes of transport (bicycle, pedestrian) through creation of appropriate infrastructure and measures taken
- Gradually change the mentality of moving in the city through various measures and campaigns
- To reduce or even zero greenhouse gas emissions for PT

At the institutional level:

- To clarify the roles and responsibilities of different stakeholders involved in urban mobility & transport planning & implementation
- To improve cooperation and coordination between the different stakeholders and to redefine their relationship with ThePTA
- To create a new, single urban mobility authority (embracing all modes) who will be responsible for all aspects of mobility & transport planning & management in the metropolitan area of Thessaloniki

Additionally, the Mobility Profile of Thessaloniki can be presented in the following SWOT Analysis:

Strengths	Weaknesses
<ul style="list-style-type: none"> ○ Availability of large scale plans ○ Availability of human resources ○ Interdisciplinary approach (education) ○ Maturity of viable projects (Metro) ○ Fuel prices and development trends 	<ul style="list-style-type: none"> ● Strong position of roads and cars ● Lack of knowledge managing in larger scales ● Incomplete reporting of management interventions ● Institutional framework of project developments (long periods) ● Not clear responsibilities among partners
Opportunities	Threats
<ul style="list-style-type: none"> <input type="checkbox"/> Favorable social climate for sustainable mobility <input type="checkbox"/> Create a metropolitan mobility body <input type="checkbox"/> Increased private sector participation (in collaboration with the public sector) <input type="checkbox"/> Favorable legal and institutional framework for the implementation 	<ul style="list-style-type: none"> ■ Development (economic and social) ■ Uncertain political developments ■ Unemployment

The concentration with all levels of stakeholders (local authorities, regional government, national authorities, and user representatives, scientific & technical institutions) focused on ensuring that all options proposed are sustainable from the economic, social and environmental viewpoints. More precisely:

[Economic] All measures proposed are economically feasible and viable; the share of public financing is ensured by including the measures in the 2014-2020 Partnership Agreement (P.A.), while the private domain share is ensured by proposing only measures that have been approved by the private sector representatives and are financially attractive and viable

[Social] All measures proposed aim at enhancing social cohesion, which is currently in serious turbulence; their social acceptance is sought for through the extensive and systematic concentration with user representatives, local authorities, scientific & technical institutions and foremost opinion leaders) together with extensive media coverage.

[Environmental] All measures aim at reducing private motorised traffic and mobility; national legislation imposes a positive carbon footprint to all projects candidate for the 2014-2020 P.A.

Stakeholder involvement

The SUMP elaborated by ThePTA involves the municipalities of the metropolitan area of Thessaloniki and the following organizations:

- Technical Chamber of Commerce
- Hellenic Institute of Transportation Engineers
- Association Rights of the Pedestrians
- Greek Passenger Federation
- ATTIKO METRO S.A.
- ECOCITY – ECOMOBILITY
- Cyclist Association
- Aristotle University of Thessaloniki
- Organization of Public Transport of Thessaloniki
- Metropolitan Authority of Thessaloniki
- Region of Central Macedonia
- Ministry of Transport
- Ministry of Macedonia and Thrace
- The Thessaloniki Traffic Police
- Organization of Planning and Environmental Protection of Thessaloniki (OR.TH.).

The basic principle of a successful SUMP is the commitment of all stakeholders involved in the planning to implement the portion attributable to each one according to his powers and to take all those provisions that will be required for the smooth progress of the project.

The following declaration will be signed among the stakeholders after the end of the ATTAC project:

“We the actors, of each level (government and local authorities) related to transport, traffic and mobility in general are committed to act collectively in the next decade and in constant consultation with the citizens and the economic and social partners who are active in Thessaloniki that mobility in the metropolitan area will:

- (A) be conducted in a manner friendly to the users and the environment*
- (B) help in the best way possible for a balanced development of the city and its suburbs,*
- (C) support the local economy with maximum economic efficiency,*
- (D) strengthen social cohesion and*
- (E) enhance the competitiveness of the metropolitan area of Thessaloniki in the European and global environment.*

To achieve the above objectives the Sustainable Urban Mobility Plan of Public Transport for the metropolitan area of Thessaloniki will be elaborated. The Sustainable Urban Mobility Plan for the metropolitan area of Thessaloniki is a commitment of all stakeholders”.

During the project, the stakeholders involved through the Mobility Forums. The Mobility Forum is a body that is created in order to discuss the mobility matters of the Metropolitan area of Thessaloniki. This Forum is developed for the purposes of the ATTAC project. However, this body will be continued as a consultant body in the Thessaloniki Public Transport Authority in cooperation with the board of ThePTA and after the end of ATTAC project. During the last MF meeting (October 2013), it has been decided that the MF will continue its operation during the implementation process of all the measures proposed, acting as the official 'SUMP Parliament'. In addition, a dedicated SUMP Unit is already created within ThePTA. Its role is to monitor the implementation process as well as to provide guidance and assistance to the 9 local authorities that will prepare their operational local SUMP's right after the final adoption of the current strategic SUMP (expected by December 2013).

The Mobility Forums took place as follows:

- 1st Mobility Forum, on Wednesday, 30 November 2011 at 11:30 at ThePTA premises
- 2nd Mobility Forum, on Tuesday 2012 at 10:30 at the Municipall Hall of Thessaloniki
- 3rd Mobility Forum, on Monday, 26 November 2012 at 18:30 at Hotel Nikopolis in Pylaia Thessalonikis
- 4th Mobility Forum, on Wednesday, 15 May 2013 at 18:30 at Cultural Center in Thermi Thessalonikis
- 5th Mobility Forum, on Wednesday, 2 October 2013 at 18:30 at the Ministry of Macedonia and Thrace
- 6th Mobility Forum, on 20 November 2013.

See Annex 1 for the Mobility Forum Reports.

The stakeholders participated in two consultation process, one regarding the SUMP and the other one the pilot regarding the Investigation of the Integrated and Smart Card Fare Collection System.

Additionally, the general public was informed about the activities of the ATTAC project and especially of the SUMP in the two European Mobility Week Campaigns of 2012 and 2013.

See Annex 2 for the EMW Reports.

Furthermore, the SUMP and some more mature measures of it are presented to many events in Thessaloniki Region and in some international ones such as the TRA 2012 and the International Congress of Transport Research. This effort will be continued with the participation in POLIS Conference and in TRA 2014 Conference.

Finally, the main conflict within the planning process is the non clear image of the responsibilities among stakeholders. The Mobility Forum tries to overcome this conflict. Additionally, the Mobility Forum discusses matters of financing and promotes the best options to the policy makers. As far as the land uses is concerned the Spatial and Urban Plans of the Municipalities clearly identify the land uses. The SUMP Quality Assessment Unit should take these plans into consideration and merge them with the SUMP. This Unit will act as consultant to the Municipalities in order to create their own local SUMPs.

Tools and strategies

The main tool that is used for the elaboration of the SUMP is the methodology that proposed by the ELTIS PLUS project.

The benefits of a **Sustainable Urban Mobility Plan** are

- **Improved image of a city** of being innovative and forward-looking.
- **Improved mobility and accessibility** focused on the people.
- Potential to reach more people and better respond to the needs of different user groups.
- **A better quality of life** for the people.
- **Environmental and health benefits** (working towards air quality improvements, noise reductions and climate change mitigation leads to positive health effects)
- **Citizen- & stakeholder supported decisions**, measures can obtain a significant level of “public legitimacy”. (Mobility Forum)
- Effective fulfillment of legal obligations.
- More competitive cities and **access to funding**.
- New political vision, integration potential.

The Characteristics of a sustainable urban mobility planning are:

- Active **involvement** of all stakeholders and the engagement of citizens
- Commitment to **sustainability**, i.e. balancing social equity, environmental quality and economic development
- Focus on achieving ambitious, measurable **targets**
- Targeting **cost internalisation** i.e. reviewing transport costs and benefits for society
- Including all steps of the **life cycle** of policy making and implementation.

A full SUMP cycle includes four main phases:

1. Preparing well for the planning process
2. Rational and transparent goal setting
3. Elaborating the plan
4. Implementing the plan

Totally, the methodology includes 11 main steps and 32 detailing specific tasks.

Through this process, ThePTA proposes some enhancements in order to improve the methodology, as follows:

- Inclusion of travel behavior research and potential user response analyses for new systems and measures
- Integrating pricing & financing measures (inc. urban road pricing/congestion charging and hypothecation of revenues for sustainable mobility / PT investments)
- Planning for visitors / tourism destinations, for sustainable mobility of tourists, particularly at peak demand resorts, including accessibility to destinations by sustainable transport modes.

Examples:

- Changes in travel behaviour from Sustainable Mobility effective measures
- Integrated pricing measures (eg road use charging, urban road pricing) and use of revenues to cross-finance Sustainable Mobility solutions (eg Public Transport investments)
- Planning for tourist demand and visitors in destinations (special SUMP for visitor mobility)

Further recommendations:

- Addition of institutional structure assessment and proposals for better coordination and integration of modes, avoidance of overlaps of responsibility, promotion of Integrated Transport Authority for all modes (PT and Road Traffic management/control)
- Addition of Campaigns for Marketing sustainable modes (PT, Cycling) including Awareness raising events and marketing research.

As far as the pilot of Thessaloniki is concerned, it is tested the “Investigation of Integrated ticketing and smart card fare collection system, with a special view to passenger behavior and financial implications” in the region unity of Thessaloniki. The main tool in this process is the consultation with the main stakeholders that deal with these issues.

See Annex 3 for the Case Study Report.

SMART targets and packages of measures

Expected results (S.M.A.R.T. objectives):

- GROWTH OF Public Transport
 - Total PT ridership +15% by 2016, +50% by 2020
 - Average PT occupancy +10% by 2016, +25% by 2020
 - Average PT commercial speed +10% by 2016, +25% by 2020
- DECREASE OF CAR FLOWS (IN CENTRAL AREA)
 - Off-street parking supply -10% by 2016, -30% by 2020
 - On-street parking supply -15% by 2016, -30% by 2020
- GROWTH OF ACTIVE TRANSPORT (in CENTRAL AREA)
 - Walking share in modal split +10% by 2016, +25% by 2020
 - Cycling share in modal split +10% by 2016, +15% by 2020
- POLLUTION ABATEMENT
 - Decrease of pollutant emissions already measured in the area (SO₂, O₃, CO, NO₂, PM₁₀) -10% by 2016, -25% by 2020

In order to develop the packages of Measures, three plus one scenarios developed in order to determine the future of Thessaloniki in mobility matters:

- Scenario 0. Do Nothing

- Scenario 1. Business As Usual, Do Minimum
- Scenario 2. Intermediate Development of Public Transport
- Scenario 3. Drastically Development of Public Transport (UITP Target PTx2 until 2025).

The scenarios are as follows:

Scenario 0: Do Nothing

Extending of the current crisis after 2015

- Public investments freeze with main victim the Metro and Tram.
- The fleet of PT remains unchanged resulting in aging vehicles and infrastructure
- Low-level services provided to users. Growing numbers of citizens are economically unable to use the car
- Dramatically reduction of the number and the length of trips due to increased fuel costs.
- The Car fleet renewal rate decreases dramatically, resulting in the continuous aging of the fleet and the obvious environmental consequences.
- Dramatic shift of trip modes toward walking, bicycle and small motorcycles.
- The car sharing movement gets strengthened.

Typical values of mode share:

Mode	Car & Taxi	PT	Motorcycle	Bicycle	Walking
2008	61%	24%	10%	1%	4%
2015	55%	20%	10%	5%	10%
2020	45%	15%	15%	10%	15%

Scenario 1: Business As Usual, Do Minimum

Relative economic recovery in 2015:

- Revival of Public Investments resulting in developing the metro and a tram line.
- The bus fleet gets modernized slowly but steadily (fleet renewal)
- The bicycle has many users resulting in the introduction of collective Public bicycles.
- Many trips in the city center are done by foot due to the urban regeneration.
- The role of the car decreases, but still remains the dominant mode of transport for the majority of trips. Due to the increased fuel prices the average length of travel reduces.

The attempt of organizations to raise user awareness on sustainable mobility delivers limited success because people are either confused or in search of work and social recovery.

Typical values of mode share:

Mode	Car & Taxi	PT	Motorcycle	Bicycle	Walking
2008	61%	24%	10%	1%	4%
2015	53%	27%	10%	5%	5%
2020	40%	35%	10%	10%	5%

Scenario 2: Intermediate Development of Public Transport

This scenario corresponds to a combination of (a) the Thessaloniki Master Plan and (b) the estimates of the Attiko Metro for the mobility of the city, but its adapted to the specific characteristics of the current economic and social crisis. More specifically:

- The already approved transport infrastructures get implemented (metro, tram, roads, parking)
- Large-scale urban regeneration projects get implemented.
- The bus system gets modernized to a large extent (green vehicles, electronic ticketing).
- The response of the users is significant and there is a high degree of PT occupancy.

Overall, the results are in favor for the sustainability of the transport system, but there are significant geographical variations. The central region is significantly uncongested due to the high cost of Car travel. Many journeys are made by foot through the regenerated urban areas or by bicycle, mainly because of the introduction of the collective Public bicycle system.

Typical values of mode share:

Mode	Car & Taxi	PT	Motorcycle	Bicycle	Walking
2008	61%	24%	10%	1%	4%
2015	53%	27%	10%	5%	5%
2020	40%	35%	10%	10%	5%

Scenario 3: Drastically Development of Public Transport (UITP, PTx2 2025)

This scenario is more favorable to sustainable mobility in all aspects. Essentially it's a variant of Scenario 2 with additional attributes toward successful sustainable mobility policies continuously implemented between 2012 and 2020:

- Awareness campaigns towards sustainable mobility,
- Incentives of any kind towards sustainable mobility. eg favorable transport pricing for businesses, for families or for important events and exhibitions etc.
- Combined fare policies.
- Transit-orientated development.
- Car-free zone development.

The major qualitative differences between Scenario 2 and 3 are that the geographic distribution of the benefits is relatively uniform throughout the metropolitan area (central and peripheral regions).

Typical values of mode share:

Mode	Car & Taxi	PT	Motorcycle	Bicycle	Walking
2008	61%	24%	10%	1%	4%
2015	51%	29%	8%	7%	5%
2020	35%	45%	5%	10%	5%

The packages of measures related to the developed scenarios according to the scale of activities that should be implemented in order to develop each measure.

The Thessaloniki SUMP proposes 12 measure packages, as follows:

1. Integrated and Smart Electronic Fare Ticket Systems in Public Transport and parking fees
2. Bus Rapid Transit, bus priority at traffic lights
3. Information and Awareness campaigns (with and for citizens) to discourage the use of private car and promote the use of Public Transport
4. Promotion of TRAM system, complementary to the Metro, with new ways of financing, restructuring of current bus routes and accompanying urban regeneration facilities
5. Intermodality between Metro-Tram-Bus through the creation of appropriate interchanges and restructuring of bus stops
6. Maritime Public Transport System in the Thermaikos Gulf
7. Flexible Transit Systems in peri-urban areas
8. Integrated Parking Policy (Park and Ride, controlled parking system)
9. Pedestrian facilities and public space restructuring
10. Bike lanes
11. Bike Sharing System
12. Congestion charging and access control.

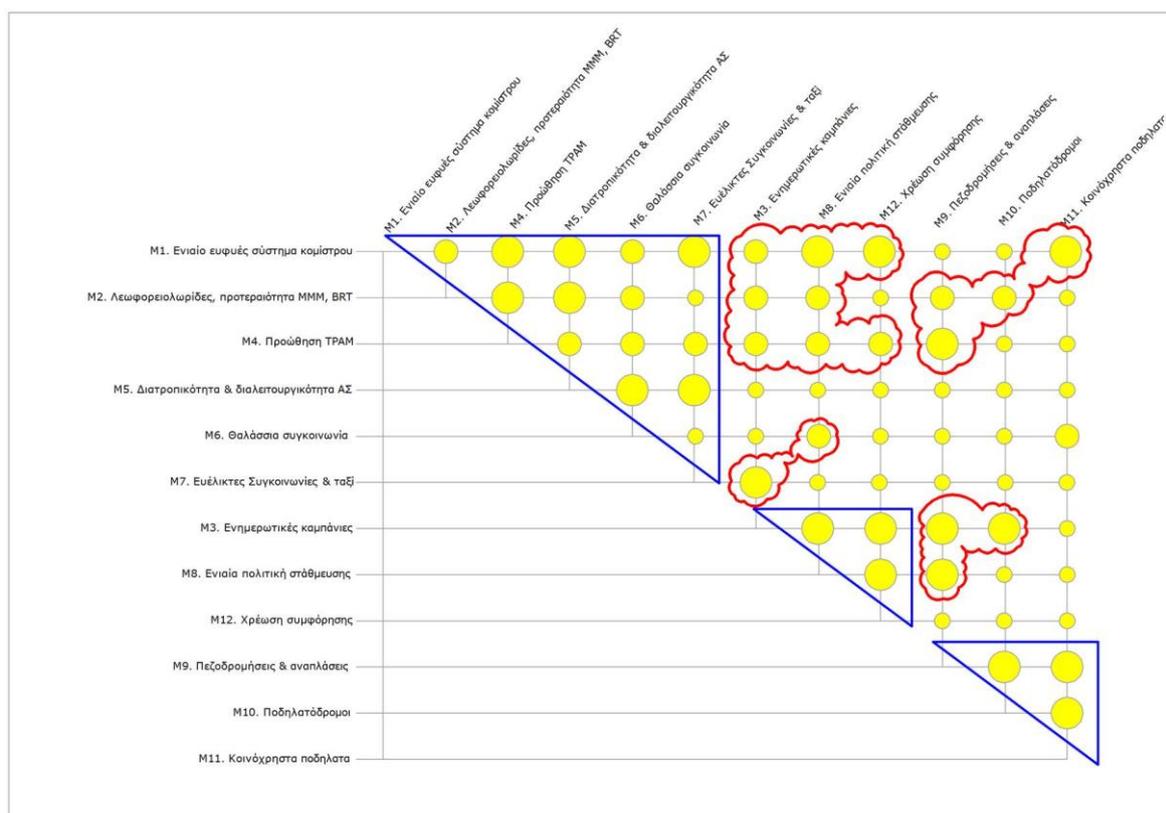
Measures 4, 5, 6, 7 & 8 relate with urban development and re-generation.

Measures 1 to 12 relate with energy savings and environmental protection

Measures 1 to 12 relate with social cohesion

Measures 4, 5, 6, 9, 10 & 11 relate to health

In the following diagram it is presented the synergies among the measures and the packages of measures that created.



Action investment plan

1. Integrated and Smart Electronic Fare Ticket Systems in Public Transport and parking fees

The electronic ticket or otherwise Integrated and Smart Electronic Fare Ticket System will eventually replace the paper ticket and season tickets offering numerous advantages for users.

Advantages

- Easy card use, ability to use mobile phone
- Optimized fare charge, depending on use of PT
- Increased theft – Counterfeiting security
- PT network optimization and thus better user service
- Possibility for integrated use eg. Museums, parking, taxis, bicycles
- Reduced costs for the user and the PT operator
- Enhance attractiveness of public transport and improving environmental impact.



International Experience

- Oyster Card by Transport of London
- Kentkart by Turkey
- VDV – Kernapplikation by Germany.

2. Bus Rapid Transit, bus priority at traffic lights



Five new bus lanes are already in an advanced stage of implementation. The measure should be expanded geographically and upgraded functionally.

- The geographical expansion means the creation of bus lanes on all main roads which are logs of network bus lines.
- The functional upgrade means adapting the traffic lights to give priority to oncoming buses.

The BRT dedicated lanes marked PT completely separated from other traffic and with absolute priority to it, stops high standards for reducing delays, very frequent buses and large capacity and multi-port for fast boarding - disembark.

Advantages

- Improving the image of Public Transport
- Significant switch of mode choice by the users from car to PT
- Improving the environmental impacts of PT.

International Experience

- MetroBus system in Istanbul
- BRT system in Nantes France
- BRT in Santiago Chile.

3. Information and Awareness campaigns (with and for citizens) to discourage the use of private car and promote the use of Public Transport

Along with what is being done to achieve **sustainable mobility**, it is necessary to inform and raise the awareness of public for the serious problems caused by intensive and often reckless use of the Car for any kind of movement, especially when they are effective alternatives offered that are cheaper, healthier, socially & environmentally friendly and ultimately more useful even at the individual level.

Advantages

- Low cost relative to the effectiveness of the measure
- Appropriate action in the current economic crisis
- Can have significant favorable effects such as more collective Bus use.

International Experience: Many governments and local authorities around the world use Information and Awareness campaigns as a key tool for sustainable mobility in cities. Although the effect of the measure cannot be isolated from the rest of the measures taken, the wide use is a reasonable evidence of efficacy.

4. Promotion of TRAM system, complementary to the Metro, with new ways of financing, restructuring of current bus routes and accompanying urban regeneration facilities

During the last decade, a momentum for restoring the **Tram in Thessaloniki** has been noted. The tram will be complement by a feeder bus network and feed respectively the metro line creating a multilayered network of public transport in the city. The Tram can be seen as a natural evolution of the BRT bus lanes when they arrive at their capacity limits.

Development stage: Through the EU project **Ecotale** ThePTA investigates the **technical and economic feasibility of constructing a modern tram line.**



Advantages

- Ensuring high network capacity of the public transport
- Improving the image of public transport and the city
- Urban regeneration
- Direct integration to an electronic ticket system.

International Experience

- Athens tram
- Paris tram
- Vienna tram.

5. Intermodality between Metro-Tram-Bus through the creation of appropriate interchanges and restructuring of bus stops

The relatively limited network of fixed track provided in relation to the size and the transportation needs of the city dictates the need to develop '**intermodal transport**', namely users changing from Metro / Tram / BRT to other public or non means of transport, including buses, trams, suburban rail, Private cars, motorbikes or bicycles.



Advantages

- Providing transit capabilities to large numbers of passengers in a timely manner
- Improving the image of public transport
- Urban regeneration
- Reduce air and noise pollution.

International Experience

- Athens Metro Transfer Station
- Transfer Station Berlin
- Transfer Station Transport for London.

6. Maritime Public Transport System in the Thermaikos Gulf



The main idea of the new effort to operate an **Urban Maritime Transport (UMT)** is to startup the earliest possible and with the lowest possible cost of initial investment. Consequently, at the main route it's taken care of to use, to the maximum extent possible, the existing port infrastructure at

each stop, but also as far as possible to reduce the required authorizations.

Development stage: In July 2011 finished the **investigation of the feasibility and viability of the operation of the urban maritime transport between the center of Thessaloniki and the Municipality of Thermaikos**. In January 2012 completed the **Architectural Competition for the urban maritime transport of Thessaloniki**. In August 2013 approved the funds for the final studies of the UMT.

Advantages

- Improving the image of public transport and the city
- The UMT contributes to tourism development, and opened the city to the sea
- Reduce air and noise pollution.

International Experience

- Urban maritime transport Sydney
- Urban maritime transport Boston
- Urban maritime transport Istanbul.

7. Flexible Transit Systems in peri-urban areas



The **Flexible Transport Systems (FTS)** offer services complementary to conventional urban transport and PT. They are among the more flexible but more expensive taxi services and less flexible classic services of buses and other public transport.

Development stage: Especially for the Prefecture of Thessaloniki and Lagkadas AUTH has developed a feasibility study within the **project FLIPPER / INTERREG IVC Programme**. This study

has been provided to ThePTA and it is proposed to be implemented under this SUMP.

Advantages

- Restricting the movement by car
- Overall increase of cities accessibility.
- Sustainable development of suburban areas
- Improving social cohesion in disadvantaged areas through the provision of transport services.
- Eliminate the marginalization and exclusion of the transportation of sensitive / vulnerable groups (women, children - students, people with disabilities), which is not adequately served by existing public transportation.
- Ability to rationalize the cost of providing transport services under certain conditions.

8. Integrated Parking Policy (Park and Ride, controlled parking system)

Parking in Thessaloniki (center and periphery) is currently perhaps **the most important transportation problem** when determining the level of accessibility of each region by Car. Emphasis on PT makes a mature implementation of a **parking policy** that restricts access by car and enhances the access with PT and sustainable modes of travel (walking, cycling, etc). This policy must be unique and versatile.



The **creation of parking areas** should be focused on the main **perimeter of the city and close to major public transport stops** so that users (employees, visitors) park their vehicle and transfer to public means, bicycles or other for continuing their travel.

Advantages

- Discouraging the use of private vehicles, mostly from workers
- Increased use of public transport, cycling or walking
- Protection of sensitive areas (historic city center) from Car
- Reduce air and noise pollution
- Improve the image of the city, urban regeneration
- Traffic congestion and improve road safety.

International Experience

Similar policies have been applied with great success in most European cities. We could highlight here the operation of the parking policy scheme in the center of Athens (11/2006) which had a very positive impact on both residents and visitors.

9. Pedestrian facilities and public space restructuring

The **public space**, which is nowadays occupied by thousands of cars moving or parked (often illegally), must be **rearranged oriented to the actual final beneficiaries, namely pedestrian citizens**. Features models are the recent architectural competitions for the Hagia Sophia street and the Balkaniki Square.

Streets, sidewalks and squares must have sufficient space for the safe and convenient movement of pedestrians, along with reduction of the space occupied by the car as it emerged from the jumps towards PT pursued with other measures proposed.

Advantages

- Discouraging the use of private vehicles and increase the use of public transport, bicycle or pedestrian movement
- Reduce air and noise pollution
- Improving the city's image and enhancing historical or sensitive areas.

International Experience

Recent successful interventions in Greece are pedestrian areas in Athens and the regeneration of the center of Larissa etc.

10. Bike lanes



The existing bike lane network is limited to a small area of the city center of Thessaloniki and **must be gradually extended to districts and municipalities of the metropolitan area**, connecting the respective centers and main attraction at metropolitan, municipal and district level. Note that the bike lanes are financed primarily by the current NSRF.

The success of cycling depends on the intensity of the behavioral change of using motorized vehicles (cars and taxis) towards the bicycle. The current economic climate favors this jump, both on an occasional basis (only perform specific movements) and permanently (abandonment of Car).

Advantages

- Significant reduction in the use of car
- Improving the quality of city

- Overall improvement of road safety.

International Experience

Cycle lanes get implemented consistently in many cities of the world. In some cases, the figures are impressive: Munich - 700 km total network length, Graz - 220 km, Zurich - 250 km, Leicester - 100 miles, etc. In Greece, the implementation of the measure began in 2007, and in several municipalities is now a key priority of urban design.

11. Bike Sharing System



The creation of an extensive network of bicycle lanes - paths favors the **introduction of a Public Bike Sharing System**, since it enhances the feeling of security, comfort and guidance of potential users. The BSS **addressed to all users of the city** (residents-workers and visiting tourists) **and for any purpose of travel**. It is implemented by local authorities in partnership with companies that provide associated services currently operating in Greece. **The user receives and returns the bike to any of the many stations located in the urban fabric.**

Advantages

- Significant reduction in the use of car
- Improving the quality of city
- Improving public health
- Optimization of urban space: 5 BSS parking spaces (15-25 users / day) are equivalent and can replace 1 car parking space (3-6 users / day).

International Experience

BS Systems in metropolitan areas are currently operate in the largest and most interesting cities in Europe and the world, such as Paris, Barcelona, Lyon, London, etc. with great success. Eg system Velib 'in Paris (22,000 bikes) served 80,000,000 movements in 3 years, while in Montreal Bixi system operation resulted in saving 1,400,000 pounds of pollutants from its inception in 2009.

12. Congestion charging and access control.



The congestion charge is a measure, in addition to its significant contribution to the normalization of car flow on the roads, that contributes significantly to the financing of environmentally and socially acceptable means of transport from the disturbing ones if the revenues from charging the cars entering in to environmentally sensitive geographical zones (eg the city center of Thessaloniki, etc.) are getting placed on the implementation of interventions in favor towards public transport, pedestrians and bicycles. For example, the system could finance a significant part of implementation cost of the tram system.

Advantages

- Significant reduction in the use of car
- Financing options for sustainable mobility
- Integrating into the electronic fare system
- Significant environmental improvement with low implementation cost.

International Experience

Congestion Charging in Central London: Reduction by 30% of entrants by Car in to the city center while increasing the use of public transport, taxis and bicycles.

Congestion charge in the center of Milan: Reduce by 33% (700,000) of the incoming cars into the city center and overall reduction of 7% around the city of Milan.

Agree on clear responsibilities and allocate funding

<i>MEASURE</i>	<i>AUTHORITIES</i>	<i>RESPONSIBILITIES</i>
1. Integrated and Smart Electronic Fare Ticket System	ThePTA	Study
	OASTH	Tender + Implementation
2.1. Bus Lanes	ThePTA	Planning
	Metropolitan Authority or/and Local authorities	Studies+ Authorization for use of roads
2.2. Priority at traffic lights	ThePTA	Planning
	Metropolitan Authority	Study+Approval+Implementation
	OASTH	Implementation (Buses)
2.3. Bus Rapid Transit (BRT)	ThePTA	Planning
	Metropolitan Authority or/and Local authorities	Studies+ Authorization for use of roads+ implementation
	OASTH	Implementation
3. Information and Awareness campaigns towards the limitation of car usage and the promotion of Public Transport	ThePTA	Planning+ Implementation
	Metropolitan Authority	Participation+ Implementation
	Organization of Planning and Environmental Protection of Thessaloniki (OR.TH.).	Participation
	Municipalities	Participation+ Implementation
4. TRAM system	ThePTA	Planning
	OR.TH.	Approval
	Metropolitan Authority, Local Authorities, Ministry, ATTIKO METRO	Studies, Project Management, Financing
5.1. Interface between Metro/Tram/Bus with the creation of appropriate spaces for interchanges	ThePTA	Planning
	ATTIKO METRO S.A.	Studies + Implementation (Transit Stations)
	Local Authorities	Studies + Implementation
	OASTH	Implementation
5.2. Restructuring of bus stops	ThePTA	Planning
	OASTH	Approval and Implementation

MEASURE	AUTHORITIES	RESPONSIBILITIES
6. Maritime Public Transport System	ThePTA	Planning
	Company of Management implementation, Ministry, Local Authorities, Port Authority. EGNATIA ODOS S.A.	Studies and Management of Implementation
7. Flexible Transport Systems (FTS)	ThePTA	Planning and Studies
	Municipalities	Studies, Implementation
	OASTH or KTEL	Implementation (depending on the responsible authority (local authorities, OASTH, KTEL))
8.1. P+R	ThePTA or /and Local Authorities	Studies, Project Management
	ATTIKO METRO S.A.	Studies, Implementation
	Private bodies	Implementation
8.2. Limitation of roadside parking	Municipalities	Studies + Implementation
8.3. Controlled parking system	Municipalities	Studies + Implementation
	Private bodies	Studies + Management
9. Pedestrian facilities and public space regeneration	OR.TH. + Municipalities	Planning + Studies
	Municipalities	Studies + Implementation
10. Bike lanes	Municipalities	Studies + Implementation
11. Bike Sharing System	ThePTA	Planning
	Private bodies	Implementation
12. Congestion charging and access control	Metropolitan Authority + Municipality of Thessaloniki	Study + Management

Implementation timeplan

Measure	Procedure	Start Time	Duration (months)
1. Integrated and Smart Electronic Fare Ticket System	Study	2013	4-8
	Implementation	2014	8-12
2.1. Bus Lanes	Planning	2014	4-6
	Studies	2014	4-6
	Implementation	2015	4-6
2.2. Priority at traffic lights	Planning	2014	2-3
	Studies	2014	4-8
	Implementation	2015	4-8
2.3. Bus Rapid Transit (BRT)	Planning	2015	4-6
	Studies	2015/2016	8-12
	Implementation	2016/2017	8-16
3. Information and Awareness campaigns towards the use of Public Transport Systems	Planning + Implementation	2013	Ongoing
4. TRAM system	Planning	2013	4-8
	Studies	2014	12-18
	Implementation	2015/2016	32-36
5.1. Interface between Metro/Tram/Bus with	Planning	2014	4-6

the creation of appropriate spaces for interchanges	Studies	2014	8-12
	Implementation	2015/2016	12-24
5.2. Restructuring of bus stops	Planning + Studies	2014	4-8
	Implementation	Depending on the new transit systems	
6. Maritime Public Transport System	Planning + Studies	2013	
	Implementation	2014	12-18
7. Flexible Transport Systems (FTS)	Planning + Studies	2014	8-16
	Implementation	2015	4-12
8.1. Interchanges Stations	Planning	2014	4-8
	Studies	2014	8-16
	Implementation	2015	12-18
8.2. Limitation of roadside parking	Studies	2014	4-8
	Implementation	2015	4-8
8.3. Controlled parking system	Planning + Studies	2014	8-12
	Implementation+Management	2015	4-8
9. Pedestrian facilities and public space regeneration	Planning	2014	4-8
	Studies	2014	8-16
	Implementation	2014	4-24
10. Bike lanes	Planning	2014	4-8
	Studies	2014	8-12
	Implementation	2014	4-24
11. Bike Sharing System	Planning	2013	6-8
	Implementation	2014	4-8
12. Congestion charging and access control	Study	2015/2016	12-24
	Implementation	2017/2018	12-18

Implementing the plan

ThePTA prepares the Strategic Sustainable Urban Mobility Plan for the whole metropolitan area of Thessaloniki. The implementation of this SUMP is under the responsibility of the Municipalities of Thessaloniki. ThePTA has established a Quality Assessment Unit within the organisation, the main aims of which are (i) to assess the quality of public transport services through awareness-raising campaigns and user surveys at regular intervals, and (ii) to follow-up the implementation of the measures proposed within the SUMP. ThePTA will support and consult the Municipalities to implement their local SUMPs.

Conclusions

The current SUMP corresponds to the strategic level of the mobility & transport planning for the metropolitan area. Based on the 12 measures adopted, the 9 Municipalities are committed to prepare their local operational SUMP's to cope with the local level measures, e.g. local pedestrian facilities, local bike routes, local urban re-generation a.s.o.

The concentration with all levels of stakeholders (local authorities, regional government, national authorities, user representatives, scientific & technical institutions) focused on ensuring that all options proposed are sustainable from the economic, social and environmental viewpoints. More precisely:

[Economic] All measures proposed are economically feasible and viable; the share of public financing is ensured by including the measures in the 2014-2020 Partnership Agreement (P.A.), while the private domain share is ensured by proposing only measures that have been approved by the private sector representatives and are financially attractive and viable

[Social] All measures proposed aim at enhancing social cohesion, which is currently in serious turbulence; their social acceptance is sought for through the extensive and systematic concentration with user representatives, local authorities, scientific & technical institutions and foremost opinion leaders) together with extensive media coverage.

[Environmental] All measures aim at reducing private motorised traffic and mobility; national legislation imposes a positive carbon footprint to all projects candidate for the 2014-2020 P.A.

For the above, it is clear that the benefits of this SUMP are very important for Thessaloniki. The Quality Assessment Unit within the organization will be responsible for the update of the SUMP.

ANNEX 1: Mobility Forum Reports

ANNEX 2: EMW Reports

ANNEX 3: Case Study Report