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18 April 2007

# ECTRI's contribution to the European Commission Green Paper on Urban Transport



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## Introduction

ECTRI welcomes the initiative taken by the Commission to propose a Green Paper on urban transport and is willing to contribute to the debate by proposing some ideas concerning what research areas should be pursued as most appropriate in the field of urban mobility in order to significantly improve mobility and quality of life in urban areas.

### **Research – an important instrument**

The Green Paper will settle various types of objectives and ideas reflecting the Commission thoughts on urban transport. ECTRI would like to underline its satisfaction to see that the Commission is acknowledging the fact that research on urban transport and urban mobility is an important instrument to be considered, together with other types of priorities, in the Green Paper on urban transport.

ECTRI would like to propose that urban mobility research should be a specific chapter of the proposed Green Paper.

ECTRI supports the ideas expressed by the Commission on point 2.4 of the “background document” distributed for the launch conference of the Green Paper on January 31<sup>st</sup>. Point 2.4 states that the following topics need to be addressed:

- impact of technological and demographic changes on urban transport
- how to ensure attractive and effective future public transport systems
- demand management measures in inner-city zones
- integration of transport systems
- how to implement integrated policy approaches and remove barriers

We fully support these proposals and elaborate some of them in the present position. More research themes considered by ECTRI as being fundamentals are part of this position.

ECTRI has the feeling that, to get concrete answers to improve urban mobility, the 5 above mentioned topics (as well as other topics proposed by ECTRI hereafter) should be addressed.

some sort of compensation for doing so. However, concerns have sometimes been raised that this public funding may have led to covert state support for inefficient operators. The European Union is now about to introduce a new regulation that is meant to settle this discussion. However, several questions remain open linked to the assessment of the introduction of competitive systems based on case studies and on performance comparisons (...in house operations, privatisation, subsidy, franchising, quality tendering, regional/local influences and interactions)

### ⇒ Fare Policy

If contributions from the government's budget are insufficient to cover the financial needs of public transport operators, the question obviously arises whether operators should not be allowed to increase their revenues.

However, in practice, increasing revenues would mean an increase in fares, and thus a decrease in the usage of public transport. This can conflict with other objectives of the government: promoting a modal shift from private to collective modes (to improve energy efficiency, to decrease congestion, to reduce local pollution), social objectives, and limiting abuse of monopoly pricing power...

On the other hand, economic theory shows that it is possible to develop pricing strategies that allow increasing fare revenues without affecting global patronage levels.

There is a need to do research on these various results and on the way they could interact in order to improve fare policy goals and structure.

The following ideas also need to be taken into consideration:

### ⇒ All transport modes should be tackled

ECTRI is of the opinion that urban transport should be understood in a very wide way: the question that should be tackled is urban mobility as a whole. The term "urban transport" should therefore include all transport means, among them private cars or taxis and collective transport means of course but also softer transport modes like 2 wheelers (powered or not) and walking. Within urban areas, intermodality, multimodality and integration play a central role to achieve efficient transport systems and mobility schemes. Trip optimization obviously needs a good combination of various individual and collective transport modes.

### ⇒ Freight as well as passenger transport should be tackled

Passenger as well as freight transport should be considered. Freight within the cities is a real issue in terms of traffic, safety, use of parking space and pollution, for example. Therefore the freight issue and the passenger issue should be treated on an equal footing.

An other interesting point deals with private travel that could be substituted by e-activities (internet shopping etc) which could in turn generate other journeys, such as deliveries by light vans.

### ⇒ Safety and security is a priority

ECTRI is of the opinion that safety and security should be at the heart of the document proposed by the European Commission. As acknowledged by the European Commission in its Communication "Saving 20 000 lives on our roads", road safety is a priority for the EU. The Green Paper on urban transport that is under preparation should make the necessary links between the ambitious targets settled down by the Commission in this Communication (e.g. reduce drastically the number of people killed on the roads) with what is foreseen to improve urban mobility.

Within this frame, accidentology, urbanism and "city design" should be considered.

### ⇒ The key role of urban planning

Travel demand is to a great extent determined by urban structure. The need for travel, thus the number of trips, is conditioned by land use and spatial separation. In addition the way in which these trips are made

(modal choice) is influenced by urban structure. This potential to shape travel demand points at urban planning as a key factor that requires further research in order to better understand how urban structure can promote more sustainable mobility patterns in urban and suburban areas.

### ⇒ Energy efficient cities are unavoidable

This topic is a stringent one. What should be considered here is the question of urban sprawl. Spreading-out has to be controlled in order to reduce energy dependency.

Based on existing research results on the interactions between housing and transport there is room to explore the link between mobility policy and housing policy and their consequences on energy consumption and social equity.

E.g. why should poor people live far away from the city centres...

...and therefore be obliged to buy cars if the transport network is not sufficient...

...cars that will in turn increase energy consumption and pollution as well as traffic?

In addition the spreading out of dwellings may as well lead to a greater consumption of energy for heating and cooling.

**To sum up**, ECTRI is of the opinion that at least five elements need to be considered to improve urban mobility: human beings, vehicles, transport providers, public or government intervention and infrastructures/city design. This list is not exhaustive but it is an efficient interaction between these elements that can bring some solutions to the identified mobility problems within the cities.

The European Commission, with the help of the stakeholders in the field of research, such as ECTRI, has a very important role to play in the future of research in the field of urban mobility. The possible calls for proposals to be launched during the FP7 on this issue are therefore of tremendous importance: this is why ECTRI would like to propose some research themes as an update of its URBAMOVE proposal delivered in May 2005<sup>1</sup>.

The following proposal is also largely inspired by the present work conducted by ECTRI and its partners within the EURFORUM research project, led by UITP, the goal of which is precisely to deliver to the European Commission a strategic research agenda in the field of urban mobility. Most of the proposals below are being worked at (and will be explained at length) in the EURFORUM strategic research agenda.

1. The URBAMOVE agenda can be found on ECTRI web page [www.ectri.org](http://www.ectri.org)

## IX—Economics and institutional constraints

### ⇒ Funding of Transport Infrastructure

Throughout EU member states, there is an increasing pressure on public funds for transport infrastructure. Research in this field should look at two so-called “innovative” instruments that have been proposed as an alternative: public private partnerships and land value capture.

The most important issue is the shortage of public investment funds and the lack of alternative sources.

The absence of widespread use of land value capture is a symptom for 2 deeper problems, namely the lack of integrated planning/transport policy and the lack of internalization of external costs of land usage in the process of developing land (leading, for instance, to urban sprawl).

### ⇒ Transport Pricing

Traditionally, transport infrastructure has been freely available for its users (both private vehicle and public transport companies). However, the European Commission has long been advocating a “correct” pricing of infrastructure, in order to internalise external effects of transport on the one hand and to recover transport investment on the other hand. It might be necessary now to research how to implement such ideas.

### ⇒ Costs of Transport

Social marginal cost pricing obviously requires good quality estimates of the costs of transport. However, there remain numerous questions on the appropriate methodology for estimating external costs. Moreover, all existing work is plagued by an absence of publicly available standardised and comparable data.

### ⇒ Organisational Framework for Public Transport

Subsidising public transport is recognized by economic theory as an acceptable second best solution if it is politically difficult to impose social marginal cost pricing on private modes. Moreover, public transport companies often have to fulfil public service obligations and thus require

## VIII—User aspects

### ⇒ Safety and Security

Two major aspects have been connected in this topic: the safety of the transport system regarding users and non-users and the security of the infrastructure. The latter one is of increasing interest due to the newer societal and political developments and includes special aspects of disaster management and incident response management in relation to urban transport infrastructure and operation. Safety of users looks at achievements and solutions limiting the chance and impacts of traffic accidents in urban areas.

### ⇒ Accessibility, Rights, Equality

Research in this field should deal with measures and tools aiming at:

- Improving the ease with which people can access services and facilities for whatever purpose (commuting to work, joining in entertainment activities, buying products and services).
- Enforce the right of citizens to be mobile and their aspiration to boundless mobility.
- Ensuring that transport policies result in advantages that are equally distributed among citizens or are particularly addressed to groups with special needs (children, the older, people with impaired mobility, low income citizens, individuals living in poor neighbourhoods...).

A related topic is that of social exclusion as it can be caused by a biased distribution of accessibility.

### ⇒ Human Aspects

Planning the use and operation of transport facilities is always determined by human individuals as users, operators, drivers – people who benefit or suffer from transport, and people who decide on transport facilities. Therefore human aspects are the foundation of mobility but also the key when trying to solve the problems of mobility. Human behavioural aspects are to be included in all future research and measures concerning urban mobility.

# Proposed research agenda in the field of urban mobility

## I—Policy research

Policy research includes the application of social science theories and methods – mainly political science, public administration and management, economics, organizational studies, sociology and institutional history – to the policy making processes engaged by governments in interaction with non-governmental actors (industries, citizens, consumers, associations, etc.). Beside its normal academic anchorage, policy research aims also at helping policy makers to consider the various opportunities and constraints which condition the achievement of policy goals.

ECTRI is of the opinion that, under policy research, the following research issues are to be considered:

### ⇒ Policy research link to road safety in urban area

At the European level, one important difficulty about achieving ambitious road safety targets rests upon the strategic design of ameliorative policy harmonization and transfers between EU member states. In Europe and many other regions of the world one striking feature of policy making in the domain of road safety is to be significantly research-based. As a logical consequence of these two assertions, the question of how (well) the worlds of *policy-making* and *research-making* interact in this domain stands as something quite crucial to enhance both the legitimacy and the effectiveness of the European strategies of policy harmonization and transfers.

Five road safety sub-policy domains, partly selected because of their varying historical depth, would be investigated:

1. drunk-driving
2. safety-oriented car-design (emphasis on “out of vehicle” safety, i.e. pedestrian and cycling safety referred to vehicle collision)
3. automatic speed enforcement (notably speed cameras systems)
4. motorized and non-motorized traffic coexistence
5. integrating environmental concerns to “classical” road safety policy (cars emissions as road risks)

The conduction of the research project, very transdisciplinary, would rely on two main research profiles:

- researchers showing recognized expertise and experience in one of those 5 sub-policy domains;

## VI—Freight transport

While much research in the past was carried out to optimise passenger transport in urban areas, many questions concerning urban freight transport remain still unsolved. Research in this field should deal with the integration of urban freight transport strategies in the transport and land use planning, aspects of inter-modality and logistics, reducing negative impacts of freight transport on the cities’ inhabitants and attractiveness while sustaining and improving the accessibility and economic vitality of businesses and cities. Due to the special needs and aspects of the urban freight market, this topic should also deal with information needs and provision of data.

## VII—Urban transport supply side

### ⇒ Integrated and Harmonised Services

This research topic deals with all services that enhance the dynamic interaction between users and the physical transport supply (vehicle operation and infrastructure). Main fields are: traveller information, electronic ticketing and marketing strategies. Such services enable better tailoring of the supply to specific user groups and support a more rational and efficient use of different forms of public and private urban transport. Services integrate different forms of urban transport, and can be operated independently from transport operators or modes. Real-time availability of operational management data forms the basis of those services.

### ⇒ Integrated and Harmonised Systems

Integrated and harmonised systems of the urban transport supply side deal with the operational and infrastructural aspects of integrated mobility services. Included are aspects of the design of vehicles and transport infrastructure, construction and maintenance of such infrastructure, and infrastructural aspects of the integration of different transport sub-systems.

The main problem is the lack of integration of the different transport systems. This lack of integration is sometimes due to a lack of public money but it is often caused by a lack of cooperation between local authorities or a lack of vision and daring on behalf of stakeholders, though the general public, the travellers, are appealing for this integration to take place.

#### IV—Transport system management

This refers to the management of the transport network with policy and technical tools. Efficient transport system management aims at increasing road safety, improving the network efficiency and encouraging intermodality in order to minimize the impact of mobility on the environment and contain congestion to support efficiently the attractiveness of European cities. Transport system management concerns primarily passenger transport but should also concern freight when relevant (i.e. bus lanes shared for freight delivery).

This topic includes policy measures addressing the whole transport system, specific modes or sectors (parking, access to urban centres, traffic calming, etc.) as well as technical solutions for the management of the transport network, part of the network or dedicated infrastructures (road, rail, bicycle path, etc.).

#### V—Environmental aspects

The conservation of a healthy environment and the reduction of traffic-related effects on the environment are highly relevant issues of urban mobility in order to ensure the long-term living conditions and well-being of people living in cities and congested urban areas. The most important topics under consideration are the reduction of:

- CO<sub>2</sub> and other emissions relevant to the climate
- Emissions of airborne pollutants
- Noise
- Land consumption / paving.

Given that the above mentioned factors are the result of human behaviour and other factors such as city and traffic planning, this topic is very wide-ranging and related to a broad range of issues, e.g. “land use and transport planning” or “human aspects”. There are also direct links with the economics of urban transport, such as the estimation of the monetary value of environmental damages and the use of economic instruments as a regulatory tool.

There should be a focus on technical and legal solutions. The major significance of individual behaviour and planning will also be considered.

- researchers showing competences in public policy research - political science, organizational studies, sociology, public administration and management, intuitional economy, social studies of science.

From a territorial point of view, the articulations of national policy-making, local and regional policy-making and research-making would be at the heart of this type of research.

#### ⇒ Policy implications of comparative economic, environmental and social costs

Analysis of policy implications of comparative economic, environmental and social costs. A research in this field has been conducted by the urban mobility research group of TRANSyT-UPM (Transport Research Centre of the Polytechnic University of Madrid). The main conclusions reached within the research are that there are big differences among cost of trips done in different means of transport, both in total terms and in their components. Policies oriented to transfer demand to public transport in urban areas are clearly justifiable, including environmental or congestion pricing schemes. Priorities to public transport are key instruments because differences in trip time clearly favour cars. Those differences are even higher in suburban trips because of the more scattered housing patterns. Therefore integrated measures such as multimodal facilities, coordination of new land developments and transport networks would help to balance costs among public transport and cars.

Based on a first step of available conclusions<sup>2</sup>, there is room to deepen this analysis of policy implications of comparative economic environmental and social cost.

#### 2. Some of the conclusions are for example

- that the Metropolitan Transport Authorities are making a great effort in order to improve the infrastructure and operation of their public transport systems

- that coordination of all public transport modes within one integrated system is a key element for the progress or maintenance of public transport share

- that reshaping existing transport services, avoiding competition among modes and encouraging convenient transfers have proved to give clear results in terms of public transport patronage

## ⇒ Integrated policy implementation and the barriers to success.

This is, and will continue to be, an important issue as policy changes and adapts in the future. Research should be looking at identifying underlying barriers to successful implementation of policies of different types, determining how those barriers could be removed or circumvented and establishing the conditions that facilitate effective - and lasting - implementation.

The EC TRANSPLUS project looked at these issues in the context of integrated transport and land-use policy.

Based on the available conclusions of this project there is room to research how to implement the recommendations made on the following points:

- Not only the different land use and transport policies, but also the supporting tools and supporting organisational structures of town planning and transportation engineering need to be integrated. However, the integration of supporting models, monitoring indicators and institutional structures is poorly developed. Extra effort is needed to make the current advancement in modelling techniques more applicable for local practitioners.
- The “door-to-door” travel concept shall not be considered as the prerogative of private car use. Instead, whenever the access of cars shall be limited to reduce congestion and adverse environmental impacts, land use and transport measures should be undertaken in parallel to ensure higher accessibility and a better connection of public transport and non-motorised modes.
- Citizens’ participation is increasingly important. Although this task may seem optional, it is really needed to achieve a full policy integration. The “external” perspective provided by the engagement of citizens and stakeholders in the decision process may help to find the key issues on which the manifold sectors of local administrations, and even of higher level of governments when needed, must integrate their efforts.
- Transferability of good practice should be fostered involving the policy makers and practitioners that have the power to take decisions at national, regional or local level into trans-national networking activities. However, transferability of good practice is still too episodic.

## ⇒ Allocating each mode in the appropriate environment

The adoption of effective sustainable mobility strategies needs that all transport modes should be tackled. This consideration reveals the need to better explore the potential of each mode and address the issue of which mode is the most convenient in each case, depending on the impacts caused, trip characteristics and the urban environment in which it takes place. This could help the adoption of policy packages to limit car use in urban areas, promote non-motorized as priority modes in inner-city areas, and avoid undesirable competence between public transport modes in sub-urban trips, improving overall system efficiency.

## ⇒ Priority to mobility management

Individual behaviour is at the core of sustainable mobility. Mobility management help sustainable transport by acting directly at the individual decision making level through very cost-effective measures that can promote changes on modal split. Mobility Management should be integrated in the urban and transport planning agenda, and following the Swedish and Dutch experience, its application should be given priority over large infrastructure measures, whose approval should be considered only where mobility management is not an option. To better understand the potential of mobility management further research is required, both in terms of its application and transferability of good practices.

quality for living conditions within cities (space, noise, disturbance, safety and social security).

### ⇒ Implementation of sustainable urban mobility – implementation processes in the urban transport context

The visions of sustainable urban mobility are now widely shared, - e.g. to fulfil the needs for access for citizens and businesses in a way that is environmentally sustainable, socially fair and economically efficient (considering full costs). It is also widely agreed that this has to be assisted by comprehensive planning processes and achieved through inclusive, participatory processes. Finally there is a growing recognition of numerous ideas for technical, organisational and economic measures and solutions for urban transport problems that may help to achieve the objectives of sustainable urban mobility, some of which have been tried out and adopted in some cities.

What is lacking is research to analyse and understand more generally the mechanisms and processes that can actually realise the visions, deliver the objectives and ensure implementation of the relevant measures. What is the role of critical factors such as planning systems, technical competencies, governance structures, political leadership, knowledge and decision support, management capacity and stakeholder involvement, in these processes? To what extent are these processes and barriers universal (at least in Europe), to what extent can they be related to objective factors such as city sizes or inherited structures, to what extent are they instrument-specific, and to what extent do they link closely with geographical, historic cultural or political differences?

Implementation processes need to be studied, both to help identifying the barriers for letting seemingly agreed objectives to become realised, and to grasp the more specific implementation pathways, detours and roadblocks connected with individual measures, considering general as well as contextual factors.

Implementation, delivery and *realisation* research has to involve a broad interdisciplinary approach since barriers and pathways of implementation and realisation involves technical, geographical, economic, social, psychological and political aspects. It should be an integrated part of all urban transport research agendas.

## II—Data collection and urban transport demand analysis

### ⇒ Collection and Provision of Urban Transport Data

The understanding of the transport system, its current situation and developments in the past rely on the gathering of data concerning the system and its users. In addition, interrelations of causes and consequences within the system have to be researched and understood to predict possible changes in the future and under certain circumstances. This can only be achieved with reliable, continuous and object-oriented collection of transport data.

### ⇒ A European Observatory of Urban Mobility

It would be an interesting idea to launch, under the European Union patronage, a European Observatory of Urban mobility, on a model that would need to be further defined but which could be a combination between the European Road Safety Observatory and some national structures like the Spanish Metropolitan Mobility Observatory for example.

The Spanish Metropolitan Mobility Observatory is sponsored by the Spanish Ministry of Environment and the Ministry of Public Works and was launched in 2003 by the Metropolitan Transport Authorities of the major metropolitan areas in Spain, and TRANSyT-UPM. This Observatory aims to serve as a permanent monitoring mechanism of sustainable urban mobility in major Spanish cities, as well as to serve as basis for Metropolitan Transport Authorities to improve operation of their public transport systems, and thus increasing their contribution to sustainable mobility. This Observatory is made up of 16 Metropolitan Transport Authorities.

In the field of public transport, the work done in EMTA, to produce a Barometer of public transport in European metropolitan areas and the work done in UITP with the millennium city data base should also be included.

Such an Observatory could help put together, compare and analyse various set of data and could also deal with some other issues proposed in the present document. It could be the place for an operational synthesis of the existing initiatives.

## ⇒ Urban Transport Demand Analysis and Modelling

This topic deals with the analysis of system coherences, determinants and their effects in respect to transport demand with a special focus on urban areas. This analysis is based on collected data on urban transport system performance and mobility behaviour of system users or potential users. Better understanding of the underlying behavioural mechanisms and how they should be incorporated into a robust analytical methodologies and models, together with more accurate and comprehensive data, is a fundamental necessity giving planners and policy makers the right tools for decision making.

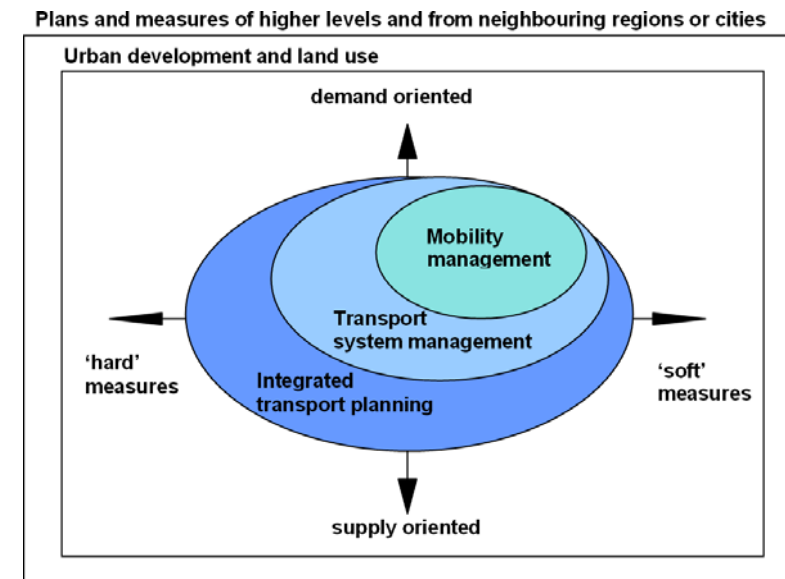
## III—Sustainable strategies in urban areas

### ⇒ Land Use and Transportation Planning Integration

Different land uses and spatial separation create the need for travel and to transport goods. The transport system determines the accessibility of places and influences land uses. Thus, planning and management of the urban system need an integrated approach.

Planning issues refer to the integration of planning processes, especially land use planning and transport planning. Besides this, the focus should be on sustainable urban transport planning as such.

Figure 1: Levels of Integrated Planning Processes (Based on FGSV [22])



The main urban problems relate to suburbanisation and spatial fragmentation that produce increased traffic volumes, congestion, need for parking space etc. Instruments and measures to reduce suburbanisation and to maintain dense cities are often insufficient, mainly due to economical pressure for the location decision and investments, limited accessibility and parking space within dense areas, and lack of