

Mobility Management: Sustainability Option for Sofia's Urban Transport Policy?

Learning from the experience of Lund and exploring its transferability to Sofia

Dragomira Raeva

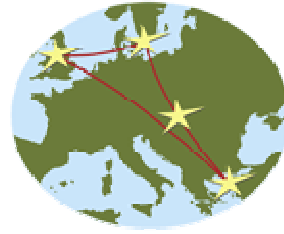
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Abstract

This paper addresses the problem of urban transport management in Sofia – the capital city of Bulgaria. It highlights the tensions and contradictions in the current policy and practice and suggests that the adoption of mobility management in policy making would elevate municipal capacity to deal with complex transport-environment conflicts and set the framework for a sustainable development of the transport system. To support the claim, the successful mobility management practice of the city of Lund (Sweden) is studied.

The paper examines EU policies and initiatives on advancing the notion and employment of mobility management on a general level, and analyses how Lund and Sofia develop the idea and practice of sustainable transport on a local such. By focusing both on the socio-institutional dimension of the policy making and the sustainability assessment of the management plans, the analyses explicate the different ways in which the urban transport problems are framed and institutional relationships are (re)constituted, the differing approaches to the institutionalisation of the problems, and the different socio-technical logics of transport management embodied in the plans. From the analyses the lessons of success from Lund and the limiting factors for Sofia's sustainable transport development are outlined.

A key finding is that there is a pressing need for an intervention in the urban transport management in Sofia oriented towards a state of transport demand management. In relation to this, major improvements and reforms are needed in the organisation and functioning of the socio-institutional components in the policy field, as well as a design of a specialised sustainable urban transport plan.

The conclusion drawn is that mobility management can assist the transformation from the asphalt regime to sustainability by providing solutions for the organisation and management of the planning process and strategies to be adopted and implemented through a sustainable urban transport plan for Sofia.

Executive Summary

Introduction

Transportation issues are critically embedded in everyday life. In many European nations in recent times, land-use trends alongside the opportunities offered by past road construction efforts and the mass availability of private cars have led to the breaking of traditional relationships between home, work, leisure and the environment. The consequent changing geographies and sociologies of mobility are two-fold: first, *increasing demand for travelling throughout Europe*, particularly by car; second, the *knock-on consequences of increasing travel demand on cities, local environments, social networks and ecological conditions*. As overall *traffic volumes in urban areas around the EU are expected to continue growing* it is a major challenge for future urban transport systems to meet the demand for accessibility for people, while minimising the impact on the environment. The situation is particularly worrying in the New Member States (NMS) where public transport, which enjoyed a high share at the beginning of the 1990s compared to EU-15, is now in progressive downfall, while the share of road (under 50% at the beginning of the 1990s) caught up with Western European levels in 2003. Moreover, nowadays the modal split in urban transport across the EU does not show much difference and it is projected that in time road transport volumes in the NMS will increase up to levels close to those in EU-15. These worrying statistics point to the need of targeted actions towards offsetting the current trends in road and car transport in the NMS and their urban regions.

Current knowledge used in solving the urban transport problem

In recent years mobility management (MM) has gained importance in European metropolitan areas as a way of addressing the complex urban transport problems and improving the effectiveness of traffic systems management measures. It is a demand oriented approach to passenger and freight transport and involves new partnerships and set of tools to support and encourage changes in attitude and behaviour in favour of both more sustainable modes of transport and alternatives to travel. A central idea in the development of the MM practice is the integrated approach to transport planning and policy making with emphases on accessibility alongside mobility and on the potential of soft measures to enhance the effectiveness of hard measures. There are many possible MM strategies with a variety of impacts. Some improve transportation diversity. Others provide incentives for users to change the frequency, mode, destinations, route or timing of their travel. Some reduce the need for physical travel through mobility substitutes or more efficient land use. Some involve policy reforms to correct current distortions in transportation planning practices. Numerous examples of successful use of MM in urban transport management from cities mostly from the EU-15 already exist (e.g. London, Berlin, Vienna, Stockholm, etc.). Lund in particular is among the forerunners in employing the tools of MM which has already given many positive results. These efforts on the local level have also been backed up by the EC through many initiatives to optimise the urban transport systems and create cooperations between cities (e.g. CIVITAS, ELTIS, SMILE), and by an ongoing policy work on a Green Paper on Urban Transport, expected to result in a corresponding EU Directive.

Objectives and scope of the assigned research

Similar to the developments elsewhere in the region, Bulgaria's capital – Sofia – is experiencing severe traffic and urban transport management conflicts that negatively affect the quality of the environment and the well-being of all citizens. Departing from this problem state, this thesis aims at providing guidelines to the decision and policy-makers in Sofia on how and why MM practices can be utilised and help solve some of the urban transport related conflicts in the city. In support, MM in the city of Lund is studied and analysed, specifically concentrating on the success factors of policy development and implementation and the possibility of experience transfer to Sofia. The major questions guiding the research thus are:

What lessons can Sofia learn from the MM development in Lund?

What improvements are needed in the current policy and practice so that the mobility management concept is integrated in the decision and policy making in Sofia?

Findings

There is little doubt that the *primary barriers to sustainable urban transport development are institutional*. Certainly, there are technical and operational barriers to the creation of infrastructure, organisation of the traffic, etc., but most of these are well understood over short and intermediate time span and involve fairly routine actions for execution once institutional impediments are overcome. Regarding policy implementation, *there are several forces that prevent a measure from being implemented* in its most ideal form. These can either reduce the expected effect of the measure or offset its overall implementation. The city of Lund has demonstrated remarkable proficiency in overcoming these barriers. Its experience in urban transport planning, policy making and implementation is a valuable resource, which can guide decision makers elsewhere towards development of a sustainable transport system. Lund's *lessons of success* in dealing locally with the environment-transport problems are: the *strong discursive hegemony on environmental issues* concerning transport; the *consensus-building co-operative, and communicative policy-style*; the *new and tailored institutional/ administrative and participatory organisation* that involved interest parties early in the process; and the *strong economic performance*.

On the other hand, policy analysis in Sofia shows that considerable barriers exist (socio-institutional, financial, planning, functional, operational) to sustainable urban transport in the Bulgarian capital. Although positive development trends have already been laid down, they need to be further strengthened and supported by concrete measures within observable timelines.

Conclusions

It can be concluded that there is a pressing need for an intervention in the urban transport management, with focus on demand-oriented strategies, changing user behaviour and in favour of both more sustainable modes of transport and alternatives to travel. Mobility management comes useful in such strategic moments with a proven, empirically tested policy approach to achieving sustainable development of the urban transport. The findings reveal the necessity of devising an approach to urban transport planning in Sofia that takes into account the existing shortcomings and aims to overcome the barriers from the outset. To ensure sustainability in urban transport development then requires the consideration of both the strategies and the measures to be implemented and the organisation and style of the planning and policy-making processes to be instigated. Clearly, such requirements affect established institutional practices and regulations, which need to be improved or reformed in view of the new approach to urban transport management.

Recommendations

While it has become evident that developing a transport policy and plan should be a top priority for Sofia municipality, it is on the basis of the findings and conclusions that two sets of recommendations have been proposed to policy-makers. One is related to improvements in the organisation and management of the planning process; the other gives general suggestions about the provisions of a MM plan.

1. Recommendations for the organisation and management of the planning process

- Begin with a *survey of the current state of the urban transport situation* so that a clear understanding of the baseline conditions and the existing problems backed by technical information is established among policy-makers and the public.

- Initiate a *public dialogue* for discussing the findings of the survey and agreeing on *short term concrete objectives* and *long term strategic goals*. *Prioritisation of transport management* projects should be based on actual public consensus and real needs and should be justified through an economic analysis of the costs and benefits of improved accessibility vs. increased capacity for mobility.
- Establish a *formal or informal set-up for civil society participation* guaranteeing the access of a wide group of stake holders to the planning and policy-making process at all stages. Conduct a working style of *cooperation and consensus building*, which will contribute to the easier implementation of the policy outcomes. Develop a *system for informing the public* on the progress of the process and for *getting a feedback* from the parties concerned.
- Establish *new institutional bodies* with *flexible and open working style* which would coordinate the process. The involvement of an *external expert advisor* (a consultant) is of great support both in terms of professional knowledge and skills input, and information dissemination, and education of the public and the municipal administration about the issues at stake.
- *Expand the experience* of the involved planning and decision-making authorities with sustainable urban transport management through *participation in international networks co-operative projects* and *skills exchanges*.
- *Commit to an active institutional leadership*, which is of utmost importance for the success of the transport-environment planning initiatives (as illustrated in the case of Lund). This requires continuous work in *partnership with the business community*, research institutes and non-governmental organisations.
- Secure *long-term financing* for sustainable urban transport development. *Public-private partnerships* can offer a solution for some investment projects. *Land value capture* is another financing tool that can be used on the local level.

2. Recommendations for the contents of the urban transport management plan

- *Integration of land use planning and transport planning* is of central importance for the completeness and long-term sustainability of the mobility management plan; it avoids contradictions between policies in inter-related fields.
- *Prioritise public transport and alternative travel modes* to car-centred projects. Public transport share in Sofia is quite high (63%) and the opportunity for maintaining this ratio through increasing service diversity, quality and reliability should be fully employed through public transport oriented strategies in the transport plan.
- *Start with measures in the city*, which will have demonstrative effect and will win public support if designed to deliver the desired effects. However the mobility plan should also provide for a balanced spatial development in all districts of the city so that the measures taken in the inner city part will be affirmed by consistency and spatial continuation (integration principle).
- Choose *strategies that address existing (but somewhat forgotten) traditions* – for Sofia these are *walking* and *organised work travel*, both with huge possibility to contribute to sustainable urban mobility through alternative travel modes.

- Concentrate on *strategies that address large and hyper mobile groups*. The boom of business-trip car travel in Sofia points to the group of the *city-based large and medium size companies*. A demand-side measure that has proven to work against congestion and suitable in this case is the advancement of *Telework* practice. The *students group* is another low-hanging fruit – the eventual shift of the group from public transport and personal vehicle use to cycling and walking will relief the traffic load on certain routes considerably.
- Focus on strategies that improve *safety*. Many people state that they do not walk or cycle because they feel unsafe and unprotected in the present traffic conditions.
- *Deliver promises!* Start with the development of a *cycling network and supporting service system*, which is pending for the last ten years while retaining an immense potential for contributing to urban transport sustainability in Sofia.

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1 Introduction

1.1 Background to the present study

Mobility management (MM) is a rather new concept in transport governance of organising urban mobility with emphasis on sustainable practices and incorporation of various elements of the transport management into an all-integrated approach. It has been embraced as a guiding principle in the urban transport development in many of the old EU member states, the forerunners among others being Sweden (e.g. Lund, Malmö, Karlstad), Denmark (e.g. Copenhagen, Aalborg), the Netherlands (e.g. Groningen) and Germany (e.g. Bremen, Freiburg). The examples of the different MM practices are numerous throughout these states with improvements in air quality, reduction of GHG emissions, better service from the public transport, faster movement of people, increased safety and elevated overall satisfaction with urban transportation and the urban environment as a whole among citizens.

This work has been inspired by present day research in urban sustainability and in particular the transport element of the urban mosaic. It is trying to show that MM is a viable way of fostering an environmentally benign urban transport system and to achieving urban sustainability.

Transportation issues are critically embedded in everyday life. For this reason ways of addressing such issues are almost always highly contentious. In many European nations in recent times, land-use trends alongside the opportunities offered by past road construction efforts and the mass availability of private cars have led to the breaking of traditional relationships between home, work, leisure and the environment. In response to increased communications possibilities, people have changed the way they live and this has led to increased expectations over the potentialities of personal travel. The consequences of these changing geographies and sociologies of mobility are two-fold: first, *increasing demand for travel throughout Europe*, particularly by car, a trend no country has managed to arrest; second, the *knock-on consequences of increasing travel demand on cities*, local environments, social networks and ecological conditions (Vigar, 2002).

The latest European Environment Agency Transport and Environment Reporting Mechanism (TERM) publication draws special attention to the increasing urban transport volume and its negative local effects on the environment. Data from numerous measuring stations in urban agglomerations close to major traffic arteries indicate that the concentrations of NO₂ (2010 limit) and PM₁₀ (2005 limit) are at or above the European air quality limits at these sites (EEA, 2007). As overall traffic volume in urban areas is expected to continue growing it is a major challenge for future urban transport systems to meet the demand for accessibility for people, while at the same time minimising the impact on the environment. Therefore, the Commission is supporting many initiatives to optimise the urban transport systems.

Regarding the transport situation in Central and Eastern Europe (CEE) – over the last fifteen years the region has witnessed a tremendous increase in freight and passenger road traffic while the share of rail, waterways and bus (both for freight and passengers transport) declined (ECMT, 2006)¹. With the transition of the economies, intensification of trade in the region, rising incomes and urbanisation of the population, freight and personal transport by motorised

¹ Between 1990-2004 road freight (thousand million tonne-kilometres) increased by 85 % in CEECs as compared to 58 % in the West; passenger car traffic (thousand million passenger-kilometres) increased by 160% and 33 % correspondingly.

means significantly grew in volume. The major cities in the newly joined EU member states are experiencing similar trends in personal mobility and freight with unprecedented rise of motorised vehicle use. This has created numerous socio-environmental problems and economic disadvantages especially in the big towns and capitals of these states. The TERM report (EEA, 2007) points to the alarming fact that public transport in the EU-12 that enjoyed a high share at the beginning of the 1990s compared to EU-15 is now in progressive downfall. Although the share of road was under 50% at the beginning of the 1990s, this caught up to western European levels in 2003. Moreover, nowadays the modal split in urban transport across the EU does not show much difference. It is also projected that in time road transport volumes in the New Member States will increase up to levels close to those in EU-15² (EEA, 2007). These worrying statistics point to the need of targeted actions towards offsetting the current trends in road and car transport in the NMS and their urban regions (Jensen pers. comm.).

A growing concern over the unsustainable transport development trends in CEE has been expressed already in the 1997 Declaration Towards Sustainable Transport in the CEI Countries (UNEP/OECD/Austria, 1999) endorsed by the ministers of sixteen countries from the CEE region. The declaration recognised that the need for developing policies towards sustainable transport has to be urgently addressed and that a new approach to that task is necessary, in particular one that places environment and health issues high on the transport agenda to ensure the full integration of environmental and health considerations into transport development. However, ten years after this declaration was presented there is still poor evidence of “walking the talk” towards sustainable urban mobility. The concept of MM is rather unknown and vaguely practiced in the region. In many of the capital cities of the new member states such as Ljubljana and Prague MM plans are just starting to be developed and integrated in the comprehensive and regional development plans (Wolfram, 2005) while the meagre political engagement backlashes with degrading urban environment and living conditions, congested roads, declining public transport and dissatisfied transport users.

1.2 Research problems and expected outcomes

Similar to the developments elsewhere in the region, Bulgaria’s capital – Sofia – is experiencing severe traffic and urban transport management conflicts that negatively affect the quality of the environment and the well-being of all citizens. Departing from this problem state, this thesis aims at providing guidelines to the decision and policy-makers in Sofia on how and why MM practices can be utilised and help solve some of the urban transport related conflicts in the city. The approach used is to present a snapshot of the current urban transport management policy in the capital, analyse the socio-institutional factors that influence its development and implementation and to synthesise specific recommendations that contribute to the adoption and successful development of a MM practice within this policy. The following six questions steered the background research:

1. *What is the current urban transport policy in Sofia?*
2. *Is there a clear dedication to a sustainable mode of development of the mobility system?*

² Transport volumes per capita in the EU-12 are still lower (8000 vs. 14000 pkm) than in the EU-15. Nevertheless, they grew by 26 % between 1993 and 2003, compared to 19 % in EU-15.

3. Which are the major factors/barriers in the mobility policy development?
4. How can these barriers be overcome?
5. Why should MM be adopted as a guiding strategy in transport planning?
6. What benefits will it bring?

Best available practices in MM in the EU are identified and analysed, specifically concentrating on the developments in the city of Lund and discussing the possibility and success of knowledge transfer from West to East (Lund to Sofia). The main idea here is to outline the strengths and already existing traditions (if any) in MM and see how they can be utilised in the specific context of the region. The author does not aim at simply promoting the best practice transfer, but rather encourage the use of the existing potential and knowledge to create understanding and develop successful MM campaigns. The research questions therefrom being:

What lessons can Sofia learn from the MM development in Lund?

What improvements are needed in the current policy and practice so that the mobility management concept is integrated in the decision and policy making in Sofia?

Based on these findings an outline for successful development and implementation of MM plans in Sofia is suggested.

EXPECTED OUTCOMES:

The author would like to make the concept of MM familiar to decision makers and town governors in Sofia and encourage its use and implementation in the transport policy and organisation in the capital city and region. The success of the project can be measured by a follow-up on the future policy development and resulting MM programmes in practice.

1.3 Justification of the research

The transport system in Sofia is facing serious challenges causing adverse effects on the urban environment (air, noise pollution), space (land taken up for car parking purposes), the economy (time spent in congestion), people's health and well-being. However, the urgency of the problems oversees the need for long-term, publicly agreed, integrated and sustainable planning strategies that would offer a solution out of the traffic mayhem. The Sofia municipality has no actual transport management plan, nor policy on which the decisions for resolving the conflicts are based. This is why no progress has been made on improving the state of the urban mobility; the uncoordinated and unconsolidated measures are just blind shots without a target and with no lasting desired effect. Meanwhile lots of positive examples of solving similar transport problems exist from many European cities (Lund being one). The experience of working with MM on a local and regional level has proven to be a winning strategy in combating urban traffic conflicts. Even though the EU supports numerous research projects, co-operations and knowledge exchange initiatives in MM, the concept has not reached Sofia, where the practice and its application are still unknown. Hence, the author points to the need for communicating and transferring the available knowledge and experience in MM from the West to the East (Lund to Sofia), where it can provide tools for developing a sustainable urban transport policy. The focus is not on specific measures that can be transferred, but on the way a MM policy can be started. This is an important theme for MM of

which there's not so much emphasis in the available literature especially when its adoption by institutions with no previous experience with sustainable transport policy development is concerned. In other words the research concentrates on "how to instigate a process towards MM policy" on a municipal level and instead of on "what to include".

Thus this research makes the following contributions:

- Firstly it analyses the key aspects of the MM policy development in Lund focusing on the success factors and lessons that might be used by other cities in commencing a similar process;
- Secondly it outlines the major deficiencies in present day transport planning in the Bulgarian capital (considering the process itself and the concrete policy implications) and points out the opportunities of improvement through adopting a MM approach in urban transport governance;
- Thirdly the work gives actual recommendations how (by change of which present practices) policy-makers and planners in Sofia can integrate MM in managing urban transport;
- Lastly the thesis provides useful information to urban transport practitioners in Sofia that can be employed in future policy developments.

1.4 Research method

This thesis adopts the method of a case study approach by looking at the urban transport management in two different cities Lund in Sweden and Sofia in Bulgaria. The subject of research is the urban transport policy in the settlements and the integration of the MM concept in managing urban mobility. The initial research revealed that the city of Sofia lacks a strategic vision for managing the urban transport in an integrated and sustainable way, and thus no clear development goals and no strategic plan is in place. On the other hand Lund is one of the forerunners in employing the tools of MM which has already given many positive results. Through the analysis general and specific recommendations are made for the city of Sofia, which should help steer the development of its transport policy along a more sustainable pathway. The socio institutionalist approach for analysing the policy systems is chosen, since it provides a tool for identifying dominant paradigms, power sources and possible lines of change by looking at three policy components: the popular policy discourses, networks and policy arenas (detailed description follows in Chapter 3).

In conducting the analysis both quantitative (transport statistics from reports and from national and EU databases) and qualitative data (stories, opinions, comments) were gathered through the following approaches:

1. Semi-structured personal, telephone or e-mail interviews, based on a questionnaire which was sent to the respondents in advance;
2. Reviews of documents: policy documents published by key stakeholders to transport planning on a European, national and local level; scientific reports and articles³; on urban

³ The major source of scientific articles was the Lund's University Electronic Library Information Navigator (ELIN), which integrates data from several publishers, databases and e-print open archives. *Keywords* for the articles search in ELIN: travel

transport management and spatial planning; conference papers and EU legal documents (e.g. White paper on transport, Green paper on urban transport, etc.) which provide background information of urban transport policy development and practice and create a basis for benchmarking the performance of the analysed transport policies in Sofia and Lund

3. News archive research in EurActiv and in the Bulgarian on-line and printed media (“Dnevnik”, “Capital”, “Za Grada”); to follow the development of the MM topic on an EU, and national and local level and also to determine the frequency of the occurrence of the urban transport management issue in the public space, the popular language or framework of the debate and the problems that are popularised;
4. Attendance of the ECOMM 2007 (May 9-11) conference in Lund where final informal interviews were conducted with presenters and attendants, impressions were gathered and conclusions made on the status and future of the MM in Europe;
5. Attendance of the LUCSUS seminar “Mobility management – Up to each individual when technology fails” (19 April) given by Anders Söderberg and Ylva S. Åqvist (mobility management project coordinators, Technical Services Administration at the Lund Municipality) where further information on the Lund case was obtained;
6. Observations at the Technical Service Administration at the municipality of the daily organisation and proceedings of the mobility management programmes.

1.5 Scope and limitations

While the fact that only one model city was chosen and analysed might be considered delimitation to the validity of the present study, the focus on Lund enabled the building of very profound and broad understanding of the process and practice of MM on a municipal level. During the research on Lund the author had access to key MM personnel within the city administration, who readily shared their impressions, knowledge and experience about the local MM development and practice, as well as to all the ECOMM submitted papers and studies that completed the picture on MM use in a multitude of EU cities, regions and countries. Moreover the multiple interactions (interviews, informal discussions, lectures) with the Lund-based consultant company, which was a key figure behind the development of the MM policy, contributed to the author's knowledge about the general ideas of MM and its concrete implementation in Lund.

Concerning the research on Sofia, the author has the advantage of having lived in the city and followed the urban transport development personally. Moreover, being a native speaker of Bulgarian made the contact and communication with key transport management municipal personnel easier and enabled the analysis of various policy documents unavailable in any other language. However, the researcher did not have the opportunity to go back to Sofia and study the urban transport management policy from a close perspective and discuss the possible improvements with an extensive number of practitioners. An encountered obstacle was the generally uncooperative work style of the municipality via e-mail and telephone. On the other hand much contribution to the study was done by independent research institutes in Sofia: Institute for Transport and Communications and the Centre for Economic development,

which have both worked on urban transport projects, concerning namely public transport dynamics, and readily shared their expertise and findings for the purpose of the present work.

As for the statistical data on urban transport, the one from Lund is obtained from official municipal statistics, while data for Sofia is from various (e.g. Eurostat, CIVITAS Urban Transport Benchmarking, Inforegio Urban Audit) sources⁴, which makes it difficult to calibrate between the sometimes varying numbers and to justify a comparability with Lund. Thus the statistical data for Sofia should be read with caution.

1.6 Outline of the study

The thesis progresses with Chapter 2 in which the author refers to existing EU policy papers as a backbone for the MM efforts in Europe and gives an overview of the various ongoing initiatives resulting therefrom. The concept of MM is then introduced in terms of its organisational and implementation characteristics. Chapter 3 explains the analytical framework employed to analyse the factors and processes that lead to the successful establishment of an environmentally-adapted transport policy; and evaluate the sustainability connotation of the policy outcomes. Chapter 4 follows up with a discussion of the barriers to sustainable urban transport policy development and suggests an approach to overcoming them. In Chapter 5 the case study of Lund is introduced. First some general information of Swedish transport policy development is given followed by a detail presentation of the policy deliberation in Lund and its analysis in terms of the adaptability of the local level governance to developing a sustainable transport system. The outcomes of the analysis are then used to define the role of local policy making capacity in sustainable urban transport development and points out what policy-makers elsewhere can learn from the experience of Lund. The section ends up with a discussion of the transferability of policy making expertise in general and in particular from Lund to Sofia. Having presented the success story of MM in Lund the thesis advances with Chapter 6 is on the analysis of the urban transport policy in Sofia. In Chapter 7 the major barriers to the development of a sustainable urban transport system in terms of institutional capacity and current management practices are discussed. Afterwards the author's claim that MM can offer the framework for the launch of a sustainable urban transport system is justified and recommendations for policy-makers in Sofia that are based on the lessons from Lund are given. The recommendations are aimed mainly at the policy organisation and management, but also refer to the actual contents of the MM policy. Finally, Chapter 8 summarises the findings of the thesis and outlines the key considerations to be taken into account in the forthcoming strategic urban transport policy development and plan preparation in Sofia.

⁴ Official municipal statistics on the current state of the urban transport is not available (latest survey from 1997).

2 Analytical concept

The conceptual framework that guides this research has to conjoin two areas of study: the analysis of local processes dynamics in transport policy-making and the understanding of a sustainable urban transport – how should it be defined and constructed.

For the policy analysis part the author employs the sociological institutionalist approach, which has been used in previous studies of urban transport policy developments based on experiences from different cities (e.g. in Vigar, 2002). For the sustainability evaluation of the policy a set of principles developed by the OECD for the on-going project “Urban Travel and Sustainable Development” is used. Based on the assessment if these principles are present, how they are translated in the urban transport policy and implemented through specific projects, a settlement can be classified in terms of its sustainability performance in transportation.

2.1 Mobilising the sociological institutionalist approach in urban transport policy analysis

Sociological institutionalism provides an empirically mobilisable set of organising ideas that help in analysing “policy in action” and thus sheds particular light on issues of policy making, implementation and the micro-politics of policy situation. In this way such an analysis provides a way of looking at the role power plays in given situations and policy sectors, particularly the ways it can distort policy goals, and thus offers a basis for critiquing the potential for domination and exclusion in public policy (Healey, 1999). A sociological institutional approach is thus concerned with determining power and influence, while accepting that public problems are social constructs and are developed and understood in relation dynamics. Three organising concepts come along with the proposed analysis approach (Healey, 1997; Vigar et al., 2000):

- Policy discourse;
- Policy communities and networks; and
- Policy arenas.

These concepts provide the structure of the urban transport policy process analysis which is presented in Chapters 5 and 6. In the following subchapters a more detailed presentation of the sociological institutionalist approach will be given to help the reader in understanding its essence and appropriateness for the specific case analysis.

2.1.1 Policy discourses

Sociological institutionalism is a wider trend toward interpretive approaches to policy analysis. Such approaches see policy as being socially constructed and, as a consequence, focus particularly on the language that stakeholders use in the discussing issues (Fischer and Forester, 1993; Mazza and Rydin, 1997). In mobilising such an approach the paper focuses particularly on “policy discourses”, looking especially at the work of Hajer on environmental discourses (Hajer, 1995). He deploys policy discourse analysis as a tool for scrutinising and interpreting policy directions recognising that language is a “system of signification through which actors not only describe, but create the world” (Hajer, 1995, p. 44). From here it can be

derived that policy discourses are “a specific ensemble of ideas, concepts and categories that are produced, reproduced and transformed in a particular set of practices and through which meaning is given to physical and social realities” (Hajer, 1995, p. 44). According to the same author, policy discourses consist of “storylines” and “practices”. Storylines are the linguistic representation of issues that provide ways of holding ideas together and thus enable arguments to be transmitted amongst stakeholders and networks. Practices are mobilised to fulfil the demands of particular storylines and embody certain ways of thinking about issues and executing actions. In the urban transport field ‘predict and provide’ can be conceptualised as being a policy discourse made by a number of storylines and practices.

Policy discourses have the effect of framing the reality (Rein and Schon, 1993; Hajer, 1995). Framing is the process whereby, facts, values, theories and interests are brought together by actors within particular decision settings (Tewdwr Jones, 1995). This framing inevitably leads to different interpretations of situations among actors (Rein and Schon, 1993). The notion of framing has implications for each stage of the policy process, from how problems are perceived, through what emerges onto particular policy agendas, and ultimately the policy outcomes (Vigar, 2002). However, a policy discourse is not merely the language used in policy debates, although this is important. It also refers to the cultures and practices of those engaged in the policy debate. Policy discourse is thus composed of linguistic representations but also reveals the power relations of policy-making and the rationalities that underpin given discourses (Weale, 1992).

2.1.2 Policy networks

In institutionalist analysis, network concepts are used to illustrate and help understand why and in what ways stakeholders unite around particular discourses. Network concepts thus provide a way of categorising both the important linkages between actors within and between policy systems, and also provide a means of identifying the importance of such relations in the determination of policy (Vigar, 2002). Thus, the way policy discourses gain support and momentum is partly explained by looking at the networks that bind stakeholders together. The concept of stakeholders encompasses all those potentially affected by events in the policy realm including the currently active participants and those who may have an interest as yet undeclared (Bryson and Crosby, 1992). The fact that some groups are absent from the policy-making can clearly have a significant influence on policy outcomes (Vigar, 2002). Network concepts also provide a way of examining how discourses are transmitted, understood, and gathered momentum, and how arguments pervade and become embedded into cultural practices. In this way, policy discourses and relational networks become bound together in what Hajer (1995) terms ‘discourse-coalitions’ and provide a means of explaining policy configurations and changes. Even though the existence of certain discourses cannot be equated with power, they convey meaning and highlight, or imply, where power lies and what might be necessary to redirect it.

2.1.3 Policy arenas

To provide a fuller picture of how policy discourses are transmitted and become embedded in practice and the ways in which policy networks are constructed and maintained, attention is focused on the places where issues are discussed (Vigar, 2002). Policy arenas are the institutionalised “sites” where policies are deliberated. The institutionalisation (the design of arenas) fuels forums for dialogue, decision-making and collaboration. Bryson and Crosby (1989) distinguish three formal policy arenas: those for key decision-makers, the policy planning team and strategic issue task-forces. The formal arenas could be complemented with informal ones where new people, new alliances, new networks and new ideas are brought together to articulate their priorities and approaches to the discussed issue (Albrechts, 2001). It

also helps identify the way policy storylines disseminate among stakeholders and stakeholder communities. Thus the direction of flow of influence can be determined, as ideas develop, shift and change. In particular the focus on discourses along with that on policy arenas enables the tracking of influence of environmental issues in urban transport policy debate (Vigar, 2002).

2.1.4 Summing up social institutionalism: the capacity concept

A key feature in sociological institutionalism is to use the analysis of discourses, networks and policy arenas to identify the 'institutional capacity' that might exist in a policy field or locality. Institutional capacity is the ability to 'make a difference' to people's lives, the local economy or local environments. (Healey, 1997; Healey et al., 1999). It consists of three components (Innes et al., 1994):

1. Social capital – the extent of relational resources that exist amongst the participants of policy processes such as trust;
2. Political capital – the ability of local stakeholders to mobilise to secure resources to develop and implement policy; and
3. Intellectual capital – the knowledge resources of the participants engaged in policy debates.

These components focus attention on the quality of the ideas in policy and social networks and the depth of relations amongst stakeholders, such as the regularity of contact. The way policy ebbs and flows in localities and the difference between localities in getting resources from central government are related to the social, political and intellectual capital available to individual coalitions (Vigar, 2002). Healey et al. (1999) have termed this potential, mobilisation capacity, which is used to assess the role of policy communities in determining policy outcomes.

Having examined the essence of the policy discourse concept, the next step is to employ the theory in the policy analysis, which is the focus of the current paper. Therefore a set of questions (Table 2-1) addressing each of the three organising concepts have been developed, which should be considered when analysing the urban mobility realities in Lund and Sofia.

Table 2-1 Roadmap to analysing urban transport policies in Lund and Sofia in terms of policy discourses, networks and arenas

Organising concept	Analytical questions
Policy discourses	What are the prevailing perceived problems? What is the dominant paradigm in transport management? What priority areas have been outlined for local policy action?
Policy networks	Who are the major stakeholders on the urban policy arena? How are they connected? What networks exist and are activated in the policy making process?
Policy arenas	In what institutional set-up/arrangement do policy discourses occur? Who has access to these arenas and how is access institutionalised?

2.2 Urban transport and sustainability

In order to assess the state and development direction of the transport policies analysed in the paper certain principles and criteria of urban transport sustainability need to be employed. Conventionally there are seven key issues that need to be addressed if transport is to conform to the principles of sustainable development (EFTE, 1994; Banister, 1997a).

1. *Growing congestion*: in many urban areas congestion has been increasing in its duration and intensity. On average, speeds in cities have been declining by about 5% per decade (EFTE, 1994) and the severity of congestion increases with city size (Dasgupta, 1993).
2. *Increasing air pollution*: the rising levels of air pollutants in urban areas has resulted in high exceedence of national air quality standards and those recommended by the World Health Organisation (1997) in many European cities. Air pollution affects health, impairs visibility and damages buildings and local ecology – it reduces the quality of urban life. Presently 70% of air pollutants in the EU urban areas are attributed to transport (MVV Consulting, 2007; Commission Communication COM(2006) 314 final), which indicates that timely action to tackle the problem is necessary.
3. *Traffic noise*: noise affects all city life with estimation by the EEA (2001) that more than 30% of the EU population is exposed to road traffic noise level higher than 55 L_{dn} dB⁵. Noise affects people physiologically and psychologically: levels above 40 dB L_{Aeq} can influence well-being, with most people being moderately annoyed at 50 dB L_{Aeq} and seriously annoyed at 55 dB L_{Aeq} . Levels above 65 dB L_{Aeq} are detrimental to health (WHO, 2000).
4. *Road safety* is a major concern in cities and elsewhere. Worldwide, traffic accidents result in 250 000 deaths and about 10 million injuries each year (Downey, 1995). The annual number of deaths from road accidents in the EU-25 is 43 358 (EUROSTAT, 2007) one third of which occur in cities (MVV Consulting, 2007; Commission Communication COM(2006) 314 final). This is a very high cost ‘accepted’ by society.
5. *Degradation of urban landscape*: the construction of new roads and transport facilities in and around urban settlements often result in the demolition of historic buildings and reductions in open space. Transport contributes to the decaying urban fabric and neglect of central city areas, as well as to urban sprawl (Ewing and Cervero, 2002).
6. *Use of space*: new transport infrastructure facilitates the movement of the motorist, but reduces the accessibility of others as transport routes become barriers, as parked vehicles form obstacles for pedestrians, cyclists and those with disabilities. Car dependency results in traffic domination in urban areas.
7. *Global warming* results from the use of fossil fuels. Road traffic in urban areas accounts for more than 10% of all emissions of carbon dioxide – the principal greenhouse gas – and makes up to 40% of all CO₂ emissions of road transport (DG TREN, 2007a) . With 4.3 million extra cars taking to Europe’s roads each year, CO₂ releases from transport could be 40% higher in 2010 than in 1990 – undermining efforts made by other industrial sectors to fulfil Europe’s Kyoto commitments (reference).

⁵ L_{dn} i.e. a day/night level, is a descriptor of noise level based on the energy-equivalent noise level (L_{eq}) over the whole day with penalty of 10 dB(A) for night time noise (22.00-07.00 hrs).

In addition, transport has also facilitated changes in the city, and these land-use and development factors need to be added to the list above.

8. *Decentralisation of cities* has been facilitated by the car in combination with efficient public transport. This has resulted in a substantial growth in trip lengths and the development of travel patterns that are dispersed rather than concentrated on the city centre. This in turn increases car dependence and reduces the possibilities of promoting efficient public transport. So transport has acted both as the facilitator of change and as a limiting factor on its resolution.
9. *Development pressures* have taken place around car accessible locations that are not accessible to all people (including the edge city developments). The spatial segregation of activities in urban areas again increases trip lengths and has strong distributional consequences. High land and property prices are symbolic of a buoyant economy, but they are also socially exclusive, particularly in terms of access to low cost city centre housing.
10. *Globalisation and the relocation of industry* (including the information economy) have resulted in new patterns of distribution and the transport intensity of freight has increased globally, regionally and locally.

To establish a policy that addresses the ten key issues in sustainable transport development introduced above, there are seven primary objectives to be met (OECD 2000; Kenworthy, 2005):

1. Reduce the need to travel;
2. Reduce the absolute levels of car use and road freight in urban areas;
3. Promote more energy efficient modes of travel for both passengers and freight;
4. Reduce noise and vehicle emissions at source;
5. Encourage a more efficient and environmentally sensitive use of the vehicle stock;
6. Improve safety of pedestrians and all road users;
7. Improve the attractiveness of cities for residents, workers, shoppers and visitors, etc.

This list would tackle most of the problems associated with urban transport; however, integrating the goals into policies and problems is a substantial challenge to city governors. Moreover, the positive results and improvements that might be gained are in reality often outweighed by the underlying growth in car-based mobility. Therefore a series of constraints need to be addressed if a clear strategy on transport and sustainable developments is to be achieved. The following chapter will look at the barriers that exist to sustainable urban travel planning and operation. It proposes ways to tackle the obstacles so that a successful MM system can be put in place. The chapter is important in highlighting the potential obstacles that modern settlements are facing when engaging in transport-environment policy making and is especially valuable in the case of Sofia where the constraints to sustainable urban mobility are numerous.

3 Mobility management in a European context

The chapter introduces the concept of MM and its organisational specificities and reviews its development within EU policy initiatives and projects.

3.1 Origins and definition of mobility management

In recent years mobility management – a means of promoting modal shift and alternatives to the journey – has gained importance in Europe. Especially in metropolitan areas this approach is seen as a way of improving the effectiveness of traffic systems management measures. In the past, transport planning in cities has mainly focused on “traffic system management” (Beckmann and Witte, 2003). Until the early 1990s, the main approach to dealing with negative impacts of transport, for example traffic congestion and air pollution, was large-scale infrastructure investment. The concentration on hardware – the construction and maintenance of roads, railway lines, canals and the relevant machinery – was motivated by the conviction that demand for transport was to be served with the creation of the necessary infrastructure.

Particularly in the late 20th century the expectation of transport infrastructure was accompanied by a continual growth in demand, which has failed to reach saturation point and led to the considerable overloading and impairment of urban road and public transport systems (Gronau and Kagermeier, 2004). Traffic planners realised that hardware and supply oriented approaches are not the best way to address the increasing demand for transport. This realisation coincided with the public sector’s need to reduce its expenditures on sizeable infrastructure projects because of growing budget deficits: new solutions to the problems associated with the perpetual growth in transport demand had to be found.

The “predict and provide” approach came under increasing challenges in the 1980s and 1990s as its theoretical underpinnings were undermined and the consequences of such a policy became more acute, widely known and understood. The approach was deficient in itself in three ways. First, it ignored the impacts of policy interventions themselves (i.e. more roads created more traffic so that the roads were getting congested, thus creating the need for new roads and so on). Second, increases in supply were held to release latent demand (SACTRA, 1994). Third, long-run elasticity of travel demand was proved not to be the same as short-run one (Dargay and Godwin, 2000). In other words, technology, society and mobility are bound together in complex ways and people change their lifestyles in the medium- and long-term in complex ways that do not show in simplistic modelling processes based on preferences and choices made under extant transport and wider social conditions (Vigar, 2002). In addition, a growing awareness of a variety of physical, social, environmental and health related effects resulting from the growth in private cars also triggered a policy change. In the mid 1990s the idea of influencing the demand itself emerged as a new element in transport science. Transport academics turned to new ideas and possible solutions in the humanities, since here the influence of individual decision-making processes on transport participation was emphasised. The result was a call for the introduction of differentiated but efficient ways of reducing the demand for transport by managing the people’s mobility needs and is where the concept of “mobility management” eventually stemmed from.

A central idea in the development of the MM practice is the integrated approach to transport planning and policy making. In this way MM becomes part of the planning and policy process, a constructive part of the organisation of mobility on a local level as illustrated by Figure 3-1 (next page).

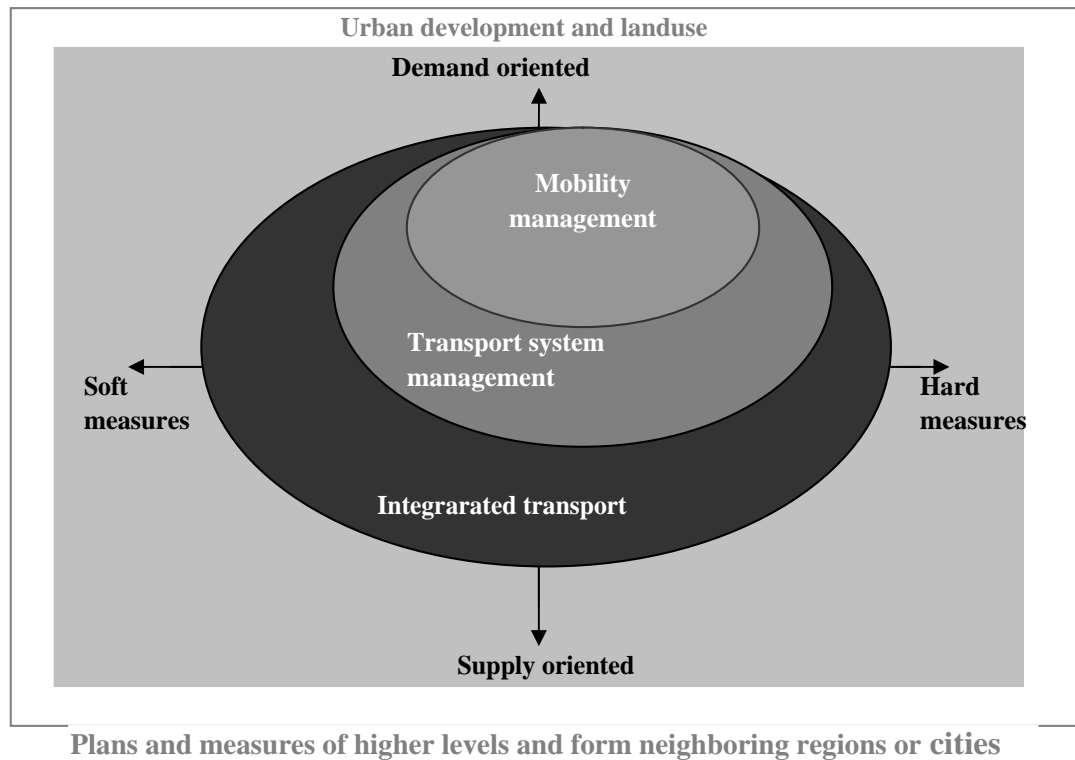


Figure 3-1 Levels of integrated transport planning process.

Source: Adapted from FGSV, 2002

One of the most extensive descriptions of the concept has been developed in three EU-research projects MOSAIC, MOMENTUM and MOST, where MM is a demand oriented approach to passenger and freight transport and involves new partnerships and set of tools to support and encourage changes in attitude and behaviour in favour of both more sustainable modes of transport and alternatives to travel (MOST, 2003). MM emphasises the notion of accessibility alongside that of mobility (Farrington et al., 2003) and the potential of soft measure to enhance the effectiveness of hard measures in traffic planning. Besides, MM has demonstrated that the soft measures– compared to hard ones – are more cost effective since they “do not necessarily require large investments measured against their high potential to change mobility behaviour” EPOMM (2003).

There are many potential MM strategies with a variety of impacts⁶. Some improve transportation diversity (travel options available to users) (see Annex 1 for examples), others provide incentives for users to change the frequency, mode, destinations, route or timing of their travel. Some reduce the need for physical travel through mobility substitutes or more efficient land use. Some involve policy reforms to correct current distortions in transportation planning practices (Litman, 2002). The choice of a MM strategy depends on the community's demographic, geographic and political conditions and it is usually the best to implement a variety of strategies. While most individual strategies have a modest effect on total vehicle travel, it is the cumulative and synergetic impacts that cause the improvement in the urban transport. Thus it is important to evaluate MM strategies as packages and not as isolated programmes. Effective programmes usually include a combination of positive incentives to use alternative modes and negative incentives to discourage driving (Litman, 2003).

⁶ Information on mobility management strategies and practical examples can be obtained on the EPOMM website (<http://www.epommweb.org/>) or from the online TDM encyclopedia of the VTPI (<http://www.vtpi.org/tdm/>).

The organisational concept of MM is presented in Figure 3-2 emphasising on three working levels: policy, management and use. Interaction between the different levels and good coordination are prerequisites for the successful functioning of the system

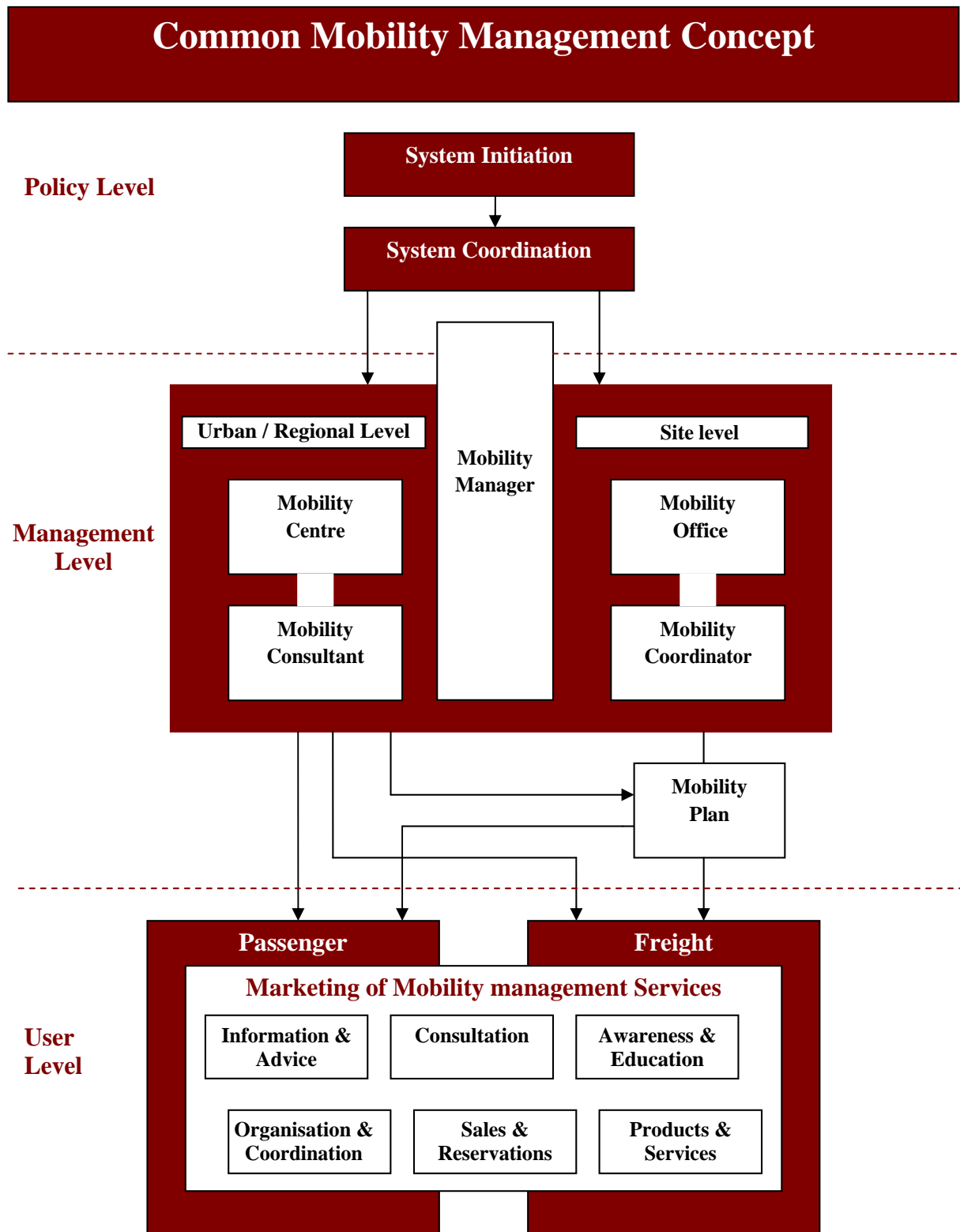


Figure 3-2 The MM concept

Source: EPOMM, 2007

The instruments of MM are based on information, communication, organisation, coordination and require promotion (MOST, 2003). They are usually assigned on the policy level, established on the management level and provide their services on the user level (see graph above) securing the effective operation of the mobility plan. Following is a brief description of these.

3.1.1 Mobility management organisational and functional instruments

The section introduces the MM instruments that sustain its organisation and function. A brief overview is given of mobility plans, mobility centres, mobility management personnel, and the services provided within the system.

3.1.1.1 Mobility plan

The *Mobility Plan*, a comprehensive and guiding document, indicates how to implement a MM scheme for a specific site. It can apply all measures that help to reduce motorised vehicle usage to and from the site or can be limited to certain trip purposes, e.g. visitor traffic or commuter traffic of a company, freight, etc. The plan sets out the aims to be reached and the measures to be taken; identifies how will the measure be put into practice and who is responsible for their implementation within a certain time period. The explicit character of the document is motivating and convincing for prospective financiers and provides a base for later evaluation. It is crucial to gain support from those concerned with the MM plan by consulting with all levels in the organisation to ensure acceptance and compliance with the adopted measures (MOST, 2003).

3.1.1.2 Mobility centre

A *Mobility Centre* is the MM representing and operating unit at the urban or regional level, where services are initiated, organised and provided. There are two basic approaches for the establishment of a mobility centre: a multi-modal approach in the provision of services or an individual access for the public via personal visit, phone, fax, e-mail, information terminals or online services. At the site level the operating unit is a *Mobility Office*, which offers services only to the site users (MOST, 2003).

3.1.1.3 Mobility manager, consultant and coordinator

The *Mobility Manager's* role is quite important for the working of the MM scheme. He is responsible for developing and introducing the scheme as well as promoting it and gathering the necessary support while being the key link between both the policy level and the management level in the particular city or region or at the individual site. He makes the necessary strategic decisions to maintain the development and ongoing processes of MM. An intermediary role at the management level in urban or regional MM is that of the *Mobility Consultant*. The tasks range from project management (at a lower level than the mobility manager) to the provision of concrete services. The mobility consultant gets into contact with clients who do not yet implement MM and offers support, provides information concerning the implementation and expected positive outcomes from a mobility plan, and organises awareness campaigns or undertakes mobility education. On the site level the work of the mobility office is further assisted by a *Mobility Coordinator*, whose tasks include the provisional implementation of the mobility plan, carrying out investigations among the site users to develop specific services (EPOMM, 2007).

3.1.2 Mobility management services

Changing people's behaviour regarding travel choices is a challenging task, which requires more than a rational approach, since it must provision for differing needs and expectations. This necessitates the development of a plethora of *services* that MM should offer, which are adapted to the particular needs and demands of the clients. Ideally, the services of MM contribute to an elevated awareness and education towards a more sustainable mobility mode based on information & advice, consultation, organisation & coordination, products & services, sales & reservation, awareness & education. In addition, MM supports its clients in the development of particular products and services and helps them provide easy access for the users (VTPI, 2007).

Information and advice are the core services of MM, as the prerequisites for behaviour change in the choice of one's personal transport. They are based on thorough processing and interpretation of existing information and provide tailor-made answers to specific transport questions for individuals, companies, administrations, schools etc. Examples are: a bicycle map; maps for freight transport; accessibility guide for schools, companies, etc.; door-to-door public transport information.

Consultation as part of MM comprises information and advice about transport services and sustainable modes. Beyond that it contains specialised and in-depth advice on broader mobility problems of households, companies or particular sites. This includes analysing the initial situation, working out solutions, assessing potential alternatives and making recommendations. Consulting services are often aimed at larger traffic generators such as schools, hospitals, etc. Examples: drawing up a company transport plan and defining the methods how to introduce it or comparison between various travel modes regarding travel time, costs, benefits and environmental impacts for certain trip purposes.

MM helps to *coordinate* existing modes of transport and other transport services. This can reduce idle time (e.g. waiting for connection trains) and bridges gaps, where services or modes of transport are sub optimum (e.g. home delivery service for heavy goods that cannot be carried in a bus) (MOST, 2003). Moreover MM is also in charge of incorporating new forms of sustainable transport into the existing services so that an integrated use of transport modes becomes possible, sustainable mobility behaviour becomes easier and more comfortable for the individual. Examples: organisation of car sharing; coordination of a dedicated system for transport of disabled persons.

In general, the objective of MM is to educate people and society and to trigger and reach a change in awareness towards a more sustainable mobility. *Making aware* includes all activities, which draw people's attention to the adverse impacts of traffic, to the existence of sustainable modes and their potential to fulfil individual mobility needs. A strong focus in MM is thus put on *social marketing* (aimed at achieving specific behavioural goals for a social good) as a tool of promoting alternatives to car use.

Education is yet another important contributor to the change in awareness. Various educational tools can help different target groups see the advantages and disadvantages of the available types of transport by demonstrating how alternatives could look like, meanwhile serving as a barometer of the potential social acceptance. This applies to the school, family and general societal level (e.g. organising car free days).

3.1.3 MM target groups

Along with the decision, which types of services should be offered within a MM scheme, the distinction of one or more target groups at which the measures are aimed is of high significance. MM is aimed primarily at the individual. However, for rational reasons it is recommendable to make programmes aimed at larger target groups, clustered by trip purpose, mode of transport, setting or location where mobility behaviour takes place or by certain events or changes in someone's life (lifetime approach) (EC, 1999d).

A *spatial perspective* to cluster target groups is to look at the settings and locations where mobility takes place (a single road, a city district, a whole city up to a region or a whole country) and influence mobility behaviour by spatial design. In the case of MM, the design should provoke only desired patterns of mobility behaviour and, i.e. offer affordances to move in a sustainable way. This approach becomes especially important when clients like cities and regions ask for MM as a support in site planning.

A common kind of differentiation among target groups is by *trip purpose*. There are at least six main categories of trip purposes: work, school, shopping and personal care, leisure, business, transport of goods, with some being easier to influence than others, as the target groups are easier to grasp. This is especially the case for commuter trips to companies or educational institutions where MM projects have proven to work with guaranteed results.

MM can focus on different modes of transport with the objective to be adapted especially to them: car, bike, walking, public transport, taxis, and freight services. For every mode a lot of different services are already designed, such as car pooling or car rental for cars. Under this perspective, it is also important to take into account the experience of those who (could) use a certain mode. Their ideas of an optimum functioning transport mode, their prejudices against it, as well as their behaviour patterns when actually using it, help to find out starting points for improvements.

Finally, it should be emphasised that MM does not limit itself to a particular traffic situation or to a specific site. It aims to be a lifelong scenario, offering mobility solutions at every stage. MM focuses on different life events or periods to set off changes in mobility behaviour and possibly attitudes from being born, through childhood, school years, university, earning a living and retirement.

3.2 EU policies and actions on urban transport

Having introduced MM, the chapter continues with an overview of how EU policy promotes its development and adoption. This section outlines of urban transport related European policy papers that set the framework for further action at national, regional and local levels. It also casts light on ongoing initiatives supported by the EC, which are aimed at exchanging information and experience in order to enhance sustainable mobility in cities and regions and promote the adoption of MM practices. As Bulgaria is already a member state of the Union, it is fully eligible to participate in Community projects in this area, and contribute to the further development of the policy ideas and regulations concerning urban transport.

3.2.1 EU policy papers

The amount of EU legislation relevant to urban mobility – in one way or another – is numerous; this comprises air and fuel quality legislation, emissions standards, noise levels regulations, energy efficiency legislation, etc. However in this chapter, the more overarching

and strategic policy developments will be presented, the ones that have a holistic, integrated approach to transport management and its future development objectives. The information helps to understand the EU-level stimulus for cities to develop sustainable urban mobility programmes on the local level. It also points to the future legal obligations which local governments might have regarding transport management issues⁷.

3.2.1.1 The White Paper on European Transport

In 2001, the Commission presented a White Paper (information on this document type is given in Box 3-1) on the transport development in the Union suggesting 60 measures to overhaul the EU transport policy in order to make it more sustainable and avoid huge economic losses due to congestion, pollution and accidents (EurActive, 2004). Even if the subsidiarity principle dictates that responsibility for urban transport lies mainly with the national and local authorities, the ills besetting mobility in the cities and spoiling the quality of life have been addressed on an EU level in that document. The Commission draws attention to the problem of traffic management that local authorities are faced with and points the alternatives of clean vehicles promotion and good-quality public transport development as crucial in urban areas management. The subsidiarity principle allows the EU to take initiatives, including regulatory such, to encourage the use of diversified energy in transport. On the other hand, the Union cannot use regulation as a means of imposing alternative solutions to the car, which is why the Commission focused on promoting good practice in urban transport management aimed at increasing the attractiveness of the non automobile alternatives through more infrastructure and higher quality of service (Commission White Paper COM(2001) 370 final).

Box 3-1 Green and White Papers of the EC

Green papers are discussion papers published by the Commission on a specific policy area. Primarily they are documents addressed to interested parties - organisations and individuals - who are invited to participate in a process of consultation and debate. In some cases they provide an impetus for subsequent legislation.

White papers are documents containing proposals for Community action in a specific area. They sometimes follow a green paper published to launch a consultation process at European level. While green papers set out a range of ideas presented for public discussion and debate, white papers contain an official set of proposals in specific policy areas and are used as vehicles for their development.

Source: EC, 2007a

A 2006 mid-term update of the White paper re-balanced the policy towards economic goals (EurActive, 2006). In the review paper the Commission confirms that the 2001 objectives are still relevant but also draws attention to the changing context defining Europe's transport policy with urban transport becoming a particularly acute problem area for the citizens. In order to encourage local authorities to better tackle congestion, pollution and accidents, the Commission has agreed to launch a Green Paper on Urban Transport in 2007 (EurActiv, 2006).

3.2.1.2 The Green Paper on Urban Transport

⁷ This will be the case if the "Green Paper on Urban Transport" results in an EU directive on urban transport.

The Green Paper is a document aimed at defining a new role for urban transport within the European transport policy. It is among the 21 strategic priorities of the Commission for 2007, the follow-up activities from which will form the basis for a European policy on urban transport as part of the European transport policy (Commission Background Paper, 2007).

The debate on the Paper is recent on the EU policy agenda. It was launched in January 2007 with a major stakeholders' conference in Brussels on urban transport discussing the problems, the solutions and the responsibilities of the authorities on all levels. Commission Vice-President, Jacques Barrot, in charge of transport, re-affirmed the importance that he attaches to urban transport, saying: *"I am convinced that, while fully respecting the principle of subsidiarity, the EU can add value to actions at local level. In partnership with the cities, we will identify whether there are obstacles to successful urban transport policies and, for specific actions, propose joint solutions."*

The aim of the Commission is to present a Green Paper on urban transport by September 2007, in which it will convey the possibilities and ways of adding value to actions taken at a local level. The major question concerning the Green Paper is whether the EU should intervene at all and outline some policy directions, considering that the differences in the size, population density, economic-growth levels, social cohesion and cultural specificities of each city bring along the need for differentiated solutions, designed at local level. However, the scale of the problems faced by urban areas and their spread is often beyond the capacity of the local administrations. Adding to this the EU commitment to combating global warming and enhancing Europe's potential for economic growth and job creation – prerequisite for which is the creation of attractive and easily-accessible cities – creates the necessity of mediation. Nevertheless, the Commission has clearly stated that it has no intention to impose any targets or specific solutions, but rather to enable local and regional authorities to "create space to develop these solutions" (EurActive, 2007a).

So far the stakeholder group has outlined a number of areas where the Commission could help avoid duplication of efforts and enhance effectiveness of local action by defining a common EU framework. These include (DG TREN, 2007b):

- Providing better financing to public transport infrastructure through structural funds;
- Promoting the exchange and dissemination of good practice;
- Issuing a recommendation for the internalisation of external costs of transport (a preliminary report is due end of March);
- Carrying out research on key issues for urban mobility;
- Setting a legal framework for public service obligations;
- Establishing technological standards and ensuring interoperability; and
- Providing guidelines on urban planning.

The stakeholders have also pointed out the need to modify consumers' behaviour towards public transport if a real change in urban mobility is to occur. Of consideration is the EU's regional policy, which often undermines sustainable mobility goals in the new member states in Central and Eastern Europe through supporting roads investments at the expense of public transport using the structural and cohesion funds (Konecny pers. comm.). Thus, it is to be

provisioned in any future policy that towns should only receive structural funds if they are willing to change their habits. Mobility is considered to be a major stake for the future of the EU and public transport receives special attention with catching up with image and attractiveness (as compared to the private car). The public transport boosting debate is particularly relevant in the context of an ageing Europe, where improving accessibility and guaranteeing reliability will be of key concern (EurActive, 2007b).

3.2.1.3 Thematic Strategy on the Urban Environment

The European Commission adopted the Thematic Strategy on the Urban Environment in January 2006. The Strategy is based on extensive consultation with stakeholders and builds on existing European policy initiatives for improving the quality of the urban environment. In line with the 6th EAP, the Commission set out its initial analysis of the challenges facing urban areas in an interim Communication (COM(2004) 60 final) and suggested actions in four priority themes: 1) urban management, 2) sustainable transport, 3) construction and 4) urban design. It provides new measures to support and facilitate the adoption of integrated approaches to the management of the urban environment by national, regional and local authorities (EC, 2007b) by mainstreaming of good practice and possible EU obligations to adopt plans at the local level.

In the document the urban transport management is given special consideration, acknowledging its substantial contribution to air pollution, noise, congestion and CO₂ emissions and its fundamental importance to citizens' mobility and business. Thus it is prescribed that transport planning should take account of safety and security, access to goods and services, air pollution, noise, greenhouse gas emissions and energy consumption, land use, cover passenger and freight transportation and all modes of transport. The paper strongly recommends that local authorities develop and implement Sustainable Urban Transport Plans based on tailor-made solutions through wide consultation with the public and other stakeholders, with clear targets reflecting the local situation (Commission Communication COM(2004) 60 final).

However dedicated to the development of a sustainable urban transport system the Thematic Strategy is, it has failed to come forward with a specific legislation. At earlier stages of the preparation of the document the Commission has considered obliging Europe's big cities (with population above 100 000) to adopt plans which would integrate environmental concerns into their day-to-day policy decisions and help to better manage urban transport. However, the new Thematic Strategy only promises further technical guidance on such plans. *"The Commission has shied away from more far-reaching plans for EU directives",* comments Kerstin Meyer, EEB Policy Officer. *"The Strategy basically leaves it up to the member states and cities themselves to improve their environmental performance. This voluntary approach has not worked in the past. This is why most cities are still facing enormous problems with (...) congestion, air and noise pollution from urban transport"* (EEB, 2006).

3.2.2 Initiatives and good practice guidance

Based on the existing policy developments the EU has undertaken and patronised a number of initiatives oriented towards the enhancement of sustainable urban transport systems. They come in the form of information portals, databases and guidelines services, but also set the opportunity for cities and regions to get practically involved and financially supported for their participation in demonstrative projects and campaigns.

3.2.2.1 European Platform on Mobility Management

The European Platform on Mobility Management (EPOMM) is a network where mobility management experts share knowledge and ideas, exchange experiences, analyse common problems and look for innovative solutions (EPOMM, 2007). Its existence is grounded on the understanding that cooperation between the different member states, when concerning urban transport management, is necessary on all levels. As the vast majority of EU population lives and works in urban areas and this share can be expected to further grow to 80% by 2020 (EEA, 2006) and as the total number of travelled kilometres in EU urban areas are expected to increase by 40% between 1995 and 2030 (EEA, 2006) common basic solutions need to be found to resolve the problematic of urban transport – and this is where MM come into play. EPOMM's mission is to promote the adoption of MM as a new demand-oriented concept for creating sustainable transport solutions by improving the urban environment conditions and guaranteeing a sustainable access mode to all destinations in an urban area or region.

3.2.2.2 European Local Transport Information Service

The European Local Transport Information Service (ELTIS) is a portal for local transport news and events, transport measures, policies and practices implemented in cities and regions across Europe. The aim of ELTIS is to provide information and support a practical transfer of knowledge and exchange of experience in the field of urban and regional transport in Europe (ELTIS, 2007). It gives the user the opportunity to explore best practices from European cities and regions, to search for specific transport solutions and to be informed about the state of the art in a given transport application. The objective of the project is to help create a more sustainable living environment in terms of urban transport, one which provides greater accessibility and mobility to its inhabitants. ELTIS is a multi-user service, designed for everyone involved in improving mobility, transport efficiency and safety as well as reducing the environmental impacts of transport. It is particularly valuable for transport policy-makers and managers, transport operators and user groups.

3.2.2.3 Civitas initiative – Clean and better transport in cities

With the CIVITAS Initiative, the EC seeks to generate a decisive breakthrough by supporting and evaluating the implementation of ambitious integrated sustainable urban transport strategies that should make a real difference for the welfare of the European citizen (CIVITAS, 2007). The project is running since the year 2002 when CIVITAS I was launched within the 5th Framework Research Programme of the EU. Currently the second stage within the 6th Research Framework (2005-2009) is underway. CIVITAS involves 36 cities (Malmö, a city 19 km South-West from Lund is one of these) from all over Europe in sustainable transport demonstration projects and fully funds their activities with the objectives:

- To promote and implement sustainable, clean and (energy) efficient urban transport measures;
- To implement integrated packages of technology and policy measures in the field of energy and transport in eight categories of measures: 1) clean fuels and vehicles; 2) integrated pricing strategies; 3) less car intensive lifestyle; 4) soft measures – such as promotion of cycling and walking, intermodal services, child, school, student mobility management, mobility marketing and awareness; 5) access restrictions; 6) collective passenger transport; 7) urban goods transport; and 8) transport management;
- To build up critical mass and markets for innovation.

The essential characteristic that makes CIVITAS successful is the fact that the programme is co-ordinated by the participating cities, which are in the heart of local public-private partnerships, while a common platform for sharing learning experience and result evaluation contributes to an enhanced knowledge and expertise exchange.

3.2.2.4 Sustainable Energy Europe Campaign

The Sustainable Energy Europe Campaign aims to promote action and policy measures that lead to the reduction of CO₂ emissions from transport in the fields of alternative vehicle propulsion and fuels and also consolidate the flow of knowledge on energy issues in this sector. In the EU, transport currently relies for more than 90% of its energy on mineral oil, and a growing proportion of this will have to be imported in the future. Liquid biofuels, either bioethanol or biodiesel, give an alternative to the oil dependence and are (if produced with best available methods and technology) carbon neutral (DG TREN, 2007c). The Commission has set targets for an increase in the use of both biofuels – fivefold for bioethanol and threefold for biodiesel – by 2008 (Council Directive 2003/ 30/ EC)⁸. Furthermore, the Biofuels Directive gives a legal framework for creating a biofuels market and offers Member States the possibility of applying for a tax reduction to support its production and use.

3.2.2.5 European Mobility Week

The European Mobility Week has started in the EU in 2002 with the political support of the European Commission DG Environment (Mobility Week, 2007). Since then it has been taking place annually, with each year having a specialised theme to concentrate the activities on and providing an opportunity for towns and cities to promote sustainable travel modes for a whole week. The objective is to facilitate widespread debate on the necessity for changes in urban travel patterns, and in particular the need to cut private car use (DfT, 2007).

3.2.2.6 EXTRA – Connecting transport research solutions to European transport policy

With its Transport Policy White Paper, the European Commission proposes an action plan aimed at bringing about substantial improvements in the quality and efficiency of transport in Europe, which can only be tackled using an integrated mix of policy measures at European and national level. To aid the cooperation and information exchange and to help policy makers develop effective solutions the EU launched a number of actions within its transport research programme. The EXTR@Web project, being one of these, is an accompanying measure of the Fifth Framework Programme, which attempts to collect, structure, analyse and disseminate transport research results, covering EU and nationally financed research in the ERA, as well as global transport research programmes and projects. The aim is to support the policy-making process by providing timely access to the latest results and their implications in the form of a permanent archive to be used by policy actors and decision makers (DG TREN, 2002). Urban transport has been given special consideration with a number of research projects instigated, e.g. urban freight (DG TREN, 2006).

⁸ Indicative targets for biofuels have been set by the European Union at 5.75% of total fuel for transport use by 2010.

3.2.2.7 SMILE – the gateway to sustainable urban mobility

Sustainable Mobility aims to reconcile citizens' mobility needs with quality of life and environmental protection. Within this context SMILE (Sustainable Mobility Initiatives for Local Environment) aims to help local authorities cope with the challenge by presenting good practices and innovative approaches from around the EU area by presenting a database of 170 successful and replicable practices for sustainable urban mobility. Within the project local policies are analysed jointly with experienced European cities and towns and recommendations are drafted for local authorities to facilitate the replication of the existing good practices. SMILE compiles the results and experience of European cities and towns in designing projects and measures according to the needs of specific target groups and presents successful models on how to involve citizens in sustainable urban mobility development. It enables local authorities to benefit from the experiences of 14 of the most advanced European cities and towns (among which Lund) in this field through the SMILE study tours and site visits demonstrating some of today's most innovative and replicable sustainable transport measures (SMILE, 2007).

In summary, in recent years the interest towards urban transport on the EU policy agenda has been sprouting, resulting in the launch of numerous follow-up initiatives. However, European policies that have an impact on urban transport (such as transport, regional, environmental, energy, internal market or research policies) have often been developed independently from each other. The result is the absence of an integrated European approach on issues linked to urban transport. The complex nature of the problems faced today by Europe's cities requires greater reflection on how to ensure and implement such an integrated approach at all levels (Eurocities, 2007). In this respect MM offers a possible solution.

4 Barriers and opportunities in sustainable urban transport policy development and implementation

The focus of the chapter is on the identifiable barriers in sustainable urban transport policy-making and implementation. Besides presenting an overview of the possible obstacles, suggestions for overcoming them are discussed in view of the challenges decision makers in Sofia are confronted with.

4.1 Institutional barriers to policy development

There can be little doubt that the primary barriers to sustainable transport are institutional. Certainly, there are technical and operational barriers to the creation of infrastructure, organisation of the traffic, renewal of the vehicle fleet, but most of these are well understood over short and intermediate time span and involve fairly routine actions for implementation once institutional impediments are overcome. The importance of institutions can be easily appreciated when it is recognised that policy strategies, transport modes and supporting technology exist that, if used or adopted more broadly, could move countries and cities towards greater environmental and economic sustainability. It is getting to the decision to adopt, deploy, or use that is the primary bottleneck (Stough and Rietveld, 2005). Williamson (1994) points to four types of institutions that are important to consider when urban transport policy development is analysed:

1. Informal – values, norms, practices, customs, traditions;
2. Formal – laws, regulations high level administrative orders (e.g. land use regulations);
3. Governance rules – minor laws, administrative orders, regulations, policy development;
4. Resource allocation – from governmental agencies to firms and non-profit organisations that are about allocating resources to operations designed to impact individual and organisational outcomes.

There are several aspects, components and processes of (and related to) transport systems that are difficult to deal with and therefore resist change because of institutional issues. As such they contribute to the maintenance of less than optimal transport system (Stough and Rietveld, 2005). They can be classified according to the four types of institutions but also in terms of their relation to time as short- and long-term, and general (relative in both time horizons).

- Long-term issues – such as – harmonising economic development and environmental protection goals; institutional friction hindering cross-municipal, regional synchronisation of initiatives and programmes; barriers to adopting new technology; power conflicts among stakeholders; barriers to efficient pricing; achieving cooperation among actors to support intermodality; decoupling the prestige of owning versus rational use of the private car; willingness to pay on part of public and users.
- Short term issues, which have to do with achieving accountability among public transport operators; coping with indistinct regulations; managing freight and passenger transport interactions; managing interest groups; goal definitions of organisations; land use and managing land use.

- General issues with respect to centralised decision making; ability to implement legislative decisions; transport pricing concepts; availability of public transport; taxation of fuels; road use and road access goals; consumer preferences for transport modes, car ownership levels and related lifestyles.

Although the situation in the New Member States (NMS) is certainly as heterogeneous as it is in the old ones in relevance to sustainable urban transport planning and policy making, a number of common societal issues can be identified that require specific attention in this part of Europe (Box 4-1). While the relevance and impact of these issues may differ from country to country, they represent a shared spectrum of particularities to be considered (EAUE, 2003).

Box 4-1 Common issues in sustainable urban transport planning and policy making in the NMS

Institutional context: Problems related to the change of the political and economic system; strong budget restrictions; limited decentralisation and autonomy of municipal governments; basic horizontal and vertical integration deficits between plans and policies; lack of capacities of key personnel and staff in public administration, and deficits in professional and academic education (esp. education in multidisciplinary thinking); limited public participation, stakeholder involvement and information practice in planning.

Urban environment: Different spatial and urban structures (esp. urban functions, densities, urban design); infrastructure endowment and status (e.g. old roads, rolling stock, obsolete technology/ ITC); transport development status and trends (e.g. modal split, motorisation, vehicle age);

Development orientation: Policy priorities (esp. infrastructure expansion) and need to overcome perceived backwardness; different value systems (e.g. private vehicle as a key status symbol);

A availability of dedicated European funds: ISPA, cohesion funds, ERDF, ESF, which are provisioned for infrastructure projects in the field of transport and environment (most commonly rehabilitation of old roads and construction of new ones).

Source: Wolfram (2004).

The urban transport plans developers in these countries should aim to take the outlined issues into account and, where necessary, to formulate specific requirements or actions targeted at overcoming the deficiencies. However, these issues should not be a reason for softening the instruments or watering down the measures for achieving a sustainable transport system. The development principles should be the same as elsewhere in Europe, as differences mainly concern the starting point and the set of problems to be addressed.

4.2 Barriers in the implementation process

Though public policy-making on sustainable transport might seem straight foreword, as it is more or less taken for granted that once a decision has been made the policy will be successfully implemented and the expected changes will take place (e.g. in behaviour, practices,

etc.), in reality considerable gaps often exist between the assumptions underlying policy measures and the responses in the transport system.

There are several forces that prevent a measure from being implemented in its most ideal form. They can either reduce the expected effect of the measure or offset its overall implementation. Banister (2005) indicates six categories of such barriers, grouped as follows:

1. Resource barriers are both about the financial and physical resources necessary to implement a measure. Lack of money for implementation is closely linked to institutional barriers, as local, regional and national governmental authorities are unlikely to provide money for projects that do not harmonise with policy development.
2. Institutional and policy barriers relate to problems with coordinated actions between different organisations or levels of government, and to conflicts with other policies. Sometimes this is related to differences in cultures between departments, or differences in legal powers between governmental bodies that affect the implementation of measures. The competence and potential of the implementing organisation itself has a vital role in the proper execution of the project as unstable administrative organisation and unqualified personnel may reduce the capacity to implement (Smith, 1973).
3. Social and cultural barriers concern the public acceptability of measures. Social acceptability may often depend on whether the proposed strategy compromises “push” or “pull” measures (i.e. discourage or encourage certain practices/ behaviour) with the latter being preferred in any case. In the long run social acceptability is directly linked to attitude change, however in the introductory stages of a new measure it is important to convey to the public the positive outcomes of its implementation and aim at behavioural change motivated by a benefit function.
4. Legal barriers – many transport policies and measures need adjustment of law and regulations, within or outside the realm of transportation (e.g. landuse, regional development). When good implementation requires changes in rules and regulation outside the transport domain, more effort should be expected to be needed in facilitating these changes.
5. Side effects – almost every measure has one or more side effects. If the implementation of a measure is accompanied by serious side effects, this may hinder other activities to an extent that implementation becomes too complicated, although these side effects may only have limited effects on the success of the measure itself.
6. Other (physical) barriers may take the form of space restrictions due to the topography of the area. For example, limited space on the outskirts of a settlement that will hinder the development of park and ride schemes or hilly terrain that is unfavourable for promoting travelling by bicycle.

Banister and Marshall (2000) have carried out an empirical investigation of urban transport policy management measures to assess the scale of the barriers to their implementation. The results show that only one of the sixty-one measures reviewed was implemented without any barrier. For each measure and barrier type, the influence of the barriers on the implementation process was assessed. Figure 4-1 (next page) illustrates the findings in terms of the frequencies by the level of seriousness of each barrier type. The visualisation of the results clearly demonstrates the severity of the implementation problems. Resources barriers occur most frequently, according to the analysed data, followed by institutional/policy and social such.

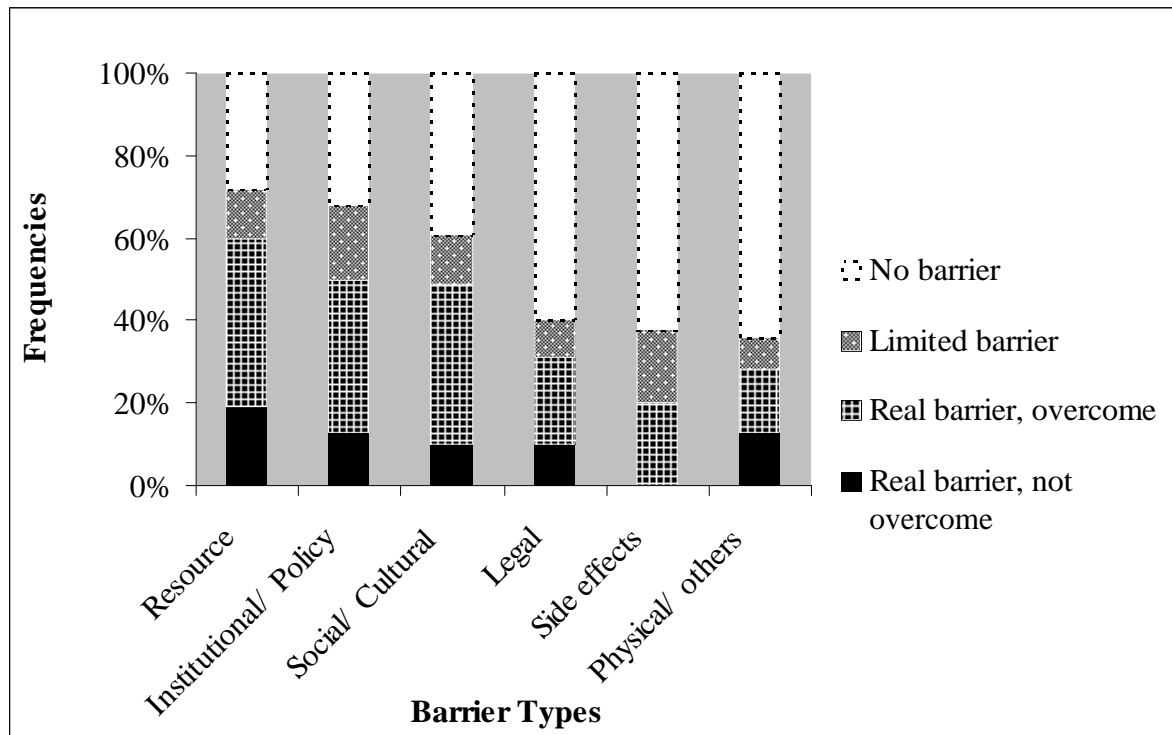


Figure 4-1 Level of barrier seriousness per barrier type.

Source: Banister & Marshall (2000)

Such an analysis is useful in showing where implementation efforts should be focused and where obstacles are to be expected. However, it is one thing (and rather easy one) to compile a list of possible barriers that might occur during the implementation of mobility management scheme, but another to overcome them. The political decision about urban transport policy development is a compromise between numerous interests that have to justify public money spending. To achieve sustainability in such a complex environment, methods of analysis need to be extended beyond a single sector to include explicitly the effects of policy decisions. Banister (1998b) sees this lack of interaction as the main problem to achieving sustainable urban transportation.

4.3 Overcoming planning and implementation barriers in sustainable urban transport development

Transport and spatial policies present an arena of many potential conflicting interests and complexity together with often uncertain outcomes. Five framework conditions need to be addressed so that successful and consistent policy implementation can take place (Banister, 2005).

1. A policy framework on spatial development should be established providing a long-term perspective and consistency within which individual projects can be launched. Such a requirement gets away from much of the fragmentation of decisions at regional level and would provide stability through vertical integration within institutions and horizontal integration between sectors.
2. A sustainable national transport strategy, which would be the backbone of any local initiative for sustainable urban transport development has to be in place.

3. Decentralisation of powers and responsibilities for transport should be commensurate with the level of implementation, together with the necessary resources or revenue raising powers. Still in many countries the flexibility of local agencies is constrained by their limited power to raise investment funds (controlled still by the central government), which in turn discourages municipal entrepreneurship and local innovation.
4. Consistency in policy direction is needed to prevent perverse effects. An illustration of the latter is the aim of local authorities to boost economic activity and improve local employment through aggressive development plans. Such decisions have the potential to generate extra traffic and later on expansion in housing development and sprawl of the urban area (or vice versa). Thus spatial development plans and the sustainable transport strategy should be firmly interconnected and ascertained in national and regional policies for spatial development.
5. Public and private acceptance of policy triggers successful implementation. Communication and involvement become key issues when controversial policies implying behavioural change on a massive scale are to be introduced. This connotes that participation should move from the level of information and manipulation to a full-fledged contribution and empowerment so that decisions relating to transport and spatial policy become accountable to the users (Putnam, 2001).

The checklist presented in Table 4-1 is a useful tool to anticipate and prevent potential implementation barriers. The analysis is carried on two levels: identification of the barrier type and scrutiny of the barrier itself with the help of the checklist. Such an approach provides a thorough investigation of the possible difficulties of implementation and sets up a forum for discussion that involves partnership between the public and private sectors and the users.

Table 4-1 Checklist approach to overcoming barriers

1 Responsibilities	Overlapping responsibilities – spatial, organisational, and planning. Underlapping responsibilities – gaps. Need for clear allocation of tasks.
2 Coordination	Vertical and horizontal coordination – within government at all levels, across sectors and modes, between agencies and professionals – must involve all relevant actors.
3 Technical	To cover analysis, complexity, forecasting, monitoring and evaluation. Agreement on technical case for package of measures, not just individual measures.
4 Traditions	Technical quantitative and discursive qualitative approaches to be reconciled. Compatibility between long-term and short-term policy objectives.
5 Financial	Centralised control with distribution to localities and locally raised resources. Availability and control of budgets, and phasing of investment and accountability.
6 Innovation	Risk taking and interest in radical policy or incremental changes. Commitment to real change and achievement of national spatial policies and the sustainable transport strategy.

Source: Banister (2005).

In addition to being precise about the five framework conditions, the process of implementation must be examined from its formulation through its enactment, to the monitoring and assessment of outcomes so that improvements can be made based on a learning effect.

5 Mobility management in practice: a case study from Lund, Sweden

The following chapter will present the analysis of local transport-environment policy making and planning in the case of the Lund municipality in Sweden. Besides this, the adaptability of the local level governance to developing an environmentally sustainable transport system will be discussed aiming to outline the success factors but also the barriers in the process. The analysis will employ the framework presented in Chapter 2 and use the urban transport policy sustainability criteria to assess Lund's performance on the way to sustainable mobility.

Before going to the details of the developments in Lund a general background to transport policy making in Sweden will be given.

5.1 National and regional traditions, tendencies and practices in transport policy

Sweden has a long tradition of producing transport policies dating back to 1963 (Tengström, 1999). As for the environmental perspective of transport policy development, a certain shift occurred in 1988, which marked the emergence of the idea of an environmentally friendly transport system in Sweden. As a result some timetabled quantitative targets were introduced, although sustainability or the global perspectives of the policy impacts were not part of the discourse. In 1994 the Swedish government appointed an investigative commission entrusted with the task of elaborating a new national plan for transport and communications, which should be able to achieve an efficient, safe, equitable and sustainable transport system (Tengström, 1999). This resulted in a final report in 1997, which advanced the vision that a transport system of the future must contribute to economic and social development without depleting natural resources, destroying the environment or ruining human health, and must be economically, socially, culturally and ecologically sustainable (SOU, 1997:35). In the same period between 1994 and 1996 the MaTs project was produced with the co-operation between several ministries (representing all modes of transport, housing, and the environment), the car industry and the Swedish Petroleum Institute. The aim was to build a basis towards the achievement of an environmentally adapted and long-term sustainable transport system.

On a regional level, a few initiatives have been taken during the 1990s to work towards a regional transport-environment planning in Scania⁹ – the southernmost region of Sweden where Lund is located. These initiatives have been strongly influenced by national authorities, and in general they deal with transport-environment issues in the same mode as at the national level.

5.2 Urban transport policy development in Lund from the 1970s till present

5.2.1 The city of Lund – background information

Lund is an old city with a rich history of civilisation (in Nordic context) founded approx. 1000 years ago. It is a rather compact ellipse-shaped city placed on a gentle hillside. The narrow network of roads (most with paving stone) in the city centre of Lund has generally been the

⁹ The population of Scania is 1,2 million inhabitants, over 90% of which live in cities (Scania Municipal Council, 2007)

same since the Middle Ages. The city itself today has about 79 299 inhabitants (not counting all temporary students, approximately 40 000) compared to 103 286 living in the municipality, including the villages of Södra Sandby, Dalby, Veberod, and Genarp situated 10-20 kilometres outside the town (Lund Municipality, 2007a). Over the centuries, Lund has earned a reputation for being a place where people meet. Today, with Scandinavia's largest university (University of Lund), the University Hospital and the science park IDEON, which are among the largest employers of the region, Lund has become a meeting place for more and more people. Every day, there are 30 000 people commuting to Lund, and 15 000 people commuting from Lund (Gustafsson pers.comm.) indicating a hectic mobility situation. More than 1 million personkilometres are carried out within Lund every day – 55% by car, 35% by public transport, and 10% by bicycle or on foot (Karlsson pers.comm.). As for the number of journeys, 45% of the trips are being made by car, 45% by bicycle or on foot and 10% by public transport (Karlsson pers.comm.) indicating that shorter distances within the town are preferably travelled in a non-motorised way (Karlsson pers.comm.). The use of soft modes of transport in Lund is significantly above the Swedish average (approx. 5% for bike and walking). Car ownership inside Lund is relatively low, with 293 per 1000 inhabitants (2002) – opposed to 374 in the region and 452 in Sweden as a whole (2002) (Lund Municipality, 2007b). In the municipality, the administration for transport planning is a part of the city Architecture Office (also referred to as Planning and Building Office), which works with issues from infrastructure and urban planning to small issues of building regulation. The office is responsible to the Housing Board (consisting of politicians), which answers to the municipality council. Implementation and maintenance of transport projects is a matter of the Technical Service Administration (responsible to the Technical Board). The City Architect Office and the Technical Administration co-operate and co-ordinate tasks on a daily basis.

5.2.2 The deliberation of LundaMats

This section outlines the background and development of Lund's environmentally adapted transport system. Concepts and perceptions on transport-environment issues are used the same way as registered in the case materials themselves.

5.2.2.1 A History of transport-environment policy-making and planning

Lund has a comparatively long tradition of transport debate, policy-making and planning in an environmental perspective. Interest in traffic issues resulted partly from the 20th century industrialisation, when the town grew rapidly. The traffic flow in the town centre rose uncontrollably and in the 1970s reached the same level as on the motorway outside Lund today (Swedish National Board of Housing, Building and Planning, 2001)). As in many other European cities and towns at that time it was the plan to build more and bigger roads in, and around, the city centre in order to solve the problems of increasing car traffic. In Lund this “car-centred” planning practice was broken in May 1969 when the municipality council decided not to demolish buildings in order build a new four-lane east-west road through the city centre. Instead, a “Traffic and Environment Committee” of politicians, university experts, businessmen and public servants was given the assignment to work out alternative recommendations to solve the conundrum. The following 2-3 years the agenda in transport policy-making and planning changed significantly in Lund. Restrictions were imposed on private car use in the city centre, parking fees were introduced, and in 1972 the Committee finished an extensive report on “Transport and Environment in Lund” (Hansen, 1999). As such, this report was a call for an integration of transport planning, urban planning and environmental awareness, strongly recommending an increased attention to cycling, walking, and public transport and furthering the restrictive policies on parking and driving in the city centre. As a result, the local politicians designed a package of restrictions on private car use

that was introduced as an experiment. At the core of the environmental arguments of this period, in relation to transport issue, were locally experienced negative consequences from traffic in the central parts of the city; destruction of the townscape in the historical centre was the leading argument, but noise, safety, CO emissions and decreased accessibility for pedestrians were essential issues too (Hansen, 1999).

Several factors influenced the changes. The idea of new roads through the city centre was in conflict with a broad support for maintaining and protecting the Middle Age road-net. The phrases a “motorway” or an “autostrada” through Lund awoke strong negative feelings towards the plans. Furthermore, the left-turn on the political arena in Lund in the late-1960’s backed up the opposition to the “car-based planning” trends. Yet, it is important to note that a broad political majority (not only from the left) was behind the changes. Finally, the impacts of the planned new roads system in the city centre were assessed in the late 1960’s by Professor Stig Nordqvist (Traffic Planning and Engineering Department at the University of Lund) who also published a book (Nordqvist, 1984) with his vision of an environmentally benign traffic planning. The assessment was a combination of traditional cost-benefit analysis and today’s environmental impact assessments and its findings served as a decisive factor among the politicians and the administration on decision-making.

The next important step in transport-environment policy-making and planning in Lund came in 1985 with the Inner City Plan. Initiated by politicians from the “right” it proposed pedestrian areas in the city centre, restructuring of public transport routes, and further upgrading of cycling conditions. The environmental arguments behind these proposals were dominantly based on the same perceptions as initiated earlier in the ’70s, although a new paradigm of a “car-free inner-city” emerged. The plan became a breakthrough in urban planning and transport policy making by outspokenly prioritising the soft modes of transport for the future. The basic ideas and goals of urban and transport-environment development were anchored firmly in the policy making dialogue, through many meetings, among a wide spectrum of politicians, several interest organisations, public servants and independent professionals.

5.2.2.2 A new agenda for transport in Lund

It took 10 years to implement all parts of the Inner City Plan during which the environmental aspects of transport planning have persistently being high on the Lund’s civil discourse agenda. In December 1995 the transport-environment concerns in policy making were maintained by the municipal decision to work on the elaboration of an “environmentally adapted transport plan” for Lund. The driving force behind the initiative came from the municipal council, which produced a political document with the intention “to create the vision of a long-term sustainable transport development in the municipality of Lund” (Abelson et al., 1995). This document exemplified a new paradigmatic shift in transport-environment policy-thinking, making, and planning by emphasising a shared local responsibility for global environmental problems. The focus was primarily on reduction of transport volumes, emissions and resources (both renewable and no renewable). The new agenda followed as a continuation of the national MaTs programme¹⁰ where Lund committed to working across sectors for an environmentally benign transport programme and plan within the Local Agenda 21 and urban planning in Lund.

¹⁰ This national project, produces 1994-1996, was the result of a co-operation between the car industry, the Swedish Petroleum Institute and several ministries representing all modes and aspects of transport, housing and the environment.

Again, several factors triggered the changes. International and national trends in environmental awareness were quickly absorbed at the local level – both among the politicians, the public servants and the public. Politically, the 1994-elections success of the “left” party was majorly due to the strong transport-environment stance on their election platform. Measurements showing high concentrations of benzene in the air in Lund also played a role in fuelling the public debate. Furthermore, the Inner City Plan of 1985 had been implemented successfully and there was the desire and urge to have a continuation of the process among local politicians and municipal employees dealing with transport planning.

5.2.2.3 Setting up the planning process

In order to commence the work on the environmentally adapted transport system, leading public servants from the Technical Services Office, the Planning and Building Office, and the Environment Delegation worked out a programme, outlining recommendations and a plan schedule. The council also established a Transport Commission (a steering group of nine key local politicians), accountable only to the council and responsible to produce a proposal for a “MaTs” plan for Lund.

One of the first actions of the Transport Commission was to recommend the involvement of a consultant company in the planning process, thus ensuring objectivity, reliability and a high level of proficiency by seeking “competence from outside”. The municipal administration was aware that in-house resources and knowledge were not sufficient to execute such a complex work on the one hand; on the other it was also essential to have a plan that is concrete and possible to implement that required in-practice skills. On this grounds the local consultant company Trivector was chosen (March 1997) for its high scientific profile, good knowledge of local conditions and recognised reputation in sustainable transport projects.

Although the Transport Commission did not have the competence to make final decisions, it became a very central institution facilitating a consensus-building discussion between leading local politicians, public servants and the consultant. The Commission also discussed views and proposals on transport-environment issues, through five planning meetings (the first being a public hearing), with a variety of stakeholders (Chamber of Commerce, grass-roots organisations, industry, Police, public transport, schools, etc.). In addition, an “Expert Group”, consisting primarily of university professors, supervised and challenged the work.

5.2.2.4 The LundaMaTs plan

By January 1998 the consultant finished the last of four reports on LundaMaTs, which described and analysed:

- The current transport/traffic situation in Lund and its environmental consequences;
- Recommended environmental goals;
- Put forward a comprehensive action plan for an environmentally adapted transport system in Lund.

Figure 5-1 (next page) presents the chronological development in Lund’s urban transport planning and policy deliberation process, which lead to the elaboration of LundaMaTs.

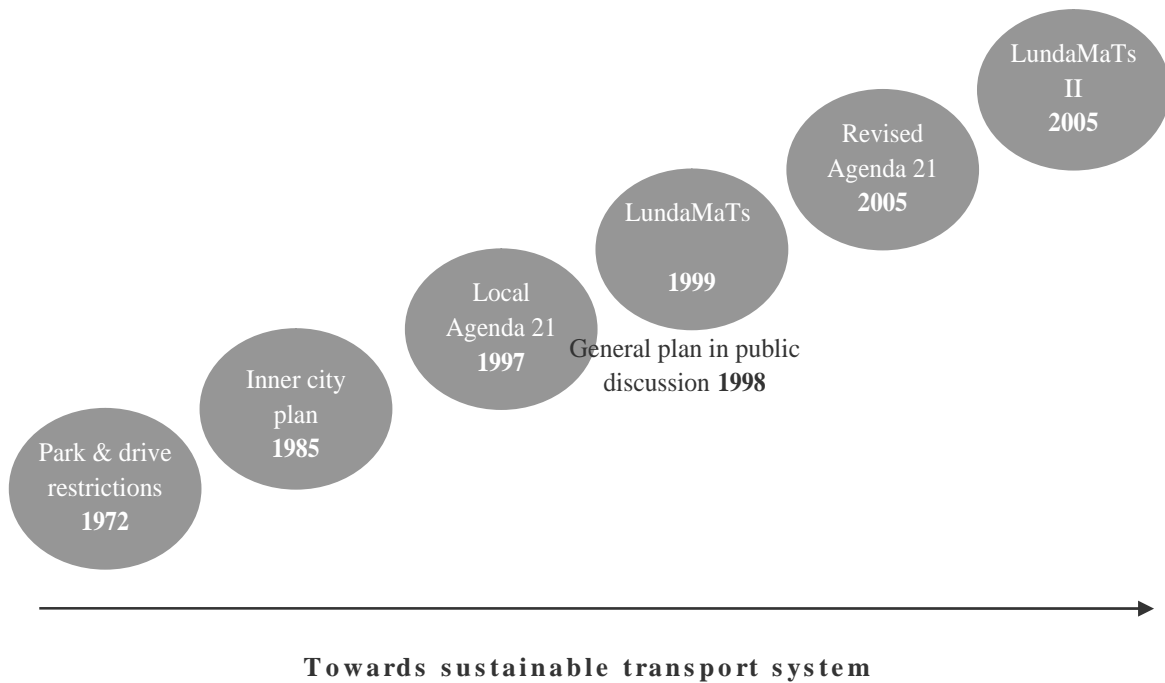


Figure 5-1 Chronological view of sustainable transport planning in Lund

Following is a brief presentation of LundaMaTs based on its ideological set up and concrete aims:

- Concepts and problems – an environmentally adapted transport system is adjusted to nature's and human's carrying capacity. This refers to production, application and final handling of means of transport and infrastructure. The use of final resources must be minimised, emissions of hard-degradable substances must cease, the physical pre-conditions for the cycle of nature must be maintained, and the use of renewable resources may not exceed their recreation (SOU, 1997/ 98). Guided by this definition from the Swedish Ministry of Environment, the LundaMaTs focused on the problematic of transport volumes; commuting; air, soil and water pollution; noise; land use and safety.
- Goals – the ambitious plan concentrated on CO₂, NO_x, SO₂, VOC and carcinogenic substances emissions reduction, noise levels decrease and recycling of infrastructure and transport means. Concrete short, middle and a long-term goals were set for the years 2005/2020/2050, e.g. CO₂ reduction by 5, 20 and 75% respectively (based on 1990 emissions level). Qualitative goals concerning area use, visual and aesthetic aspects and land use priorities were also outlined (for more information see Appendix 1).
- Strategies – five main strategies were employed in LundaMaTs including: total transport volume reduction; improving integration of transport modes; more effective transport management; implementing technical improvements of transport means and fuel; and finally enhanced assessment of environmental impacts of construction and maintenance of infrastructure.
- Means – five main reforms were operationalised within LundaMaTs: environmentally friendly car traffic; extended public transport; bicycle friendly town; town and country planning; industrial transportation (company transport and city logistics) (Lyborg and Hyllenius, 2001). Supplementary reforms focused on IT, the Lund-citizens travelling

outside Lund and on information dissemination, consultation and marketing campaigns for LundaMaTs.

During spring 1998 LundaMaTs was in a public hearing and debate phase. Several public meetings were held and LundaMaTs was sent to 83 interest parties (municipality boards, national & regional authorities, neighbouring municipalities, big real estate owners, companies, political parties and interest organisations). At this stage no new contributions and debates occurred since the Commission had already worked extensively on establishing consensus step by step and adopting various views expressed through the policy-making and planning process behind LundaMaTs.

The total cost of LundaMaTs was estimated to be 1009 million SEK (approx. 111 million Euros, as of April 2007). Its implementation was kick-started in 1999 with a 47.7 million SEK grant by the Swedish government for “local investments increasing the ecological sustainability in the society”¹¹ and a matching amount contributed by the municipality itself. Four concrete projects went underway during the first phase, namely: “The Bicycle City”, “Lundalänken” (a light-rail project connecting the city centre with the major work destinations in and around Lund started with investments in separate bus lanes to be converted to tram lanes), “Walking and cycling to school”, and a “Mobility Office” supported by 83 subprojects (PLUME, 2005) (consult Appendix 2 for a list of the projects and their goals, schedule and budget). LundaMaTs is implemented with joint efforts from the city of Lund, the business sector, the public transportation sector, and further supportive associations and authorities while the Technical Service Office and the Planning and Building Office of the municipality take the major responsibility in enforcement (Lyborg and Hyllenius, 2001).

Assessments of the effects of LundaMaTs were conducted in 2001 and 2004 with questionnaires evaluating the public awareness of the programme and tracking changes in travelling behaviour. The progress reports were made available to the public and revealed that positive outcomes have been achieved. The results illustrated great citizen support: 90% stating that the investments in sustainable transport are good and 19% declaring that they have changed travelling behaviour in a positive direction due to the LundaMaTs activities (Trivector, 2004). Based on these evaluations the city of Lund has revised the LundaMaTs program and formed a new extended mobility plan known as LundaMaTs II, which has 42 planned projects and comprised issues of social inclusion/accessibility besides the regular environmental concerns (Wendle pers.comm.).

5.3 Policy analysis

In this chapter the dynamics of local processes will be analysed in terms of the development and implementation of LundaMaTs. The analysis follows the main structural elements of the socio-institutional approach and builds upon the information disclosed in the preceding chapter. The aim of the analysis is to gather understanding of the process of environment-transport policy making (driving forces, figures, motivations, success factors, strengths and barriers) and to be able to derive some recommendations of how Lund’s positive example can be applied in Sofia’s transport management.

¹¹ In 1997 the Swedish government decided to support local investments aimed at increasing the ecological sustainability in the society with 5.4 billion SEK 1998-2000.

5.3.1 Policy discourses

Several story-lines and public opinions seem to have influenced transport policy-making and planning in an environmental perspective in Lund (Hansen, 1999). Around the 1970s “motorway”, “autostrada” and “car-based planning”, concerning the plans for new roads in the city centre, were used with a strong negative connotation by many different actors. These words served as a powerful metaphor of the common perception that the city centre should be left unharmed, and new solutions, with less motorised transport in the city centre, should be sought. Around 1985 the public opinion on these issues was very much the same, but a new terminology “car-free inner-city” settled down. Besides emphasising on the need for a less motorised urban mobility, the metaphor also established the rationale of considering transport-environmental issues as local problems (of the “inner city”).

During the 1990s transport-environmental discourse in Lund took global dimensions of the locally perceived problems. Phrases like “CO₂ emissions reduction”, “environmentally adapted transport system”, “long-term sustainable development”, and “good life for all” dominated politicians (left and right), public servants and interest groups position. The debate in the press has also shown a persistent and widespread public interest in sustainable development issues with a special focus on urban transport.

The joined influence of all these factors resulted in the integration of the environment-transport theme in the Local Agenda 21 process and making it the central focal area on which the municipality decided to work. The new visions reflected a broad and deeply rooted environmental awareness among the public in Lund in particular transport issues from an environmental perspective became strong story-lines having a significant effect on policy making and planning. Transport and traffic have even settled several elections in Lund, appearing to have always been central issues of public interest (Hansen, 2002).

The sustainability concept was presented in the policy debate by discussions on “finite resources”, “hard-degradable substances”, “use of renewable resources”, and “uncontrolled growth” which accompanied the development of the urban transport sector; later on the “social” concerns were included in the LundaMaTs agenda. The policy making authorities also embraced and popularised the notion that “more roads lead to more congestion” and do not relieve the problems related to increasing traffic volumes. Furthermore, the idea that “clean vehicles do not provide a solution” has been commonly accepted stressing the fact that not only “air pollution”, but also “noise”, “space consumption” and “traffic accidents” should be of central concern in a sustainable transport policy (Söderberg pers. comm.). Recently the consideration of “the ethics and net effects of bio fuels production” has infiltrated the story-lines, which partially explains why “clean vehicles” projects have never found their way to LundaMaTs. The new understanding of transport-environmental issues in Lund has been largely provoked by external forces and influences. The transport-environment discourse reflects upon ideas initiated and formulated at the international and national level, but what is unique is the translation of the global concepts to the problems at the local level.

Summing up, an intense awareness of transport from an environmental perspective among the public, interest organisations, the politicians, and the civil servants (resulting in a discursive hegemony on environmental issues) has significantly contributed to improve the capacity for policy making and planning towards more environmentally friendly transport solutions in Lund (Hansen, 2002). However, LundaMaTs would not have come into existence without strong alliances between many key local actors – alliances through which these concepts, inspired at international and national levels, could be given specific local meaning. The next chapter analyses deeper the way alliances formed and what was their importance in the LundaMaTs formulation process.

5.3.2 Policy communities and networks

One of the most interesting questions in relation to policy networks is the reason of their formation and the style of their operation. In Lund the major interest groups involved in the policy dialogue can be described as follows:

1. The *Municipal Planning and Building Administration* and the *Technical Administration*, which cooperate and coordinate on a daily basis. These institutions are the traditional political channels for planning and implementing transport projects in Lund, however instead of using these boards, the Municipal Council as a first step established a new institution.
2. The *Transport Commission* (a political steering group with nine key local politicians from the Left and Right parties), reporting only to the council, had the sole task of producing a proposal plan for an environmentally adapted transport system in Lund.
3. A *Work Group* (consisting of leading civil servants from the Planning and Building Administration, the Technical Administration and the Environment Delegation, working with Local Agenda 21) that assisted the work of the Transport Commission. The Environment Administration was appointed to coordinate the work while reporting was done directly to the head of the Municipal Administration.
4. A transport planning *Consultant (Trivector AB)* involved through co-operation with the Transport Commission and the Work Group.
5. Finally, a *Reference Group* and an *Expert Group* were established, which were contributing to the policy process during *public hearings*. In the Reference Group, various interest organisations and public institutions (Chamber of Commerce, 'grass-roots' environmental groups, industry, the Police, public transport, schools, students, etc.) discussed views and put forward proposals on transport issues from an environmental perspective. The Expert Group, primarily including university professors, followed and questioned the process and the content of proposals.

Figure 5-2 (next page) illustrates the institutional organisation between the stakeholder groups, which also shows the network links and the channels for exercising influence in the system.

The set up of such a policy network was partially possible because of a tendency, perhaps even a tradition, among politicians and civil servants to adjust the formal institutional/ administrative organisation according to the character of specific problems to be solved. This flexibility became even more apparent in the process of policy making and planning that led to the LundaMaTs (Hansen, 2002).

Policy-styles, innovation capability and participatory set-up and practices in Lund have also been significant factors in the development of such networks. The consensus-building policy-style is characteristic in Sweden (Tengström, 1999), but in Lund, in particular, this style is supplemented by an extensive debate culture with a rather "free discussion". This free discussion is especially exemplified by the relationship between politicians and municipal workers in Lund where public servants are entitled and expected to contribute to the policy development process by expressing their opinion. This tradition/ culture has also opened the way to other interest parties' inclusion in the transport-environment policy-making and planning processes. The participatory set-up and practices around LundaMaTs were of significant importance for its development, involving a wide range of actors of different adherence before making decisions, and even before a public hearing and an official debate phase were announced. It was essential for the actors from the municipal community to

discuss and secure a very broad consensus on transport-environment perceptions, goals and means among all central actors as early as possible, which would grant a rather smooth and unproblematic phase of final decisions to give political mandate to the implementation of LundaMaTs.

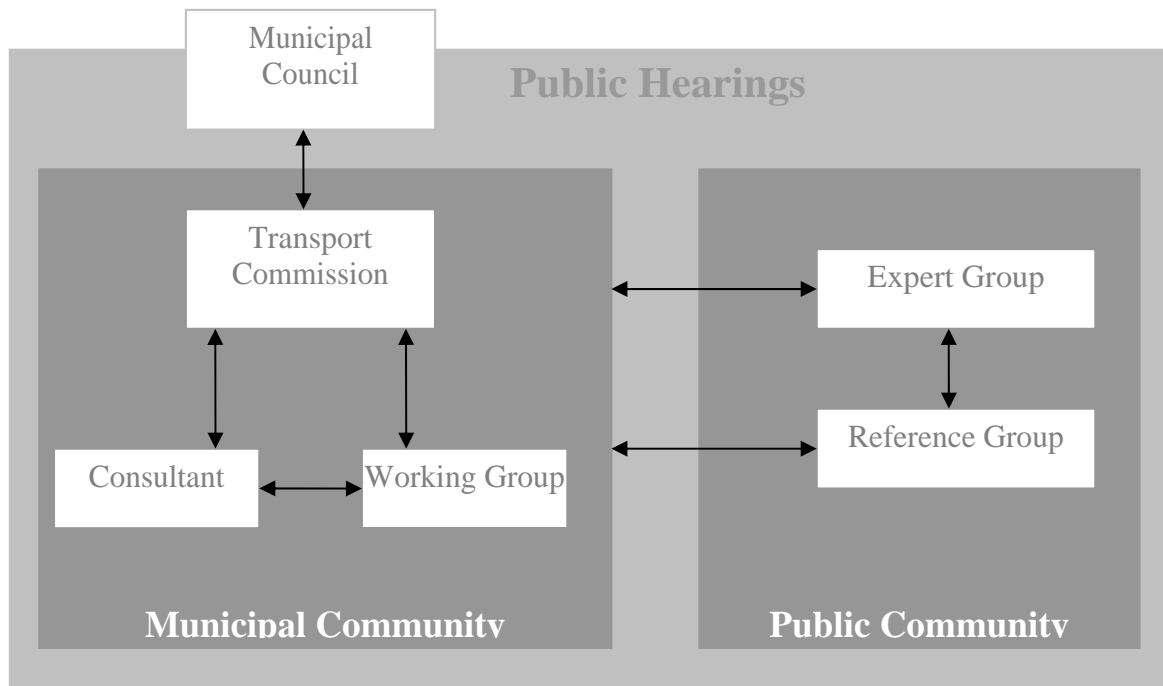


Figure 5-2 Institutional networking in the policy planning and making process of LundaMaTs.

Particularly interesting in the case of Lund is the coalition between economic and environmental discourses. The Chamber of Commerce in Lund has accepted policies aimed towards carfree streets in the city centre ascertaining that fewer cars would actually have positive effects on business and trade. This illustrates that a stable, versatile, environmentally inspired discourse-coalition on transport issues has formed over the years in Lund (Hansen, 2002).

Finally, the Lund scenario attracts attention with a missing co-ordination and interplay between international, national, regional and local levels of government, concerning transport-environment policy-making, planning and implementation. Although at this stage of the LundaMaTs implementation it is difficult to say if it will reach its goals for 2050, an analysis by Trivector (2004) concludes that LundaMaTs and the Local Agenda 21 plan in Lund will fail to deliver in the long-term without some serious concrete actions (e.g. raised fuel prices, road pricing, regional road construction) taken by actors at regional and national level. As a result leading local politicians (Left and Right), public servants and the consultant asked for (further) strengthening/ independence and coordination in policy making on the regional level in Sweden.

5.3.3 Policy arenas

As discussed in the preceding chapter policy-makers in Lund have demonstrated high capability of creating an institutional/administrative (formal arenas) and participatory organisation (informal arenas) during the LundaMaTs preparation process. In this organisation the Work Group, Consultant, and Transport Commission discussed views and proposals on transport issues from an environmental perspective via feedback from the Expert Group and

through five meetings with the Reference Group. The participatory organisation consisted of the Reference Group, the Expert Group and public hearings, while the involvement of the general public was with the arrangement of public meetings. Although no additional attempt was made to make the LundaMaTs plan proposal a widespread debate issue in the public sphere, for example through information campaigns (Hanson, 2002), the plan proposal was received with no objections from interest parties. This is due to the extensive discussions and involvement of key stakeholders and opinions secured by the Transport Commission, Work Group, and Consultant. The observations of the work process between these institutions reveals the way storylines have been distributed and have influenced opinions. Typically, a text for discussion was sent to the member's one week before a meeting of the Transport Commission. At the meeting the Consultant and a representative of the Work Group reported on the progress and working processes of the LundaMaTs plan proposal. This was followed by discussions, particularly on environmental objectives. Similarly, the incorporation of interests and views from the Reference group was secured through an on-going process whereby the Consultant discussed working papers with group members, and received feedback from them. Thus the Reference Group, the Working Group and the Transport Commission were attested as the central arenas in the planning process with the Consultant managing the information bridge between them. Although the major space for debating was the municipal community interest groups (formal arena), the access of the general public was guaranteed by an extensive exchange of opinions through numerous consultations and official public hearings (8 in total). The media also presented an area of public discourse, where articles and views regarding transport-environment issues and following the progress of LundaMaTs were published on regular basis. The exclusively high level policy-making arena could imply that LundaMaTs was the product of broad and heterogeneous elite, with only a modest direct involvement of the general public, however, apparently it is an elite highly sensitive and reactive to public opinion (Hanson, 2007).

In summary, the political-administrative system in Lund has demonstrated flexibility in rethinking institutions, and also attentiveness and openness to outside input and new knowledge, which gave way to the establishment of a dense, well connected and consensus-based network of interest groups. Furthermore, the combination of consensus-building and co-operative policy-style and an institutional/ administrative and participatory organisation legitimising this style have guaranteed the opinion inclusion of the various interest representatives, thus significantly boosting the local capacity for policy making and planning towards more environmentally friendly transport in Lund.

5.3.4 Institutional capacity

Trying to understand further the local dynamics of transport policy making and planning from an environmental perspective, the following discussion will focus on the strategic proficiency/ institutional capacity, which is considered to be the result of the entire policy-making and planning process. The institutional capacity is reflected through the strength, will, skill, knowledge, competence, and responsibility of organised governmental and non-governmental actors to actually deal with transport ideas/visions, objectives and strategies from an environmental perspective (Andersen, 1994). Lund has demonstrated a remarkable strategic proficiency and institutional capacity in several ways. Leading local politicians both from the Left and Right parties have shown the will and strength to instigate and promote environmental sustainability issues within the local transport sector. Indeed it is often mentioned that the political initiative was the most important reason why LundaMaTs became a reality (Söderberg pers. comm.). In addition, the politicians have demonstrated persistent skills in initiating a cross stakeholder dialogues and establishing a practice of political consensus. Moreover, the local public servants and administration involved in LundaMaTs

have shown similar consensus-building proficiency and also the will and ability to co-operate across sectors and increase their knowledge on transport-environment issues (Hansen, 1999). The Lund administration generally encourages creative and independent working style among the civil servants, which contributed constructively to the planning process. The local consultant has proved competent and highly experienced on transport-environment-sustainability issues (both from a practical and scientific perspective) and very capable of passing on relevant information to the stakeholder groups as well as co-ordinating the guiding the process. Furthermore, the presence of strategy proficiency is strongly influenced by Lund being a university city with better educated people committed to environmental issues stronger than the on average in Sweden (Hansen, 2002). Thus it can be said that the strategic proficiency and institutional capacity in Lund to deal with transport issues from an environmental perspective are based on strong political loyalty, openness to stakeholder involvement, trust, competence, and the use of scientific knowledge. These enabled key local policy actors to institutionalise sustainable transport policies in the context of new administrative organisations, programmes, resources and personnel.

5.3.5 Sustainability assessment

The choice of strategies and the design of reforms and specific projects in LundaMaTs are indicative of a clear adherence to some generally perceived recommendations for more environmentally friendly urban transport system (e.g. OECD, 2000) such as improved public transport, improved conditions for soft modes of transport, more environmentally friendly motor vehicles, better traffic management, improved convenience in the alternative mobility practices, etc. In addition, it is claimed (Trivector, 1998) that, compared to a do-nothing scenario, the current setting of measures in LundaMaTs will reduce car transport volumes and emissions of CO₂, HC, and NO_x from transport in the municipality of Lund, though not enough to reach the long-term objectives in the LundaMaTs¹². Moreover, the added global perspective of urban transport-environment conflicts, the focus on “environmentally adapted transport”, as well as the active concern (put in actions) of “finite resources”, “hard-to-degrade substances”, “use of renewable resources”, and “CO₂ emissions” speaks of a position and policy aiming towards what Pearce (1994) phrases as strong sustainability. “Strong” because the policy attitude in LundaMaTs presupposes its functioning in a limited global eco-space where some resources or ecological systems are considered irreplaceable, and some processes irreversible, so that the natural capital should be maintained and enhanced since the functions it performs cannot be duplicated by manufactured capital.

Furthermore, the visionary policy plan and long-term goals are critical for the sustainable progress of a policy programme. LundaMaTs has clearly outlined its dedication to a continuous process, with goals set as far distant in the future as in 2050; meanwhile, it has ambitious interim objectives which assist the revision and steer the advancement of the policy through regular evaluation.

The financial stability of LundaMaTs is also of central importance. For decades the municipality of Lund has put resources into transport-environment policy-making, planning and implementation; furthermore the process was greatly stimulated by the Swedish government financial support. National funding increased the speed of implementation and most likely, generated more funds from the municipality itself (than originally intended for the same period) (Hansen, 1999). In addition, several actors in Lund have expressed concerns that funding from upper governmental levels should be accompanied by information on the

¹² Additional regional and national measures are also needed.

concrete environmental effects of any infrastructural project, as well as by strict environmental requirements and guidelines on how the financing can be spent in a most societally-beneficial way.

A final word in the discussion will be given to the role of background conditions such as geography, demography, history and the split of transport modes, which always play a role in bringing transport-environmental issues on the political and public agenda. In Lund specifically these background conditions seem to have created a very favourable climate for the initiation of a transport-environment policy debate and subsequently for the development and implementation of a coordinated policy plan. The historical and cultural city centre, gentle sloping hills, a rather young population of many students, a compact urban area, and many bicycles (in Swedish context) has favoured a propensity for such issues. But, these background variables have not been decisive (Hansen, 2002) for the origin of LundaMaTs – even though they might be considered to be necessary preconditions. Other Swedish cities, with similar background conditions as in Lund, have not developed environmentally adapted transport plans to the same extent, and in the same period. This is to say that the argument “we don’t have the necessary conditions”, which is common to many municipalities when discussing transport-environment-sustainability development options is of no strong credibility. Favourable conditions are created through political will, institutional dedication and financial support for progressive choices of environmentally sound development.

5.4 Overall results of LundaMaTs

Having examined the major factors that shaped the development of LundaMaTs a brief discussion of its results will follow. This is to demonstrate that some of the measures have already created positive effects and that mobility management gives real improvements in the urban mobility process.

5.4.1 Actual and perceived results

As of today two official evaluations were conducted in 2001 and 2004 to assess the results of LundaMaTs. In 2001, the evaluation was carried out in the form of a questionnaire survey sent out to 3000 inhabitants between the ages of 18 and 70 in the City of Lund. In 2004 the sample was increased to 4000. The results from the evaluations (Tables 5-1 and 5-2) revealed that LundaMaTs has achieved some tangible positive effects in terms of reductions of car travel volume, CO₂ emissions, raising public awareness and changing people’s behaviour.

Table 5-1 2001 evaluation results of LundaMaTs.

Results	Results	
	Reduction in travelling (million km)	Reduction in emissions (tons of CO ₂)
Behaviour change		
Switch from car to bicycle	2.0	520
Switch from car to public transportation	1.9	380
Total 2001	3.9	900

Source: Lyborg and Hyllenius, 2001

Table 5-2 2004 evaluation results of LundaMaTs.

Behaviour change/ activity	Results	
	Reduction in travelling (million km)	Reduction in emissions (tons of CO ₂)
Switch from car to bicycle	4.4-5.4	1200-1400
Switch from car to public transportation	4.4-5.4	900-1100
Eco-driving and bi-pooling	0.7	250
Total 2004	9-11	2300-2800

Source: Trivector, 2004

It was estimated and expected (Lund Municipality 2001) that the reform “Bicycle friendly town” would help to reduce CO₂ emissions by 1300 tons by 2005, and “Extended public transportation” – by another 700 tons. As it can be seen from the Table 5-2 the first target has already been achieved in 2004, while the second has been even exceeded. This clearly demonstrates the success of both reforms and the related measures.

The evaluations also showed that LundaMaTs was effective in changing actors' behaviour in a rather short term. According to the surveys, the level of behaviour change increased from 11.7% in 2001 to 19% in 2004 (Table 5-3).

Table 5-3 Behavioural change measured as a switch from private car use to bicycle and public transport.

Stated degree of behavioural change	2001 evaluation	2004 evaluation
To a large extent	2%	4%
To some extent	2.4%	5%
Sometimes try	4.3%	7%
Have started thinking	3%	3%
Total	11.7%	19%

Source: Trivector 2004

Furthermore it is important to mention that LundaMaTs has been characterised by a very high approval. In the 2004 evaluation as much as 90% of the interviewed stated that they consider that “investments in sustainable transport are good” and they would continue supporting the reforms in the future.

5.4.2 Barriers

Having presented the positive results of LundaMaTs it is of interest for the purpose of the analysis to also get acquainted with the barriers that the planners and programme developers

had to face and overcome during the policy process. Although it was earlier mentioned that obstacles occur in any case and at every stage of the policy making, in the case of Lund these seem to have been of minor significance and not to have caused any major conflicts or create bottlenecks along the development. Indeed the only perceivable barrier that challenges LundaMaTs is of legal-political character and is outside the municipal political administrative system. With the advancement of the programme towards an overarching regional and cross regional cooperation level, legislative and/ or political obstructions came on its way. Each municipality in Sweden has its own policies and regulations except for the cases when national legislation takes superiority, which is the case when national road planning is considered. Thus some local initiatives towards motorised transport use reduction that bridge between two municipalities might seem illegal on a national level. However, all other obstacles that were instigated around LundaMaTs have been successfully (to a big extent) surmounted. This was due essentially to the early and formalised involvement in the new policy development of various relevant interest groups and citizens, through which it was possible to identify, eliminate or neutralize barriers and objections to the future plan and its implementation. Thereby, existing or potential conflicts could be managed before they gained a more significant negative influence through external channels. This procedure reflects a somewhat conscious ambition among the local political-administrative elite to be able to control the policy-making process towards a concrete goal (Hansen, 2006).

Along with the barriers analysis originates the question of the success factors in the policy planning and implementation processes. The following chapter presents what the author considers to be the key aspects of success for the development of LundaMaTs from the institutional analysis perspective.

5.5 Lessons learnt and transferability discussion

The dynamics of the actual practices of transport-environment policy-making and planning in Lund primarily consists of a mixture of elements, of which most have functioned in a mutually reinforcing manner. Yet it is possible to identify the influential factors that steered the process towards a successful end.

5.5.1 The role of local policymaking capacity in sustainable urban transport initiatives

The LundaMaTs project has proven that it is possible to initiate and develop local policymaking and planning institutions and processes that work in favour of more environmentally friendly transport choices. The following composition of factors is claimed to have been crucial in creating an improved capacity to integrate complex environmental problems and deal with the issues within the transport policy making and planning in Lund.

A key element in Lund's case has been the establishment of a *strong and broadly accepted public discourse* based on story-lines, that dealt with environmental problems (e.g. CO₂ emissions) as well as opportunities/solutions (e.g. carfree city centre). The environment dominated discourse was made possible mainly due to the establishment and settling of a consensus on ambitious, long-term environmental goals, strategies, and measures, not only among politicians of different parties, but also among civil servants from different sectors and among a multitude of stakeholders.

Of significant importance to the process of transport policy making and planning was its management, which is determined by the *local policy-style* of consensus building and establishing

cross interest groups agreement on the perception of transport problems and the formulation of transport objectives and strategies. The trust and inclusion of scientific environmental information and knowledge and the delegation of expertise to an external consultant secured a high level of public approval of the process. The local *institutional innovation capability* to establish and organise new and tailored institutions to manage the planning process has also proven to be of essential significance. It helped to establish a *strong and interconnected formal policy network* that served as a pool of ideas, a platform for anchoring consensus and a channel of exercising direct influence on the politicians that in the end would control the decisions of the Municipal Council.

The improved economic stability of the LundaMaTs process, mainly due to the *allocated national co-funding*, played a key role in speeding the implementation and in maintaining high political attention and dedication. The national funding supported Lund at a crucial point by giving external approval and a sense of purpose to a broad spectrum of actors involved in the policy-making and planning process.

Some *background conditions* such as the historical urban structure in Lund and the public dedication to its protection and conservation clearly influenced the initial growth of environmental considerations in local transport policy making and planning. Furthermore, the dominating role of the students and the relatively high general level of academic training among the citizens seem to have opened up the receptiveness and enhanced the acceptance of environmental and scientific discourses among politicians, civil servants, consultants, interest groups, and the general public. The local geography, demography and existing transport system in Lund also had their influence though it could be considered to be of a moderate importance.

To wrap up, the main lessons are that the capacity of Lund to deal locally with the environment-transport problems is enhanced through a strong local discursive hegemony on environmental issues concerning transport; a consensus-building, co-operative, and communicative policy-style; a new and tailored institutional/ administrative and participatory organisation that involved interest parties early in the process; and an economic performance improved through up to 50% national funding. It is reasonable to conclude that Lund's political life can be characterised as – borrowing the terms of Innes & Booher (2003) – a stable, robust and effective adaptive learning system that embraces and includes difference, thus creating extra resources (concerning knowledge as well as economy) and creativity in building new policies and plans (Hansen, 2006) towards ambitious goals for a sustainable future.

5.5.2 Transferability of Lund's experience

One of the main objectives of this thesis is to discuss the opportunities that exist in transferring expertise and best practices in the realm of mobility management between cities. It is not the aim to copy the exact urban mobility management plans, but to adopt the concepts, principles and managerial style that have proven to deliver positive results. In the particular case of Sofia, it is of interest to discuss the possibility of initiating a similar urban transport management debate which can result in concrete policies, plans and goals. What will be transferable thus are not the specific actions resulting from the policies in practice, but the institutional approach to the policy planning and making.

A common argument regarding the issues of transferability is the “local uniqueness” of governance and transport problems. But in the real world we don't live in a closed environment. Although the problems are inherently “local”, knowledge concerning policy

development and good practice may be exchanged all over Europe and beyond. Learning from other cities may be considered a policy formulation process in which planners and decision-makers of a receptor city search for good practices implemented in other cities (originator cities), analyse those practices and the way they have been established and construct a locally suited approach to advancing mobility policies.

TRANSPLUS (2003) has defined several types of transferability: horizontal transfer between jurisdictions at the same level of government; vertical transfers between institutions at different levels; full transplanting of institutions. Horizontal transfers entail the replication and adaptation of policies between different contexts, with a translation of policy instruments, as long as the scale of the settlements has been taken into consideration and policies adjusted to match it. In this case transfers between settlements of different size and between different countries are possible (Figure 5-3).

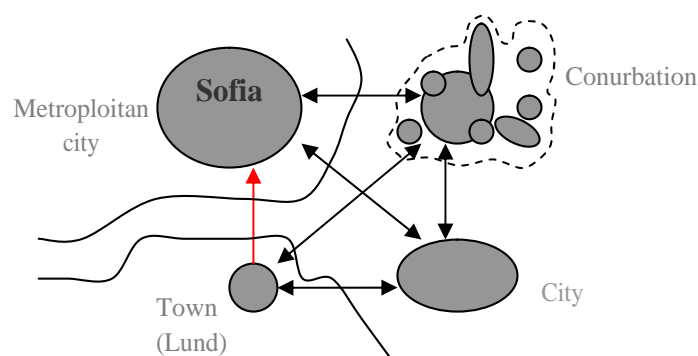


Figure 5-3 Territorial transferability between cities (example of Sofia and Lund)

Source: Adapted from TRANSPLUS 2003

It might occur that not only policy instruments are transferred between cities, but also institutions and related competence instruments are replicated. Indeed, the transplant can entail transferring an instrument (or set of instruments) with a part of their *institutional context* from one area to another (e.g. setting a new institution).

Transferability of innovation is further desirable because the risks and costs involved in developing and test driving a solution can be avoided by adopting a proven approach. Yet, the process between settlements in different countries is generally complex as legislation, planning systems, economic structures, living standards and social expectations are significantly different. On an EU level this difficulties have been lessened by the numerous joint research and test projects, programmes and co-operations between cities and regions regarding urban transport and mobility management (see Chapter 3), however Sofia has been particularly idle in taking part in any such initiatives. Compared to other towns and metropolitan areas from the CEE region (e.g. Prague, Bucharest, Ploest, Suceva, Pecs, Debrecen, Krakow, Ljubljana) which have been actively involved in numerous projects (CIVITAS initiative)), the absence and miss representation of Sofia in the EU urban mobility debate is highly disadvantageous and speaks well of the meagre institutional interest in the issues. Nevertheless several case studies analysis from TRANSPLUS have proven that practices can be successfully transferred, both between cities and from one country to another, yet for Sofia this process might be slower than usual since the preparedness is relatively low.

A useful scheme to analyse policy transferability has been provided by Rose (2001), who argues that policies can be transferred more easily if some “factors of success” are in place, as those illustrated in the table below.

Table 5-4 Significance of factors of success for the transferability of mobility management policies

“Rose” factors for easier transfer	Significance of transferability of mobility management policies	
	General remarks	Case-specific remarks
Where they are less context dependent	Many policy measures are not context dependent, those that are, are clearly non-transferable to certain locations	Many of the LundaMaTs policy outcomes are universally applicable and have been adopted successfully by cities throughout Europe.
Where the organisations for service delivery are substitutable	This should be the case for most cities, but the relationship between organisations may vary – and where multiple organisations are involved transfer may be more difficult	In Sofia such organisations exist but restructuring and creation of new one will be necessary , e.g. a Mobility Office or Mobility Management Coordinating Agency
Where the financial resources available to develop the programme are similar	Resources requirements are generally lower than for major infrastructure schemes, but may be a barrier for some locations	Budget deficits in Sofia's municipal governance are common; significant efforts should be given to overcoming this barrier
Where the mechanisms by which a programme works (“the cause and effect” structure of a programme) are simple	But many measures are not simple, particularly with the measure with long-term impact and complex chains of causality	The lack of expertise and experience in mobility management will be an obstacle for Sofia
Where the produced changes resulting from the policy/programme are small	Some schemes (such as those involving walking and cycling) will result in small changes, but others (congestion charging) have very extensive impacts	This will be very dependent on the secured funding and outcomes from the policy development and its implementation
Where the values of the policy-makers are relatively consensual	Values are defined by local politicians and may vary over the time required for implementation, especially for complex or controversial projects	Compared to the mature value system in Lund, the policy-makers in Sofia are only starting to deliberate on the urban mobility problems, solutions and policy goals through which the values are formed; consensus is still to be settled

Source: Adapted from Rose, 2001

According to this scheme, analysing “transferability” does not only imply knowing the operational features of the policy instruments concerned, but also to understand how a policy instrument may fit into the context of the receptor city. Furthermore, a number of activities which support transferability or increase the likelihood of success have been identified (TRANSPLUS, 2003). These may take place at different levels.

- Collaboration: with a partner city or group of cities (in this case between Sofia and Lund) in formal work to develop policy systems and plans; the transfer of innovation will take place through the structure of a specific project, which might even secure some EU funding. These may include skills exchanges and staff secondments, however the initial indication of interest and will for collaboration shall come from the side of Sofia, which is in need of a model policy development.
- Networking: many cities participate in networks, where they gather to share experiences and transfer expertise through conferences, workshops and other media, however, as mentioned earlier, Sofia has been quite inactive and isolated when regarding urban mobility networks or general urban sustainability such.
- Dissemination: cities who have successfully implemented a new solution disseminate their results to other cities through conferences and journals; however the willingness to participate and accept to work on such a transfer of solutions depends on the receptive city. So far Lund has shown a strong commitment to experience sharing being a participant in the SMILE project aimed at preparing replicable practices for sustainable mobility between EU cities. The long-term and profound experience of Lund will make it a good partner in a possible transfer scenario.

All the above mechanisms are valuable, but there is the need of a more systematic approach to ensure that the results of research and practices experimented throughout Europe are exploited to the full, by matching research outputs to user needs, enabling the means of information exchange, seeking agreement on best (and worst) practice, and promoting the early introduction of new policies, measures and tools into urban and regional planning (TRANSPLUS, 2003). Clearly, it will not be enough to take the example of one city and claim that the approach to urban mobility management and the experienced practices will provide all the necessary solutions for another. Taking the case of Lund is just one possible approach and an example of how transferability considerations should be advanced, assessed and adopted. Transferability will thus be influenced by the information from benchmarking groups, focused on specific themes and based on the methodologies developed in several EC initiatives (e.g. specific land use and transport benchmarking developed in the Thematic Network PLUME); organisation of “peer workshops”, roundtables, one-to-one visits, where planners or decision makers of different authorities (regional and local) will meet to exchange experience and blend in the successful practices to come up with a noteworthy solution for the specific case; moreover independent experts will ideally be contributing to the process too with detailed knowledge of the local context.

6 A look to the East: mobility planning and management in Sofia – a new opportunity

6.1 National and regional traditions, tendencies and practices in transport policy

The wave of change in Western European attitude towards the car and urban transport planning in the late 1980s and early 1990s initialised present day approaches and thinking in mobility practices. Yet this new ideas could have hardly reached Bulgarian transport policy at that time when it was governed by Soviet Union delegated programmes focused on road infrastructure management and expansion. In the years following the political regime change, this process of road infrastructure growth was significantly accelerated, stimulated by the “need” for more and better connections to the West. Meanwhile, as Bulgaria entered negotiations for joining the EU, its transport policy had to be harmonised. In relation to this, in January 2007 the Ministry of Transport published a policy document, presenting a vision for the sustainable development of the national transport system until 2020. Six strategic areas have been defined advancing future work on (Ministry of Transport, 2007):

- Environmentally friendly cars;
- Cleaner fuels and energies in transport;
- Public transport development;
- Modernisation of the road infrastructure;
- Modern (IT) approaches/systems for managing the transport process;
- Reduction of (fatal) car accidents.

The present state of each of these domains is now being evaluated on a national level, specific problems are outlined, prioritised goals and tasks are set, and concrete projects towards achieving the goals and indicators for evaluation are developed. Some of the activities are directed primarily towards the local urban level planning and organisation of the transport, which implies that municipal activation and involvement is encouraged and expected. However, as the policy document is still very new, neither concrete projects have been initiated, nor financial resources have been allocated from the governmental budget.

6.2 Urban transport planning and policy development in Sofia

6.2.1 Sofia City and municipality – background information

Sofia is a 7000 year old city, situated on an open 550 m above sea level plain, surrounded by the Balkan Mountain to the North and the Vitosha Mountains to the South. Its urban form is rather round-shaped placed on a flat terrain (Sofia Municipality, 2007). As of today, the population is 1 220 000 inhabitants with the number of temporary residents of the capital, such as students, commuting workers and foreigners being between 150 000 and 300 000. Thus, the number of Sofia's residents most probably exceeds 1.4 million, the average age of the population being 38 years (NSI, 2001). A National Statistical Institute (NSI) forecast of

demographic trends foresees a stabilisation of Sofia's permanent population at approximately 1.2 to 1.3 million inhabitants in 2030. The territory of the municipality also includes the areas of 3 towns - Bankya, Novi Iskar, Buhovo, and 34 villages, their planning and development activities being coordinated with the Comprehensive Plan of the capital. The average distance from the centre of the city is 4.4 kilometres per person (Avramov, 2004). Infrastructure wise, the large residential satellite-quarters are connected with the central part of the city and the industrial zones through several main diagonals, which is why 75-80% of the passengers cross the central part of the city every day on their way to work, school, etc. (Sofia Transport Survey, 2001). This has been one of the most difficult problems for transport planners and managers to tackle. The latest available data shows that the modal split among the travels in Sofia is dominated by public transport with 63% of the population using it for their daily mobility needs, 27% relying on a personal automobile, 3% taking a taxi and 7% "marshrutka"¹³ (Popchev, 2006). Sofia still has a much higher share of urban transport in comparison to other European capitals, e.g. 35% for Vienna (VCÖ, 2006) and 28% for Berlin (Berlin Senate, 2000) both being above the EU-15 average. However, the modal split in the Bulgarian capital is practically limited to motorised transport modes, while in Vienna 29% and in Berlin 35% of the trips are done walking and cycling.

Meanwhile car ownership is progressively growing with Sofia being a leader on an EU wide scale. In 2001 the city ranked fifth among the European capitals in terms of cars per capita (Figure 6-1 next page) way ahead from Paris, London, Vienna or Budapest. The number of automobiles has risen over three-fold in less than 20 years: from 250 000 in 1989 to 800 000 in 2005 (Stanilov, 2006). According to the municipality (Stoilov pers. comm.) their number is already one million, which means that the predicted motorisation levels for 2020 of 520 automobiles per 1000 inhabitants have already been reached. Increase in car ownership levels has been historically coupled with increased use of the automobile and growth in travel volumes if no compatible alternatives (e.g. public transport, cycling routes) are made available. This trend has been confirmed empirically in many European cities and is clearly observable in Sofia nowadays.

Organisation wise, the administration for transport planning and policy development in the municipality is shared between four entities: 1) the Transport Office and the deputy mayor of transport, 2) the Architecture and Urban Organisation/Planning Office, 3) the Public transport company (SKGT) and 4) the permanent Transport, Transport Infrastructure and Transport Safety Committee to the Municipal Council.

¹³ A form of a cross-over transport service between taxi and public transport which developed in the late 90's provided by private companies with the use of minibuses; the routes are fixed, while the stops are determined by the passengers wish

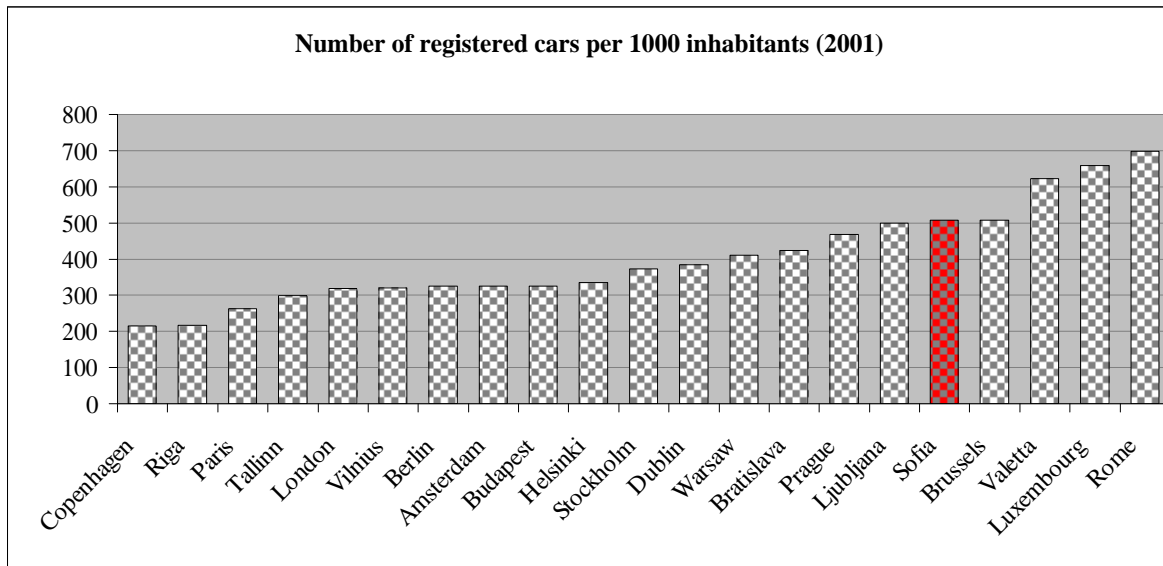


Figure 6-1 Registered cars per thousand inhabitants in European capital cities

Source: Eurostat, 2005

6.2.2 Policy deliberation

6.2.2.1 A history of transport policy-making and planning

In Sofia urban transport planning and policy development have traditionally been included in the Comprehensive Plan¹⁴ of the city. During the socialist regime (up to the early 90's) the transport planning paradigm centred on the creation of a monocentric model of the urban infrastructure and roads construction to meet the travel needs in the capital. Public transport development was a crucial governmental project (with the development of electrified and motorised systems) and was fairly well established although the construction of a "Metropolitan" (underground), which started in 1976, but was only launched in 1996, has been a highly controversial project. Environmental considerations in transport planning and development have hardly been an issue during these times. Due to the generally low levels of personal car ownership and number of car trips, the automobile was not seen as a precursor of urban environment conflicts.

An interesting phenomenon in the city development is that most of the comprehensive plans that have been in use during the years never reached the end of their provisioned implementation period. Several historical researches and analyses showed that these plans always failed to be implemented in full because of the occurrence of sudden and acute crisis in the urban environment (Sofia Comprehensive Plan, 2003):

Thus, it can be stated that the Comprehensive plans have never been created on the basis of logical, meaningful and continuous development ideas, but have rather been the product of frequent and distorting crises, the last one of which has been the change of the political regime and the period of transition. From 1989 till 1998 transport planning and management was grounded in the inherited plan functioning since 1967, which has been tailored sporadically whenever a new emergency occurred. In 1998 a decision for the preparation of a new plan was

¹⁴ Also known as Master Plan, General Plan or Urban Development Plan.

made on a municipal level. Its development took five years and in 2003 the plan was accepted by the Municipal Council to enter into force only in January 2007.

To sum up, the transport planning and policy development in Sofia has been subjected to and formed under the dramatic influence of socio-economic events of change and insecurity. This prevented the development of a firm, clear policy line and the establishment of continuous programmes and a tradition in transport management the negative effects from which are badly experienced today.

6.2.2.2 Transport-environment issues in the recent planning and urban development processes

Currently transportation is a major challenge for Sofia and is of primary concern for its residents. Traffic in the capital has increased by 35% in the last decade due to increased personal income, need to travel, and car ownership. Decentralisation of jobs and residences further intensify mobility patterns (Tsenkova, 2007). Major priorities for the development of the transport system were outlined by the municipality in 2001 (Sofia's Vision, 2001):

- Development of a specialised general transport-communication plan of Sofia;
- Approval of a new programme for the gradual improvement of the public transport organisation;
- Accelerated renovation of the transport infrastructure, rectifying stations, maintenance and repair of facilities, and transport management equipment;
- Accelerated renovation of the vehicle fleet.

The priorities are highly ambitious setting a direction towards improvement of the transport conditions in the Bulgarian capital. Yet, their implementation in concrete programmes should be of central consideration for the municipality.

All in all, although the past ten years have brought new ideas to the transport planning and policy sphere, not much has been done in terms of actual projects. The issues of sustainability, ecological balance and urban nature protection infiltrated the policy debates and found their way to various policy documents (discussed later in this section); however their use and implications are still somewhat foreign to policy-makers, civil servants, planning professionals and the general public. Meanwhile, an actual transport policy is not available to direct the municipal programmes in urban transport governance. The guidelines and concepts for the urban mobility management are specified in various planning and policy documents among which: the *Regional Development Plan for Sofia Municipality* (2005), the *Sofia City Development Strategy* (SDS, 2003) and the *Comprehensive Plan* (2003) but these are of no detailed and comprehensive nature and leaves the municipality with the uneasy task to steer its policy line among the provisions. The *Comprehensive Plan* is by far the most relevant and influential regarding transport management, but the other two documents also had a significant role in determining local and regional policy making. Following is an overview of the main ideas of the above mentioned documents in reference to urban transport management.

Regional Development Plan

The aim of this document is to steer the development of Sofia city and region till the year 2015 in a harmonised and integrated way within a development concept with certain principles and goals and declared priorities to support a strategic vision (Regional Development Plan, 2005). During the preparation phase the plan was coordinated by a specially designated Group for Strategic Regional Planning – cooperation between the municipality (represented by the Foreign Investment Office), the Regional Development Commission (Office of Regional Planning and Territorial Development and Public Relations Office) and the municipal enterprise “Sofproekt” (responsible for the development of the Sofia’s Comprehensive Plan). A group of external experts was involved and consulted on an on-demand basis. The plan was developed in four consecutive phases (*organisational, preliminary regional development plan, expert and public discussions, final plan elaboration*) and contains relevant to the transport development recommendations on regional and city level based on motivated sustainability principles for the urban environment. These are revealed in the planning concepts as:

1. *General spatial development principles* focusing on: regional approach to policy making, balanced development of the city and its peripheral zones, sustainable development of the urban environment; and
2. *Transport communication system principles* of interconnectedness of the Trans European corridors with the transport infrastructure of the city and the region, construction of a modern transport network, stimulating the shift to a polycentric spatial development of the capital, prioritised development of an integrated public transport (with the backbone being the metro), enhancing the use of rail transport for city and regional travel, establishment of a composite parking system, as well as a buffer parking system with a “park and ride” scheme, and development of an utilitarian cycling system.

The principles set the frame and policy lines of a strategic vision with priorities for the development of the different urban systems including (with relevance to transport):

1. *Development and modernisation* of the transport and technical infrastructure on a regional and town level;
2. *Improvement of the living conditions and the urban environment quality.*

The stated priorities are defined further with concrete measures such as (regarding living conditions) rehabilitation of public space, increase in the number of pedestrian areas, improving the access of the disadvantaged population to the urban spaces, etc.

Sofia Development Strategy

Development of Sofia’s Strategy started in 2000 when city management forged a partnership with the Cities Alliance – a global programme led by the World Bank and the United Nations Centre for Human Settlements (UN-Habitat). The goal of the initiative was to enhance the development of democratic and self-reliant municipal management system in Sofia in a manner that generates sustainable, long-term benefits for its residents. It promoted the creation of a vision for the future development of the city with clearly defined goals, objectives and actions within publicly agreed priority areas. The strategic planning process was divided into five phases and hosted wide-ranging modes of public participation and involvement. The focus was on issues pertaining to Sofia’s economic, social and spatial structure. Three main objectives were identified: promote sustainable economic growth; improve local governance; and improve the urban spatial structure (SDS, 2003). The goals that were set to the project

touch upon the management of urban mobility on the urban structure and city services level. Thus in services, objectives for “investment in infrastructure to improve the quality of urban transport” and in urban structure for “sustaining the vitality of the city”, “improve quality of life in the housing areas”, and encourage “sustainable use of natural resources” were developed (SDS, 2003). However no specific action programmes regarding transport were established as a result from the SDS visionary development goals. This is partially due to the 2005 local elections results when a new mayor entered office to replace the patron of the SDS development and consequently its implementation.

Comprehensive Plan

The main purpose of Sofia’s Comprehensive Plan is to guide the macro structural development of the capital towards an integrated urban management scheme until the year 2020. It outlines the major problems and based on these suggests priority action areas for each functional system. In its provisions the plan is the closest document to what an urban transport plan would provide for regarding the transport-communication system development and functioning. Identified as major conflict areas are the congestion in the central part of the town, as well as the difficult access and mobility both for pedestrians and motorised vehicles through the city centre (Dikov pers. comm.). Suggestions to solving the problem are centred upon:

- Road infrastructure increase – the construction of tangential roads and the completion of the Sofia ring, as well as doubling the first rate road system by 2020;
- Prioritised development of the public transport system (especially of the Metroliten), which would integrate and coordinate all the existing mass transport modes;
- Development of “radical parking policy” and “car access restrictions” in the city centre with strict measures for its implementation, together with a “park and ride” scheme;
- Entire reorganisation of the transport in the city and Sofia region
- Building of a complete urban cycling network.

Further specifications in the planning process are aimed at improving the urban environment quality in accordance with the EU standards; the air quality problem is directly linked to the increasing car traffic, with concrete actions proposed of substitution of buses with electrified public transport modes (trams and trolley buses).

6.3 Policy analysis

As Sofia is in an eminent need of preparing a clear urban transport policy and developing an integrated transport-communication plan the analysis of the existing so far documents with relevance to transport management is of crucial importance for the identification of the policy areas to be considered, reconsidered, tailored or revolutionised in the forthcoming process. Moreover the analysis reveals the elements and style of the policy making practice and helps to identify the possibilities for improvements in the design and management of the process. Currently the transport planning concept (defined by certain approaches, views and ideas) in Sofia stands somewhere on the periphery of an “integrated planning” (consult Fig. 2-1), which raises the question what are the reasons behind this, or what are the deficiencies in the policy making process that offset the state-of-the-art management of the urban transport in Sofia.

The ultimate goal thereafter is to set a policy development path towards a state of mobility management in the Bulgarian capital.

6.3.1 Policy discourse

It is clearly observable that policy metaphors common to the urban transport management debate in Sofia are far less mature, less complex and multi varied compared to the ones present on the arena in Lund. The first thing that stands out when analysing the common story lines is the strong orientation at particular project-ideas and measures that becomes a purpose in itself, losing sight of the actual problems to be resolved, and the dominance of the technical fixes in the transport management (Chakurova pers. comm.). Emphasis is put predominantly on the local implication of the problems (traffic growth affects negatively the urban environment, but the regional aspect is often disregarded) centred on the immediate effects of the increasing personal urban mobility. Thus the phrases “congestion”, “difficult access for pedestrians”, “parking deregulation”, “car dominated public space”, “road infrastructure insufficiency” have a negative connotation in the public realm, but in the same time are being disconnected from the cause of their occurrence – the increased use of the car, slow development of the alternative mobility modes, mismanagement of the public transport and spatial planning decisions which are not always consistent with the principles of sustainable urban development. This explains why the commonly suggested solutions out of the transport mayhem in Sofia are based on technical improvements – such as – “road building”, “increasing parking space”, “building of new parking facilities”, which address the consequences of the urban traffic problems but not their causes and are generally seen as ineffective solutions elsewhere in Europe.

The “cycling and walking” story line has recently surfaced in the urban mobility debate. Generally both alternative travel modes have been excluded from any statistical surveys on public transport and their potential to improve the urban transport conditions seriously undermined, however the necessity for establishing favourable conditions for urban cycling gained momentum on the political municipal arena with the decision of the council to advance the construction of a complete cycling system (Borislavov pers.comm.).

Furthermore, the “prioritised development of public transport”, combined with a “park and ride scheme” is a prevailing discourse among the different policy documents, which have the potential to offset the growth in personal motorised vehicles use, if well organised and marketed with adequate supportive measures and programmes. The concepts of “ecological balance” and “urban nature protection”, improving the “vitality of the city” and “quality of life in the housing areas” (polycentric development) and encouraging “sustainable use of natural resources” in relation to transport management are also represented in the policy storylines. These are all very encouraging environmentally concerned messages that need to be backed up by holistic programmes to start a process of change management.

6.3.2 Policy Networks

Compared to the well-established policy networks among the actors in the urban transport planning and policy development in Lund, such a permanent alliance set-up is difficult to identify in the case of Sofia. Probably the closest to what a policy network is in terms of its functions and operations was formed during the SDS process. However the interconnected groups of actors existed only for the purpose of creating the strategic document and had no relation to its implementation. Moreover it has ceased to function due to the general abandonment of the SDS as a leading document of the municipal development as a whole.

Yet, it is of importance for the future elaboration of a transport-communication plan to identify the major stakeholders to the process and secure their involvement in the policy-making from an early stage. As of today key actors to the issue are: the municipal Transport Office, the Chief Architect together with the Comprehensive Plan team from the Urban Organisation/ Planning Office, the city-districts and regional-settlements mayors, the Transport Committee to the City Council, the municipal urban transport company together with the service providing private companies and the Police.

Regarding the municipal policy style, it is generally of dominating fashion with decisions made at the higher levels of the administrative structure with little contribution from the civil workers. Approachability and openness to external input is rather limited but the process to democratic transition is stimulating the establishment of a participatory set up in the policy making. Clearly, the opinion and interest of the general public is of great significance when issues related to urban transport development are at stake. However it is generally not a practice to organise public meetings and consultations when transport development issues are discussed (Popchev pers.comm.).

6.3.3 Policy arenas

The practice of institution-building (the design of arenas) in the policy making process in Bulgaria is immature. The country is practically on the way to developing and educating a style of democratic governance among administrative institutions and the same process applies to Sofia's administration. The local policy arenas are rather formal and hierarchically structured; the informal participation is represented by experts, agencies, but also by NGOs and academic institutions. Clearly, the role of the "informal" arenas needs to be strengthened so that the actual need and interests of the citizens can be reflected in the urban mobility planning and policy development. The change in the hierarchical relationships and lines of communication among local government, NGOs and citizens will generate a momentum for cooperation and enhance the administrative capacity to deal with the complex issues characteristic to the transport-environment debate.

6.3.4 Institutional capacity

The assessment of the strength, will, skill, knowledge, competence, and responsibility of organised governmental and non-governmental actors to deal with urban mobility management problems in Sofia is a laborious task. Institutional structures in Bulgaria are rather unstable with old and new organisations coexisting in the present environment, confronted by new rules/legislation/policies and new institutional actors (Golubchikov, 2004; Jaakson, 2000). As a result, planning institutions (most relevant to observe in the context of the research) have to redefine their mandate in a new and more diverse (economically and politically) institutional mosaic. Yet, the traditional tools of land-use and transport-communication planning, sectorial infrastructure planning and financial management – a powerful socialist legacy – are still imbedded in the planning legislation and planning practice (Bertaud & Renaud, 1997; Thornley, 1993). Municipal planning departments operate in isolation maintaining a working etiquette of "closed office room" and experiences with public consultation in the planning process tend to be limited. Thus the civil society's knowledge and skills are sparsely utilised in the planning and policy making process, while greater potential for contributing to the institutional competence in combating the urban transport crisis exists.

6.3.5 Sustainability assessment

Assessing urban mobility policy in the Bulgarian capital is particularly challenging, since a uniform strategy outlined in a specialised document has not been developed as of today. Although the competent administrative bodies on a municipal level have declared the emergency need for the elaboration of a transport management plan (e.g. General Transport Plan, Sustainable Urban Transport Plan or Mobility Management Plan) its existence is still just a speculation (Dikov and Stoilov pers. comm.). Yet, based on the auxiliary policy materials and majorly on the stipulations of the Comprehensive plan regarding urban transport development, sustainability assessment is attempted.

Positive specifications (in view of system sustainability)

- The construction of tangential roads and the completion of the ring will divert the transit traffic from the inner city in the short term; this combined with the provisioned “park-and-ride” scheme development, together with a “strict parking policy” and “restricted access” for automobiles to the city centre may result on long-term solution to the congestion problem.
- Other prioritised programmes are the development of a parking system for the inner city and the building of surface and underground parking facilities in and around the central urban district. The completion of the project would improve the accessibility for pedestrians, but in order to limit the traffic volume in the city centre the parking facilities have to be well connected to the public transport network so that intermodality of travel choices is possible.
- The development of a “park and ride” scheme is a crucial step towards improved urban mobility. At present parking facilities forming part of the system are being built at the end stations of the Metrolin. However similar constructions need to be advanced at the end stations of the other transport modes, e.g. trams, buses, trolleybuses whose routes cover much bigger part of the territory of the capital compared to the single metro line. Additionally the actual operation of the park and ride should be developed as an inherent part of the public transport system. This way marketing strategies and promotional use of the scheme is organised by the provider of the accompanying service (the public transport), which prevents the occurrence of misuse or ill planning and fosters the completeness and good coordination within the system.
- Prioritising the development of public transport is a clear strategy towards sustainable urban transport. As of today major efforts and investments are concentrated on the finishing of the first Metrolin line. However buses, trams, and trolleys are lagging behind; it is even planned that eighteen bus lines will be closed down to “relieve the traffic” (Borisov pers. comm.) once the Metrolin line is in operation. Such decisions should be carefully studied and assessed without forgetting that the metro system works effectively only in combination with a dense network of lines and stations connected to the above-ground public transport network (Stanilov, 2006).
- A dedication to advancing the soft-modes infrastructure is declared in the plan. The building of a system of bike lanes is also supported by a municipal decision. It is the pending responsibility of policy makers to decide on the size, span and time diapason of the programme.

- Considering the social sustainability, the concept of improving access is fostered in the Comprehensive plan. This has to be combined with safety-improvement provisions to develop a comfortable and secure urban environment for the most vulnerable users.

Shortcomings

- One of the first specificities observable and common to all the policy developments is the lack of long-term goals, concrete measurable objectives and timelines. Thus commitments to reducing congestion, improving urban accessibility and prioritising the development of public transport for instance, seem to be unconvincing. Moreover the lack of a vision for the future state of the urban mobility, a policy line which if followed persistently prevents the set up of continual programmes with ambitious targets. The practice of sporadic, unrelated to each other investments, or the introduction of random physical or financial measures aiming to relief the transport problems load on the urban environment would never have the necessary effect if not planned with a long-term perspective and in view of an integrated urban transport management policy.
- The transport system is vaguely studied and monitored. The practice of systematic surveys on transport volumes, modal split between the different modes, travel purposes, the willingness to travel with different transport modes and to pay a certain price for a service provided by the municipality has been broken in 1997. These data is essential for identifying the trends in urban transport, behavioural practices, willingness to change travel patterns, factors that influence mobility choices. Without the understanding and knowledge about the latter no adequate and successful sustainability oriented policy can be designed. Policy and decision makers need to know the characteristics of the present state of the transport system to create a vision for its development through influencing the levers that would produce the greatest desired effect with the limited resources available.
- It is also discernible that the current policy provisions are sometimes contradicting each other regarding spatial development and its effect on the mobility in the future (Popchev, 2006). The idea of polycentric development of the city has its strengths and potential to offset the growth in traffic volumes and the concentration of traffic in the city centre, but only if the assigned development axes are not following the major rail routes, which would guarantee access to public transport in this newly developed outskirts districts.
- A striking approach to transport management in the Comprehensive plan is the development based on a 45% modal share for the automobile as compared to present 27%. A clear contradiction exists between this vision of the urban mobility future and the commitment to improve and enhance the use of public transport. Such an increase in the use of private transport will be catastrophic for the possible sustainable development of the system by favouring equally public transport and the car.
- Disputable from a sustainability perspective is the enthusiasm with which the municipality has embraced the plan of building new roads within the city. The argument that Sofia does not have enough high speed boulevards, which is to blame for the congestion, does not withstand validity. Compared to Vienna for instance Sofia not only has more of this type of infrastructure, but also has a longer network of streets: 3400 km, compared with Vienna's 2800 (Appendix 4). Vienna manages to avoid road congestion not by building new thoroughfares – on the contrary – it is closing down lanes for cars, but instead is opening more cycling alleys, public transport lanes and wider sidewalks. Other European cities such as Munich, Zurich, Amsterdam and Copenhagen are doing the same (Stanilov,

2006). Moreover the scale of the provisioned construction and reconstruction of roads clearly outgrows the actual physical and financial capacity of the municipality to complete it (Popchev, 2006). The development is also declared as “first priority”, meaning that it will be favoured when new investments are decided.

- Walking has been excluded from any policy stipulations. It is not considered a full-fledged mobility mode and thus no programme targeted to increasing its modal share has been stipulated. This is clearly a deficiency, which needs to be eliminated, if the development of a sustainable mobility system is pursued. Not least because the creation of more walking routes increases the vitality of the urban environment, but also because the trips on foot are a viable alternative to using motorised transport in the city.
- The regional perspective of mobility management is also essential to consider and has been seriously disregarded in the policy development process so far. No plan would yield any sustainable results if not created in harmony and taking into account the specifics and needs of the whole regional transport system. As Sofia is receptive to a huge amount of commuter's vehicles daily – coming mainly from the settlements in the Sofia municipality – it is vital to address this mobility practice already in the planning stage and provide alternative solutions to the incoming car traffic flow. Although the plan aims to provide for an integrated strategy for the regional development, most of the stipulations are focused on the problems and process in the city. The regional perspective is mostly observable in the recommendations for securing the good infrastructural connection between the capital and the settlements in the municipality, although it is not clear which transport mode will be prioritised: rail or road. The plan as such contains relevant policy ideas and guidelines for the development of the urban transport in the city and region, but does not provide the depth and extensiveness needed for the sustainable management of the system.
- As of the financial sustainability, the municipal budget on transport management is highly dependent on governmental subsidies, which are diminishing every year. This is especially damaging for the development of the mass public transport since sparse funding is available for investment in technical renovation, maintenance and optimisation of the services, to say nothing about development of new public transport routes. One of the major conflicts in relation to the city budget is that the administrative management lacks independence to secure and adequately plan future revenue and expenditure levels as these financially related decisions are largely controlled by the central government. The city's main strategy is to forge a partnership with the central government to determine a transparent and stable framework for the central-local financial relations in an effort to gradually increase its financial independence (Zeijlon et al., 2002). Two policies inhibit the planning of medium- and long-term investment programmes. First, municipalities are restricted to spend up to 5% of net savings or revenues on capital investments. Second, local governments receive central government transfers in the form of capital expenditure grants (Tsenkova, 2007). The unpredictability of this source of revenue hinders the development of continuous durable programmes, which are indispensable for the creation of a sustainable mobility organisation. Undoubtedly, there is a need for a defined mechanism to allocate investment subsidies in a systematic and transparent way, which will support a long-term strategic policy development, regarding not only transport, but all the functional systems of the urban environment.

Yet another perspective to assess the sustainability of the plan and current “policy” scenario is the track of the missing storylines on the policy discourse. So far urban freight is entirely ignored in the debate, as well as questions on the car driving culture and etiquette. Neither is a

discourse on more environmentally friendly motor vehicles use, i.e. car pooling, car sharing, clean and alternative fuels, advanced in the public space. Moreover global perspectives of the effects of transport growth are completely neglected: CO₂ emissions, renewable resource depletion are not considered and reflected in any of the policy storylines. A future policy development needs to encompass all these aspects of the urban transport sustainability debate to guarantees completeness and effectiveness of the consequent programmes.

Considering the policy provisions in the analysed documents and benchmarking them against the OECD objectives of sustainable transport policy development, it can be concluded that positive development trends have already been laid down in the Comprehensive Plan (bicycle network, public transport prioritisation). While these need to be further strengthened and supported by concrete measures within observable timelines, some considerable sustainability deficiencies are also identifiable in the way Sofia's urban mobility policy is planned. The current policy specifications are developed without having unifying policy goals, targets and evaluation criteria, which makes it impossible to follow the progress and assess the results of the different programmes. Moreover some of the stipulations are in contrast with the basic sustainability objectives (e.g. the planned extension of the road network and its effect on travel volumes), while others leave mixed messages about their sustainability nuance (e.g. prioritised development of the Metrolin while planning to close down considerable amount of bus routes once it is completed). Generally the policy development has a strong technical, supply-oriented perspective with emphasis on hard measures (road and parking building, construction of the Metrolin line) and employment of negative incentives (access restrictions). There is a pressing need for an intervention in the urban transport management, one not comprised of last-minute "boat-saving" measures but based on an integrated approach to the problems in the system with focus on demand-oriented strategies, changing user behaviour and in favour of both more sustainable modes of transport and alternatives to travel. Mobility management comes useful in such strategic moments, providing a proven, empirically tested policy approach to achieving sustainable development of the urban transport. The author is convinced that mobility management offers the most suitable solutions to the transport conflicts in the Bulgarian capital (e.g. development of the bike network together with educational campaigns on cycling to ensure users' safety and promote the image of utilitarian cycling or building the Metrolin line together with implementing a parking management thus reducing peak automobile travel by providing a combination of positive and negative incentives for middle-class commuters to use alternative modes) and strongly advocates its adoption as a guiding approach in policy planning and making. The reasons why and possibly how the development can come into existence are disclosed in the next chapter.

7 Findings and recommendations for policy-makers

This chapter is presenting the major barriers identified in the policy analysis for Sofia and continues with justifying the adoption of MM by reviewing the possible benefits it can inflict on the urban transport planning and management in the capital. Furthermore, recommendations for policy and decision makers are provided to help elevate the intrinsic problems in the process and practice of transport planning.

7.1 Barriers to sustainable urban transport policy development in Sofia

The socio-institutional and sustainability analyses provide information which helps identify the major obstacles to the process of a sustainable urban transport policy development in the Bulgarian capital. Understanding these obstacles will be beneficial for the purpose of the analysis, so that targeted actions for their elimination can be undertaken.

7.1.1 Socio-institutional barriers

Marginal, uninformed discourses; “unsustainable” solution ideas prevail

- Public discourse focused on “pending and pressing” problems, thus “hot-spot” targeted solutions are favoured.
- The urgency of traffic problems oversees the need for long-term, publicly agreed, integrated and sustainable planning strategies.
- Many relevant story lines are undermined (e.g. walking) or missing (e.g. car-pooling) in the policy making debate.
- A limited consideration of cross-sectorial discourses (city growth and urban sprawl in the context of related increase in motorised traffic).

Insufficient networking and cooperation in the policy making process

- Limited interaction between stakeholders, especially regarding the public inclusion in the policy making.
- Deficits in the coordination and cooperation within the municipal organisations and between bordering administrations (city and surroundings) regarding their respective plans and policies.

Institutional weakness in forming policy arenas and initiating a broad public discourse

- The new urban transport challenges are mostly solved within the existing institutions, low initiative for setting up task force addressing the urban transport problems.
- A lack of participation and involvement of citizens, but also of civil society (e.g. corporate stakeholders such as private enterprises, associations, NGOs) in all phases of planning and policy making – from problem analysis and objective definition to the evaluation of implemented measures - and therefore a thin legitimacy basis of plans and projects.

Deficient institutional capacity to deal with complex urban transport related problems

- Local authorities and politicians often do not see the need and benefits of mobility management.
- Even if there is an awareness of the necessity of urban mobility plans there is the somewhat theoretical perception of the guiding policies by authorities and responsible planners. They do not see clear links to their local situation and they are missing more detailed and locally transferable guidelines on what indicators to use, what steps to take, how to best approach the public and higher level decision makers.
- A lack of interdisciplinary thinking and mutual understanding between the essential policy sectors concerned (i.e. transport, land-use, spatial development, environment, economic and social affairs, health, education, information society technologies) and a factual separation between sectorial planning practices and policies, usually deeply rooted in the respective professional branches, reinforced by their own educational and training processes (civil engineering, spatial planning, environmental sciences, etc.).
- Civil society's knowledge and potential for generating fruitful cooperation with the administrative institutions and diversifying the policy ideas is not used optimally.

7.1.2 Financial barriers

- The financial stability of the municipal budget is often at risk. Limited resources are available for alternative transportation modes development and for educational, marketing and capacity building investments.
- Costly priority projects (road infrastructure expansion, parking facilities, Metropoliten development), which need the mobilisation of all available financial resources thus development of soft modes or safety and traffic organisation improvement projects are being underfinanced.
- No availability of long-term, specially designated funding as a secure financial support from the government;

7.1.3 Other (planning/functional/operational)

- Insufficient integration between various transport modes (inter-modality).
- Still to be fully achieved coordination of transport and land use planning on the city and municipal level.
- Utilisation of ITS in traffic management (in congestion management, for better operation of existing road infrastructure and public transport) is relatively low.
- A lack of tools and practices to verify if and to what degree progress is made with current transport management practices, and whether modifications of ongoing plans and projects would be required (benchmarking, project evaluation, measuring of results);

It is therefore necessary to devise an approach to urban transport planning that takes into account these shortcomings from the outset. To fully consider sustainability in urban transport planning requires the inclusion of both the strategies and measures to be implemented and the planning and policy-making processes to be empowered (e.g. consultation, negotiation, and cooperation). Clearly, such requirements affect established institutional practices and regulations, which need to be improved or reformed in view of the new approach to urban transport management.

7.2 Why mobility management for Sofia's urban transport system?

As has been shown in the case of Lund, the political will and long-term commitment of the municipal administration is a major prerequisite for successfully developing and implementing an environmentally friendly urban transport management system. Although the advancement of a mobility management policy is by far not the sole responsibility of decision makers, it is them who trigger the process on an official level and initiate the processes that shape and guide it. This is why it is important to convince policy-makers and municipal leaders of the contributions that mobility management can make to the sustainable urban transport policy development.

There are numerous reasons why MM should be adopted as a guiding approach to urban transport management; some of them are universally valid, others are concretely relevant for the case of Sofia. Short noted MM is favoured because:

- It is cost efficient;
- Offers a variety of strategies with numerous measures that can be suited to local conditions;
- Has proven to be a successful way of achieving desired results in urban transport management;
- Works as well in small as in big cities;
- Enhances well fare (economic, social, environmental);
- Improves the condition of urban environment and creates positive synergy effects on life quality in the city;
- Will most probably be part of a forthcoming EU legislation on urban transport and being an early implementer brings advantage to the city and region;
- Gets strong public support/approval and wins elections.

MM also has its criticisms including claims that reduced vehicle travel harms consumers, that it is regressive and unfair to lower-income motorists, that it is an unjustified intervention into free markets, that it is harmful to economic development, that MM is ineffective, and that public transport improvements are excessively expensive and unjustified. Although some criticisms may be true in certain circumstances, they do not apply to appropriately planned mobility management programmes and strategies.

A more detailed reasoning is presented in Table 7-1 (next page) giving a rationale for MM in view of the various factors characterising the state of the urban transport in Sofia and the positive change that MM can initiate in the system.

Table 7-1 Reasons for adopting mobility management in Sofia's urban transport policy development

Factor	Present state	Benefits through MM
Infrastructure supply	Infrastructure is insufficient and is in poor repair. Urban roads, parking, sidewalks are often congested. Sidewalks serve many functions and users (walking, cycling, retail business, cafés, and communal service facilities). Streets not planned and designed for heavy motor vehicle traffic.	MM favours infrastructure maintenance and repair (“Fix it first” principle), traffic organisation and expansion of cycling and walking routes and thus relieves congestion. Automobile related infrastructure development is the last resort. MM improves accessibility and gives priority to pedestrians and cyclists. MM reduces overall traffic volume and improves mobility conditions for all transport modes in cities limited infrastructure capacity.
Vehicle supply	Growing automobile ownership among the population. High automobile ownership growth among middle-income and wealthy households. Medium to high ownership of bicycles for recreational purposes. Medium to high supply of public transport, taxi vehicles and “marshrutki”.	MM does not deject car-ownership, but the misuse of car travel (“low-value trips”) in the urban environment. MM creates favourable conditions for the use of alternative transport modes (public transport, cycling) which relief traffic load in the city. MM prioritises the development of high quality of public transport for all citizens.
Personal mobility	Growing personal mobility among all income and age groups. Growing diversity in mobility needs.	MM has a primary aim to satisfy every transport need through sustainable, diverse and tailor-made solutions.
Transportation diversity	Considerable diversity of modes: walking, cycling, animal carts (yes, it exists in Sofia!), public transit, private car.	MM uses the available transportation diversity and integrates it in an interconnected system, creating the best opportunities for modal change between different transport modes while prioritising the least environmentally damaging ones.
Institutional capacity	Rather poor institutional capacity to plan and enforce traffic improvements. Poor cooperation between different levels of government (municipal administration and council). Meagre involvement of the public in the planning and policy making process.	MM provides ready made solutions and tools for their implementation and enforcement that can be adjusted to the local needs. Thus it is a great resource for the immature transport-responsible institutions in Sofia's administration. MM is a way to start planning processes together with other stake holders; it favours public participation in the policy making and relies on broad consultation and consensus building, which foster implementation and enforcement.
Municipal budget	Limited funding for transportation infrastructure and services.	MM offers inexpensive solutions to solve urban transport-environment conflicts and is an economically viable alternative to infrastructure investments.

	Government subsidies for public transport diminishing every year.	MM aims to achieve maximum “accessibility” (benefit) for certain amount of provided “mobility” (cost) by investing in sustainable transport solutions. MM creates opportunities for public-private investment projects thus reducing dependence on governmental funding.
Traffic safety	High risk of traffic accidents in the urban area. High risk for vulnerable road users (pedestrians, cyclists, children, elderly, etc.)	Safety is a central principle in MM. MM programmes are designed so that they increase personal safety and provide maximum protection for the most vulnerable users in the transport system
Comfort	Low-comfort level for non-motorised travel (walking, cycling). Low-comfort levels for most public transport. Medium to high level comfort for private automobile and taxi travel.	MM increases travel comfort for all transport modes and users; its ultimate goal is to guarantee high comfort levels for alternative mobility practices. Accumulatively the positive effects of reduced congestion are shared among all kinds of travel, e.g. by shifting users from driving to public transport, the car users who need to drive will experience less traffic congestion and fewer parking problems and their comfort will increase.
Environment (local)	High air pollution in the urban area. Noise levels Greenspaces turned into parking areas.	MM enhances the use of more environmentally friendly motor vehicles in terms of energy efficiency and fuel type and reduces overall travel volumes thus reducing harmful transport related emissions. MM improves the living quality of the urban space and protects green areas for recreation and entertainment. MM sustains a lively and healthy urban environment.
Land use	Medium to high accessibility in the inner city (many destinations can be reached by walking, cycling and public transit). Poor accessibility in most peripheral districts and new residential developments.	MM provides high levels of accessibility for all urban districts by developing multiple opportunities for choice of a transport mode and convenient shifting between modes. MM is implemented in the context of spatial and urban planning securing that new urban districts are provided with sustainable travel opportunities and access to the central urban areas.
Economic development	Growth in economic activity and income levels. Sofia is developing as an important economic centre on the Balkans trying to attract new investment and businesses, but also new inhabitants – highly qualified and experienced workforce/ professionals.	MM creates favourable for economic growth conditions by providing investment opportunities in various public, private or public-private partnership projects. MM provides a good living environment for the inhabitants. This attracts new people who want to live and work in the city and new business that want to set up their activity in a pleasant and thriving urban environment.

Extensive argumentation and evidence in support of the adoption of MM as a governing principle in Sofia's urban transport policy development has been presented. Once policy and decision makers have decided to work with MM, they have committed to take on a long and dynamic journey. The author hopes that the identified shortcomings of the current system as well as the suggested MM approaches will help Sofia's policymakers to move towards a more sustainable path in Sofia's transport development.

7.3 Policy planning considerations

So far the study of the transport policy and management in Sofia has: 1) analysed the socio-institutional factors that characterise and influence the policy development; 2) discussed the sustainability implication of the already existing policy documents relevant to urban mobility and pointed out some inherent deficiencies fostering the sustainable functioning of the transport system; 3) outlined the major obstacles to the advancement of a sustainable urban transport policy based on the knowledge from 1) and 2); 4) provided arguments supporting the adoption of MM (in terms of the multiple benefits it will induce).

While it has become evident that developing a transport policy and plan should be a top priority for Sofia municipality, it is the aim of the following sections to give recommendations on how mobility management can be employed in the context of the development. Grounded in the analytical findings of this research, and considering the lessons of success from the Lund case, as well as the experience and practice on an EU-wide level, it is claimed that mobility management could be a way for Sofia's governance to mobilise its and the public capacity and elaborate an integrated transport policy that would solve the acute traffic problems. The recommendations are presented in two parts: the first one relating to the organisation and management of the planning process; the second one giving general suggestions about the provisions of a MM plan.

7.3.1 Recommendations for the organisation and management of the planning process

The success of a mobility management policy starts with the way the planning process is initiated, organised and managed. In view of the latter and having in mind the outcomes of the socio-institutional analysis for Sofia and the identified barriers to the development of a sustainable urban transport policy the following implications should help the municipality in designing and leading a fruitful planning and policy making process.

1. Begin with a *survey of the current state of the urban transport situation* so that a clear understanding of the baseline conditions and the existing problems backed by technical information is established among policy-makers. The data needed is related both to urban transport planning and operating – data on mobility behaviour, land use which generate trips, infrastructural network/ transport supply, traffic flow and operations – as well as to policy making and future benchmarking. Additionally to the already listed planning data, more macro level information is needed (concerning general mobility trends, behaviour and quality of traffic operations) such as – accessibility of the urban areas and destinations by transport mode, availability of the transport system in terms of costs, use of the transport system in terms of modal split, purpose of journeys, socio-economic data and costs of physical mobility, impacts of traffic on the environment and health, quality of transport service, investment of public money) (Euroforum, 2007).

2. Initiate a *public dialogue* for discussing the findings of the survey and agreeing on *short term concrete objectives* (e.g. provide 140 km of bike lanes by 2010) and *long-term strategic goals* (e.g. regarding long-term emissions values of CO₂). *Prioritisation of transport management projects* should be based on actual public consensus and real needs and justified through an economic analysis of the costs and benefits of improved accessibility vs. increased capacity for mobility.
3. Establish a *formal or informal set-up for civil society participation* guaranteeing the access of a wide group of stake holders to the planning and policy-making process at all stages. Conduct a working style of *cooperation and consensus building*, which will contribute to the easier implementation of the policy outcomes. Develop a *system for informing the public* on the progress of the process and for *getting a feedback* from the parties concerned.
4. Establish *new institutional bodies* with *flexible and open working style* which would coordinate the process; delegation of responsibilities, civil servants contribution to the policy development and horizontal decision making improve public trust in institutions and enhance institutional capacity to deal with complex problems. The involvement of an *external expert advisor* (a consultant) is of great support both in terms of professional knowledge and skills input, and information dissemination, and education of the public and the municipal administration about the issues at stake.
5. *Expand the experience* of the involved planning and decision-making authorities with sustainable urban transport management through *participation in international networks* (UITP, Eurocities, ELTIS), *co-operative projects* (EU CIVITAS project), and *skills exchanges* (EU SMILE project). Get involved in EU sustainable urban transport test and research projects (designated funds available in the 7th Research Framework).
6. *Commit to an active institutional leadership*, which is of utmost importance for the success of the transport-environment planning initiatives (as illustrated in the case of Lund). This requires continuous work in *partnership with the business community*, research institutes and non-governmental organisations. In the years to come Sofia will be required to assume much greater responsibility for its establishment and marketing as an attractive city and region, with healthy urban environment, vigorous local economy and thriving social/cultural life. In that context, the municipal administration and city council need to work with a *dynamic, proactive and innovative style* to meet the challenges of the urban dynamics and be able to address their impacts on the local level. Regarding urban mobility management, which is one aspect of the current challenges, *employing civil society knowledge, skill and will in the planning and policy making process* is a step towards improved strategic proficiency and open user-oriented policy style; only then can a sustainable development practice in the targeted transport system be advanced and assured.
7. Secure *long-term financing* for sustainable urban transport development. *Public-private partnerships* can offer a solution for some investment projects. In general, the term refers to forms of cooperation between public authorities, which set the objectives of the project in terms of public interest, quality of service and pricing policy and monitors the compliance with these objectives, and business, which ensures the funding, construction, renovation, management or maintenance of an infrastructure or the provision of a service. The relatively long duration of the relationship is a way for the public partner to guarantee funding for costly and lengthy transport projects though experience has shown that the partnership works best for hard infrastructural developments (e.g. tunnels, bridges, roads). *Land value capture* is another financing tool that can be used on the local level. Roughly the benefits can be justified as follows: public transport investments improve accessibility of a certain area,

which will lead to an increase of the value of land within that area. Taxing away these increases in land value and earmarking them for further funding of public transport infrastructure, is an efficient and fair source of funding for public transport. Redefine the way urban transport programmes are prioritised and how public money is spent by establishing a practice of *publicly agreed target achievement funding*.

7.3.2 Recommendations for the contents of the urban transport management plan

The following recommendations are not claimed at prescribing concrete strategies or measures for Sofia's mobility management plan. They provide generalist advice on overarching issues relevant to the selection of any work programme for the policy plan.

1. *Integration of land use planning and transport planning* is of central importance for the completeness and long-term sustainability of the mobility management plan; it avoids contradictions between policies in inter-related fields. It should include: *sectorial integration* between different system sectors or cross-cutting policies (spatial planning, economical, environmental, cultural development, sports, etc.); *vertical integration* of different planning levels (local and regional); *horizontal integration* with settlements from the Sofia municipality but also within the different quarters and newly developed districts; *modal integration* of all transport modes and their operators; *integration of all trip purposes* (for leisure, shopping, work) and *integration of all possible measures* (engineering, enforcement, education and marketing, economy).
2. *Prioritise public transport and alternative travel modes* to car-centred projects. Public transport share in Sofia is high (63%) in comparison to other capital cities in Europe. The opportunity for maintaining this ratio (and securing customers' loyalty even in the case of personal budget growth) through increasing service diversity (e.g. specialised commuters lines), quality and reliability should be fully employed through public transport oriented strategies in the transport plan. Besides consulting the public for identifying priority initiatives, develop a tool for evaluating the alternatives to car-focused investments. A good example is the *Four-stage Principle* developed by the Swedish road administration (SRA, 2002) and used extensively in the making and implementing of LundaMaTs. The principle is based on four steps taken whenever a new transport investment is underway to help identify the most beneficial development in terms of sustainable urban mobility. It comprises the following stages: 1) first consider measures that may influence transport need and mode choice; 2) try measures that give a more effective use of existing road network; 3) try limited construction measures; 4) consider pure new investments.
3. *Start with measures in the city centre* (Inner City sub plan with the MM plan), which will have demonstrative effect and will win public support if designed to deliver the desired effects. However if the mobility plan does not provide for a balanced spatial development in all districts of the city the measures taken in the inner city part will be offset by missing consistence and spatial continuation (integration principle) of the provisions.
4. Choose *strategies that address existing (but somewhat forgotten) traditions* – behaviour change is easier where a practice already exists. Sofia is known to be a green city; *walking* and spending time on the streets has always been characteristic of the urban life. However less and less people choose to walk since the city centre and the urban space as a whole are car dominated and accessibility and comfort for pedestrians is severely reduced. Another forgotten practice is the *organised work travel* to the large industrial areas around the capital–legacy from the socialist times. It has always had a positive image and commuters usually

speak nostalgically of the abandonment of the practice. Its revitalisation through modern work travel schemes offers a huge potential for improving the conditions of the urban transport.

5. Concentrate on *strategies that address large and hyper mobile groups*. The boom of business-trip car travel in Sofia points to the group of the *city-based large and medium size companies*. Huge potential for behaviour change to alternative travel modes exists since the target group consist mostly of young dynamic people who are open to new experiences. A demand-side measure that has proven to work against congestion and suitable in this case is the advancement of *Telework* practice. The *students group* is another low-hanging fruit. Most of the students live in “Studentski grad”, which is a peripheral district, and travel daily to their educational institution usually by bus. Provided that public transport is overloaded, the eventual shift of the group to cycling or walking may relief the traffic load and comfort for other users that rely on public transport as transportation means and have limited opportunity to choose alternative modes.
6. Focus on strategies that improve *safety*. Many people state that they do not walk or cycle because they feel unsafe and unprotected in the present traffic conditions.
7. *Deliver promises!* Development of a *cycling network and supporting service system* has an immense potential to contribute to urban transport sustainability in Sofia. The discussions of building of the network have been pending for the last ten years while traffic conditions are getting worse. The advancement of the project will be a success in terms of congestion offsetting if combined with a public-awareness raising and education campaign. In this way the image of utilitarian cycling will be enhanced, while training in urban cycling can ensure users’ safety and adequate driving behaviour in the urban traffic.

8 Conclusions

This study comes at a time when important decisions need to be taken by policy-makers in Sofia regarding urban mobility policy and management. In view of the forthcoming preparation of a transport management plan, the municipality needs to engage in a course of multi sectorial, multi level stakeholder interaction in which new policy direction would be set. In relation to this, the thesis aims to provide a guideline through the policy making process in a direction of sustainable urban transport development through MM. The section will briefly summarise the findings from the analysis by giving condensed answers to the research questions and conclusions about the propositions made earlier in the text.

1. What is the current urban transport policy in Sofia?

The urgency of traffic problems in Sofia oversees the need for long-term, publicly agreed, integrated and sustainable planning strategies which should aim at a balanced transport system, combining car-restrictive policies with supporting strategies for public transport, walking and cycling. In practice the policy is a combination of urgent, chaotic measures targeting hot-spot problems in an environment of a deepening crisis, vaguely steered by stipulations in supportive policy documents, such as the Comprehensive plan and the regional development strategy, which contain provisions in relation to urban transport development.

2. Is there a clear dedication to a sustainable mode of development of the mobility system?

There is an apparent sustainability deficiency in the way Sofia's urban mobility is governed. The current policy specifications are developed without having unifying policy goals, targets and evaluation criteria, which makes it impossible to follow the progress and assess the results of the different programmes. Moreover some of the stipulations are in contrast with the basic sustainability objectives (e.g. the planned mass extension of the road network and its effect on travel volumes), while others leave mixed messages about their sustainability nuance (e.g. prioritised development of the Metropolitan (public transport) while planning to close down considerable amount of bus routes once it is complete). Generally the policy development has a strong technological perspective and emphasis on traditional car-centred planning measures, while soft measures are, if not completely ignored, seriously disregarded. In the same time the state of the urban transport, urban environment and city liveability continue to deteriorate. There is a pressing need for an urgent intervention in the urban transport management, one based on an integrated approach to the problems and not comprised of last-minute rescue measures.

3. Which are the major factors/ barriers in the mobility policy development?

Borrowing from the socio-institutional approach to analysing policy development, three organising concepts were studied and discussed in relation to urban transport: policy discourses, policy communities and networks, and policy arenas. The approach is concerned with determining power and influence dynamics along the policy making, while accepting that urban transport problems are social constructs and are developed and understood in a process of stakeholder communication, relation and interaction. Furthermore the sustainability of the provisions in the existing policies in relation to urban transport management were analysed and the inherent deficiencies synthesised. The combined analysis of the organising concepts and the sustainability assessment provided information for the identification of the major barriers that exist within the sociological institutionalist set up for urban transport policy making and development in Sofia. These can be briefly presented as

Socio-institutional barriers formed by: 1) marginal, uninformed discourses and “unsustainable” solution ideas prevailing on the policy arena; 2) poor networking and cooperation in the policy making process; 3) institutional weakness in forming policy arenas and initiating a broad public discourse, 4) inefficient institutional capacity to deal with complex urban transport related problems.

Financial barriers characterised by: 1) limited resources for transport development; 2) unavailability of long-term, specially designated governmental or municipal funding; and 3) prioritisation of investing in car-service oriented projects while marginalising alternative sustainable transport modes and solutions.

Other barriers (*planning/functional/operational*) including: 1) inadequate integration between various transport modes; 2) low application of ITS in traffic organisation and management; and 3) lack of tools and practices to evaluate the progress of current transport management projects.

4. *How can these barriers be overcome?*

The paper suggests that the identified barriers can be influenced by a series of improvements, changes and reforms in the way the components of the policy development operate and relate to each other; a way to initiating this change is to learn from existing experiences with successful urban mobility governance (e.g. in Lund) and steer the policy making process in Sofia according to the lessons learnt from the studied case. The recommendations for the policy-makers suggested in this thesis contribute to overcoming the barriers in the system and guiding the policy development on a pathway to a sustainable urban transport development.

5. *Why should mobility management be adopted as a guiding strategy in transport planning?*

The review of the current situation and existing (mis)management practices present a case of deepening crisis in Sofia's urban transport system. Moreover, it has come clear that the municipality has no actual transport management plan, nor policy for resolving the conflicts in the short or long-term, and is instead overtaking sporadic and chaotic actions targeting only hot spot problems. This is why no progress has been made on improving the state of the urban mobility. Meanwhile lots of positive examples from municipalities all around Europe show that working with mobility management creates multiple opportunities for overcoming urban transport problems at a compatible investment costs compared to traditional planning and transport management approaches, like road infrastructure expansion. In Sofia mobility management strategies can too provide solutions to: 1) improve transport options by diversifying the mobility modes/choices, and providing an integrated transport system development; 2) create incentives to reduce automobile use; 3) manage parking and land use in a sustainable way; 4) launch transport demand management programmes and policy reforms. It is the will of the policy-makers and the skill to utilise and adapt the available strategies that can relief the problem load in the urban transport system.

6. *What benefits will it bring?*

Particularly for the case of Sofia MM has the potential to induce benefits by improving the state of infrastructure supply; creating alternatives for the use of the vehicle supply and improving its environmental characteristics (energy consumption, exhaust emissions, disposable waste); developing programmes to satisfy as much as possible every transport need with alternative mobility means; enhance institutional capacity to deal with transport-

environment conflicts; provide ideas for spending the available municipal budget in the most beneficial way concerning public interest and also create opportunities for new form of financial cooperation between the municipality and the business; increasing traffic safety and comfort for all transport modes, but especially the alternative mobility practices; improve the state of the urban environment (air, noise, public space); optimise land use strategies by focussing on accessibility in the planning process; foster economic development by creating a pleasant urban environment with high quality of living conditions, which makes the city and the region an attractive place to live, work and set up new businesses.

7. What lessons can Sofia learn from the mobility management development in Lund?

Lund has been an example and inspiration in the world of mobility management for decision makers, municipal leaders and civil servant in Europe and beyond¹⁵. The success of the Lund case is marked by the following developments along the policy planning and implementation process:

- Participatory set-up and practices early in the process providing a platform for constructive discussion;
- Strong alliances between central governmental and non-governmental actors;
- Openness to new inputs;
- Strong economic performance;
- Remarkable strategy proficiency and employment of institutional capacity among both governmental and non-governmental actors.

Policy-makers in Sofia can learn and benefit from Lund's positive experience and follow a similar future policy development process to create a sustainable framework for the urban transport development.

8. What improvements are needed in the current policy and practice so that the mobility management concept is integrated in the decision and policy making in Sofia?

The recommendations suggested in this thesis outlined a pathway of necessary actions, improvements and reforms in the current socio-institutional set up of policy planning concerning both the organisation and management of the process as well as the concrete policy provisions regarding urban transport in Sofia. Following the pathway will create favourable conditions for the integration of mobility management principles in the policy making process.

A common paradigm, envisioning Sofia as a modern "European" capital and its citizens as "Europeans" has settled in the public discourse after Bulgaria's joining the Union. The paradigm reflects a common socio-psychological mindset that everything which is "European" is better than what is "Bulgarian". Regarding urban transport development Sofia's citizens as "Europeans" want and demand much better conditions of mobility and accessibility, and it is the municipal decision makers who are responsible to meet this demand. A modern and

¹⁵ Suffice it to say that Lund was the host of the renowned European conference on Mobility Management in 2007.

effective European approach to addressing urban transport conflicts is contained in MM, which can successfully be employed in Sofia's urban transport governance.

Much has been written so far about the positive examples, principles and implications of MM, yet much more needs to be studied and experimented with before a publicly agreed and accepted policy for Sofia's urban transport development can be laid down. However, the author managed to capture a few key concepts that should line the MM development. These are:

Four golden rules for organisation and planning of MM:

1. *Know where you want to go, why you want to go there and what you want to achieve, MM gives you the tools to do this.*
2. *Assure strong political commitment.*
3. *Cooperation is the key to success.*
4. *“Samråd, samråd, samråd.”[Cooperate, cooperate, cooperate].*

Three golden rules for policy provisions of MM:

1. *Think accessibility before mobility.*
2. *Consider the needs of the man before the needs of the car (Consider the man before the car)*
3. *Plan for integrated approaches to transport management in transport planning, spatial and urban planning, transport travel plans, public transport services for reduced car use*

As was mentioned earlier, MM provides a framework to the process of sustainable urban transport management and preparation of MM plans. Yet it remains to be seen how the future policies would be implemented and enforced. Sofia's decision makers have been successful in policy development (e.g. SDS) but not in implementing its specifications. Surely the new developments will take time and effort before any positive results are observed, but there is no time for inaction; the stakes are high – Sofia's establishment as an attractive urban centre in the context of its “European” development.

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Abbreviations

CEE	Central and Eastern Europe
CEI	Central European Initiative
CIVITAS	City ViTality Sustainability
DfT	Department for Transport, UK Government
DG	Directorate General
EAP	Environmental Action Plan
EC	European Commission
ECOMM	European Conference on Mobility Management
EEA	European Environment Agency
EEB	European Environmental Bureau
ELTIS	European Local Transport Information Service
EPOMM	European Platform on Mobility Management
ERA	European Research Area
ERDF	European Regional Development Fund
ESF	European Social Fund
EU	European Union
EXTR@Web	Exploitation of Transport Research via the Web
GHG	Greenhouse Gases
ISPA	Pre-Accession Structural Instrument
MaTs	Miljöanpassat Transportsystem (Environmentally Adapted Transport System)
MM	Mobility Management
MOMENTUM	Mobility Management for the Urban Environment
MOSAIC	Mobility Strategy Applications in the Community
MOST	Mobility Management Strategies
NMS	New Member States
OECD	Organisation for Economic Cooperation and Development
PLUME	Planning and Urban Mobility in Europe
SMILE	Sustainable Mobility Initiatives for Local Environment
SUTP	Sustainable Urban Transport Plans
TRANSPLUS	TRANSport Planning Landuse and Sustainability
UK	United Kingdom
WG	Working Group
WHO	World Health Organisation

Appendix 1: Examples of mobility management strategies

Mobility management includes more than three dozen strategies (Table 0-1) that improve transportation options, encourage use of efficient modes, create more accessible land use patterns, and reform biased planning practices.

Table 0-1 Examples of mobility management strategies

Improve transport options	Incentives to reduce driving	Parking and land use management	Programmes and policy reforms
<ul style="list-style-type: none"> -Alternative work schedules -Bicycle improvements -Bike/public transport integration -Car-sharing -Flexible work time -Guaranteed ride home -Individual actions for efficient transport -Park & Ride -Pedestrian improvements -Ridesharing -Shuttle services -Small wheeled transport -Taxi service improvements Telework -Traffic calming -Public transport improvements -Universal design 	<ul style="list-style-type: none"> -Walking and cycling encouragement -Commuter financial incentives -Congestion pricing -Distance-based pricing -Fuel taxes -HOV (High Occupant Vehicle) priority -Parking pricing -Pay as you drive -Vehicle insurance -Road pricing -Speed reductions -Street reclaiming -Vehicle use restrictions 	<ul style="list-style-type: none"> -Bicycle parking -Car-free districts and pedestrianised streets -Clustered land use -Location efficient development -New urbanism -Parking management -Parking solutions -Parking evaluation -Shared parking -Smart growth -Smart Growth planning and policy reforms -Public transport oriented development 	<ul style="list-style-type: none"> -Access management -Carfree planning -Commute trip reduction programs -Market reforms -Context sensitive design -Freight transport management -Institutional reforms -Least cost planning -Regulatory reform -School transport management -Special event management -MM Marketing -Tourist transport management -Transport management associations

Source: Litman, 2002.

Appendix 2: Main goals of the LundaMaTs plan

Table 0-2 Main goals of the LundaMaTs plan

Indicator	Goals (year)
CO₂	-5 % (2005), -20 % (2020) and -75 % (2050) with 1990 as basis
NO_x	-50 % (2005), -85 % (2020) and -85 % (2050) with 1980 as basis
SO₂	-50 % (2005), -80 % (2020) and -85 % (2050) with 1980 as basis
VOC	-50 % (2005), -85 % (2020) and -85 % (2050) with 1988 as basis
Cancer-causing substances	-50 % (2005), -70 % (2020) and -90 % (2050) with 1990 as basis
Area Use	Road area/ citizen may not increase; Motorised road transport/ total transport area may not increase; Aesthetic and urban visual aspects should be taken into account in order to maintain valuable environments; Accessibility to recreational areas may not decrease – special attention to children’s needs; Location of new activities and businesses should be according to minimisation of transport needs – greatest possible priority to locations which can be reached by public transport; Fragmentation may not increase
Noise	No citizens may be exposed to an equivalent level >60dB(A) outdoors and 30 dB(A) indoors in 2020; In case of a new and re-building outdoor, equivalent levels >55 dB(A) should not be accepted; In the long-term, maximum levels should become less than 70 dB(A) outdoors and 45 dB(A) indoors
Recycling	No road construction material deposition in 2000; As far as possible, recycling must aim for the same materials; Recycling to other materials must be chosen in order to get the highest possible value with the lowest possible environmental impact; 85 % of the vehicle weight must be recycled in 2000 and 100 % in 2020; 85 % of vehicles consumer goods must be recycled in 2005 and 1000 % in 2020

Source: Trivector (1998)

Appendix 3: Initiated projects in the LundaMaTs plan

Table 0-3 Initiated projects in LundaMaTs (1998-2000)

Project	Subproject	Environmental goals	Schedule	Economy
The Bicycle City	-Priority for bicycle traffic -Better infrastructure -Better organisation -Safer bicycle traffic -Information, marketing and education -Evaluation	From 2005: Reduction of annual transport volumes by 2.3 million vehicle km corresponding to 900 tons CO ₂	1998-2001	SEK 54 million (national contribution: SEK 27 million)
The Lund Link	-Bus lane from the railway station to Sandbyvägen	From 2005: Reduction of annual transport volumes by 4.7 million vehicle km corresponding to 1300 tons CO ₂	1998-2001	SEK 69.5 million (national contribution: SEK 15.3 million)
Walking and Cycling to School	-Status for safety on school routes -Interviews and discussions (education) with children and parents -Rebuilding school routes	Reduction of annual transport volumes by 0.08 million vehicle km corresponding to 30 tons CO ₂ . Safer school routes	1998-	SEK 9 million (national contribution: SEK 3 million till 2000)
Mobility Office	-TDM in the municipality administration -TDM in private businesses and organisations - Common distribution, municipality administration	No specific goals Support all reforms and thus environmental goals within these reforms	1998	SEK 8 million (national contribution SEK 2.4 till 2000)

Source: Trivector, 1998

Appendix 4: Major road infrastructure density in Sofia and Vienna



Source: Stanilov, 2006

The maps show the density of the major road infrastructure, consisting of boulevards with 4 and more than 4 lanes within 50km² from the city centres.