Workshop on Implementing Sustainable Urban Travel Policies in Japan and other Asia-Pacific countries

2-3 March 2005
Akasaka Prince Hotel, Tokyo

Overcoming Institutional Barriers to the Implementation of Integrated Transport Strategies

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1 Introduction

In its 2002 report: *Implementing Sustainable Urban Travel Policies* (ECMT, 2002), the ECMT concluded that there was widespread agreement on the need for integrated packages of policy measures as a means of increasingly the sustainability of urban travel. At the same time it identified a number of institutional and procedural barriers to the implementation of such strategies, and noted that these barriers were experienced widely throughout the developed world. The principal barriers identified were:

- lack of a national policy framework for sustainable urban travel;
- poor policy integration and coordination;
- inefficient and counterproductive roles and procedures;
- public, political and media resistance to policies;
- unsupportive legal or regulatory frameworks;
- weaknesses in the pricing and fiscal frameworks;
- misguided financing and investment flows;
- analytical obstacles;
- poor data quality and quantity; and
- wavering political commitment (ECMT, 2002).

This Workshop is intended as an opportunity to test the continuing relevance of these barriers, and to identify ways of overcoming them.

This paper reviews some recent European research into this set of issues and suggests ways in which many of these barriers could be overcome. It should be stressed that the experience presented is European, and may not necessarily transfer to the countries of the Asia-Pacific Region. It will be helpful to discuss, in the Workshop, whether the paper’s conclusions and recommendations are transferable.

We start, in Section 2, by looking at recent evidence on the elements of effective integrated urban transport strategies, drawing in particular on two recent European research projects, PROSPECTS and PROPOLIS, and a UK-funded study of optimal integrated land use and transport strategies. These studies reinforce the case made by the ECMT report for an emphasis on improvements in public transport services and increases in the cost of car use.

In Section 3 we consider the barriers to implementing such strategies, and assess the ECMT list above against a review of work in PROSPECTS and in a recently funded UK research programme, DISTILLATE. These suggest that financial and acceptability barriers are as likely as institutional ones to hinder progress.

Section 4 considers evidence on ways of overcoming such barriers. Solutions to financial barriers were considered in the UK project on optimal land use and transport strategies, while means of addressing institutional and acceptability barriers have been addressed in a recently completed European project, TIPP.

Finally in Section 5 we draw some conclusions from European experience which it is hoped can be compared with the needs of the Asia-Pacific Region.
2 The design of integrated transport strategies

Several government publications have advocated an integrated approach, with the UK government going as far as to specify integration as an objective of its transport policy (DETR, 1998). However, few policy documents define what they mean by the term. Much of the debate focuses on operational integration of fares and service levels specifically within public transport. There is, in practice, a more strategic form of integration, which is directly relevant to strategy formulation: the integration of policy instruments to achieve greater performance from the overall strategy. Such integration can occur in five broad ways (May, Kelly and Shepherd, 2004):

1. integration between policy instruments involving different modes;
2. integration between policy instruments involving infrastructure provision, management, information and pricing;
3. integration between transport measures and land use planning measures;
4. integration with other policy areas such as health and education; and
5. integration between authorities within a conurbation.

A carefully designed integrated strategy, particularly of types (1) to (3), should be better able to achieve the objectives set for it than any one or more policy instruments taken on their own. Some of the forms of integration outlined above may prompt a wider set of objectives; for example integration of transport and land use (type 3) may well raise a wider set of development objectives, while integration with other policy areas (type 4) will require an understanding of their objectives (Jones et al, 2003).

As with any strategy, it is important to be clear as to those objectives before the strategy is developed, since the combination of policy instruments suitable for, say, the pursuit of economic development will differ from those which best meet environmental or health targets. Where integration is to take place between authorities (type 5), it will be important for them to have a common understanding of their objectives, and of their relative importance.

Most approaches to strategic integration focus on one of two types of principle: the pursuit of synergy (May and Roberts, 1995) and the removal of barriers (May et al, 2003).

The pursuit of synergy involves finding pairs or groups of policy instruments which reinforce one another in achieving changes in the transport system, such as modal shares, or improvements against strategy objectives such as efficiency or environmental protection. Obvious examples are the provision of park and ride to reinforce a new rail or bus service; the use of traffic calming to reinforce the benefits of building a bypass; the provision of public transport, or a fares reduction, to intensify the impact of traffic restraint; and the encouragement of new developments in conjunction with rail investment.

The term “synergy” is often used loosely to describe the effects of positive interactions between instruments. It is useful in practice to identify three terms that describe how the different instruments in policy packages combine with each other (Mayeres et al, 2003). Complementarity exists when the use of two instruments gives greater total benefits than the use of either alone. Additivity exists when the benefit from the use of two or more instruments in a policy package is equal to the sum of the benefit of using each in isolation. Synergy occurs when the simultaneous use of two or more instruments gives a greater benefit than the sum of the benefits of using either one of them alone. Additivity and synergy can therefore be considered as two special cases of complementarity.
The removal of barriers implies identifying factors which hinder the implementation of an otherwise desirable policy instrument, and using a second instrument to overcome them. Key barriers to any strategy will often be finance, public acceptability, and concerns that some members of society will be adversely affected. Thus integration can contribute to the removal of barriers in three ways. Firstly it can involve measures which make other elements of the strategy financially feasible. Parking charges, a fares increase or road pricing revenue may all be seen as ways of providing finance for new infrastructure. Secondly, integration can package measures which are less palatable on their own with ones which demonstrate a clear benefit to those affected. Once again an example is to be found in road pricing, which attitudinal research demonstrates is likely to be much more acceptable if the revenue is used to invest in public transport (Jones, 1998). Thirdly, integration can involve measures which compensate losers. The selection of these depends on the side effects which arise from other elements in the package. For example, road pricing could lead to extra traffic outside the charged area, which could be controlled by traffic management, and could adversely affect poorer residents, who could be helped by exemptions or concessionary fares. We return to this issue in Section 4.

A recent European research programme on Land Use and Transport Research (LUTR) has addressed many of these issues. It includes twelve specific research projects and two coordinating ones, and its main findings are presented on its website: www.lutr.net. One project in particular, PROPOLIS, has used land use-transport interaction models in seven cities to test a common set of strategies against a common appraisal programme, which addresses the key aspects of economic, environmental and social sustainability (Lautso et al, 2004; www.ltcon.fi/propolis). Its principal conclusions were that

- public transport policies which increase speed and service levels and reduce fares perform well environmentally, socially and economically; however, they can lead to longer journeys;
- reductions in traffic speeds have positive effects on accidents, but are not sufficient on their own to improve accessibility or the environment;
- charges for car use have positive benefits for all elements of sustainability, but can trigger inappropriate land use changes;
- land use measures have little impact on their own, but focusing development in city and district centres and on public transport corridors can increase the effectiveness of public transport and car use control measures;
- infrastructure projects may have a contribution to make, but often, as designed, are inefficient; they need to be planned to be consistent with other elements of the strategy;
- the best results are achieved by using both push and pull measures consisting of car pricing policies and simultaneous improvements in public transport speeds, services and fares, coupled with focused development plans and effective infrastructure projects;
- such integrated strategies have been shown to reduce CO2 emissions by 15% to 20% and accidents by 8% to 17% relative to the reference strategy for 2021, and to achieve economic benefits of around €1000 to €3000 per capita.

The project also concluded that the individual policy elements need to be designed and appraised as a package, and that their implementation requires coordinated intervention at both local and national levels.
In our own recent work we have taken these principles further, by introducing an optimisation routine, which identifies the combination of policy instruments which performs best against a given set of objectives, with and without constraints (May et al, 2004a). We used three different land use-transport interaction models for six UK cities and Oslo and Vienna, and tested a common set of policy instruments against an objective function which reflects the key attributes of sustainability. The principal policy instruments tested were public transport fares and frequencies, cordon charges to enter the city centre and low cost changes in road capacity. Additional tests were conducted with changes in bus speeds and boarding times, city centre parking charges, changes in fuel tax and fuel efficiency, the introduction of light rail and development control policies. Each policy instrument was permitted to vary throughout a specified range (e.g. -50% to +200% for public transport changes; zero to €10 for car use charges), and the optimisation routine identified the optimal level. Our conclusions were as follows:

1. All the optimal strategies, in all cities and with both models, involved substantial reductions in fare levels throughout the study area. Where it was not possible to change fares, the strategies were substantially less effective when measured against the objectives. This indicates the importance of enabling local authorities to determine fare levels.

2. Most optimal strategies involved increases in public transport frequencies, although their scale varied between cities. Once again, this emphasises the importance of cities having directly control over service frequencies.

3. All optimal strategies included peak period cordon charges to enter the city centre, though the optimal level varied between cities. This, too, is thus an important policy lever for cities. Cordon charges were not tested over wider areas, though some tests of fuel taxation indicated the increased benefits to be gained from wider application of road pricing.

4. Low cost traffic management measures were worth using to increase capacity. Such improvements may seem counter-intuitive, but can be justified on the basis that cordon charging will limit the resulting additional demand for road use.

5. It is possible in this way to identify a strategy involving public transport fares and service levels, combined with road pricing which can generate substantial additional benefits. The net present value of the benefit generated was around €2,000M in Edinburgh and over €4,000M in Leeds.

6. These transport strategies alone do not change the pattern of land use significantly but contribute to social welfare improvements, whereas land use controls do not contribute significantly to welfare changes but can in combination with a transport strategy lead to a more sustainable and compact city.

These results largely support those of PROPOLIS in arguing for improvements in public transport frequency, reductions in fares, introduction of charges for car use, and development controls coordinated with public transport. The limited tests of light rail also suggested that such infrastructure projects could potentially have costs which far exceeded their benefits. The one apparent divergence of view is on the use of traffic management measures to limit speeds or to increase capacity; this merits further investigation.
Both projects also demonstrate the importance of a coordinated approach, in which public transport services, traffic management and pricing and land use controls are designed and managed together. In particular, our own study shows that inability to control fares can reduce benefits by as much as a third. It also highlights the financial constraints on such optimal strategies, an issue to which we return in the next section.

3 Barriers to the implementation of integrated strategies

In the LUTR project PROSPECTS we identified four types of barrier (May et al, 2003):

Legal and institutional barriers: These include lack of legal powers to implement a particular instrument, and legal responsibilities which are split between agencies, limiting the ability of the city authority to implement the affected instrument.

Financial barriers: These include budget restrictions limiting the overall expenditure on the strategy, financial restrictions on specific instruments, and limitations on the flexibility with which revenues can be used to finance the full range of instruments.

Political and cultural barriers: These involve lack of political or public acceptance of an instrument, restrictions imposed by pressure groups, and cultural attributes, such as attitudes to enforcement, which influence the effectiveness of instruments.

Practical and technological barriers: While cities view legal, financial and political barriers as the most serious which they face in implementing land use and transport policy instruments, there may also be practical limitations. For land use and infrastructure measures these may well include land acquisition. For management and pricing, enforcement and administration are key issues. For infrastructure, management and information systems, engineering design and availability of technology may limit progress. Generally, lack of key skills and expertise can be a significant barrier to progress, and is aggravated by the rapid changes in the types of policy being considered.

The project included a survey of 60 European cities, and asked them, for each of a set of seven types of policy instrument, whether each of the first three of these types of barrier was a major or minor constraint, or imposed no constraints (May et al, 2001). All three barriers affected all instruments except information measures in the majority of cities. Legal and institutional barriers were a major constraint for land use, road building and pricing measures in over a third of cities and for public transport measures in a quarter of cities. Financial barriers were a major constraint for infrastructure projects in over 80% of cities, and for bus and rail operations in almost 60% of cities. Political and acceptability barriers were a major constraint for pricing and road building in over half of cities, and for land use and public transport infrastructure in over 40% of cities.

The barriers identified in the ECMT report, as listed in the introduction, are largely legal and institutional. However, one relates to financial barriers, and two to political and cultural barriers. Two of the ECMT barriers, relating to analytical obstacles and poor data quality and quantity, do not naturally fit into the four way categorisation from PROSPECTS, but have more to do with the process of decision-making.

We have recently commenced work on a programme of research, DISTILLATE (Design and Implementation Support Tools for Integrated Local Land use, Transport and the Environment) designed to help city authorities in the UK to achieve a step change in their ability to develop and implement sustainable land use and transport strategies (May et al, 2004b). An early stage in the process has been a detailed survey, with our 16 local government participants, of the barriers which they face and the importance of overcoming them (Hull and Tricker, 2005).
We asked our respondents which were the most problematic stages in the strategy formulation process for them. Those with the highest scores were funding, predictive modelling, monitoring and evaluation, strategy option generation and strategy appraisal; the programme will be developing improved methods for all of these. The most serious barriers which they faced were obtaining finance for the operation of new schemes, negotiation with private sector operators and public acceptability of demand management measures, followed by political short termism, financial constraints more widely, and lack of control over rail services.

We developed a “seriousness score” combining assessments of importance and dissatisfaction, from which negotiations with bus operators, the business community, the public, politicians and the Department for Transport emerged as the most serious stakeholder barriers, and implementation of bus service changes, traffic restraint measures, fare changes, land use measures and light rail as the most serious policy instrument constraints.

Once again these barriers map well onto those from PROSPECTS, with examples of legal and institutional, financial and political and cultural barriers all being highlighted. However, barriers in the decision-making process, related to strategy option generation, predictive models, strategy appraisal, monitoring and evaluation are also important, reinforcing the case for a fifth category of barrier. Of particular interest, the policy instruments which our local authorities find hardest to implement are precisely those which were identified earlier as the most important contributors to an effective integrated transport strategy.

4 Ways of overcoming barriers

As noted in Section 2, it is possible to overcome some barriers by designing appropriate integrated strategies. Other approaches include good practice in consultation and presentation of strategies, design of effective institutional structures, and more effective decision-making processes.

Integrated strategies are a particularly effective way of overcoming financial and political and cultural barriers. It may be difficult to overcome barriers in this way without to some extent reducing the performance of the overall strategy. An approach which is feasible within a given financial constraint, or is modified to satisfy public opinion, will almost certainly be less effective when measured against the underlying objectives than one which is unconstrained in these ways. The pursuit of synergy and the resolution of barriers are thus to some extent in conflict in the design of integrated strategies.

Our study of optimal integrated land use and transport strategies investigated the design of strategies which were feasible within financial constraints which limited government expenditure over a 30 year period to that required for the current strategy (May et al, 2004a). In the two cities tested, these strategies involved smaller fares reductions and higher cordon charges; in some cases frequency increases were also smaller. While these constrained strategies performed less well than the optimal approaches without financial constraints, they only reduced benefits by around 15%. Thus it appears that it should be possible, by careful design, to obtain significant increases in benefit over present strategies without increasing the cost of the strategy. This is achieved by using pricing elements of the strategy as a source of finance for the other elements.

While not able to be demonstrated analytically, such optimal strategies are likely to be able to reduce the severity of political acceptability barriers. There is now extensive evidence that, while road pricing on its own does not attract majority public support, the addition of public transport strategies to the package can make the overall strategy acceptable to a majority, partly because the public transport improvements provide an alternative to car use,
and partly because they are dependent on the revenues from road pricing (Jones, 1998). More recently we have shown that careful design of road pricing schemes can attract majority support for the measure on its own, without significantly reducing its benefits (Jaensirрисak et al, 2004).

The institutional, acceptability and decision-making process barriers have recently been addressed more fully in an EU project, TIPP: Transport Institutions in the Policy Process, which has adopted a normative approach to understanding the ways in which decision-making structures and decision-making processes affect the resulting transport policies (May et al, 2005). TIPP was based on 19 case studies from all modes of transport and all scales from urban to international. The approach was a normative one of observing how decisions had been made, and comparing between case studies. The results are inevitably limited by the number of case studies and the range of modes and scales addressed, but indicate opportunities for good practice. The recommendations set out below are those which apply to urban transport.

A first set of recommendations relates specifically to the issues of political and cultural acceptability barriers (May et al, 2005):

- The public have to understand the problem that a policy measure is designed to solve, and to perceive it as a problem. Where problems can be identified scientifically, but are not understood by the public or business, resources need to be spent on explaining them more fully. A failure to do so can lead to unsupported or aborted strategies and schemes.

- The public has to be convinced that the proposed policy measure will solve the problem more effectively than other apparently more plausible solutions. Decision-makers have to inform the public of their intentions and to explain the effectiveness of the measure in a simple and comprehensible way.

- Politicians need to be aware that the public will judge proposals initially based on their short run individual gains and losses. Where such losses will be offset by longer term and less tangible gains to society, these need to be clearly articulated and explained.

- Society at large regards distributive as well as procedural aspects of fairness as important in judging a given strategy. Distributive aspects are always an issue, whereas procedural aspects become relevant only when they are seen to be violated. Decision-makers should give full consideration to fairness principles in developing and justifying their strategies. For example, the procedural aspects can be served by effective participation and consultation.

- Participation of stakeholders should be formally incorporated into all stages of the decision-making process. Both public and private interest groups should have equal access to the process, and their roles in decision-making need to be clearly specified. Good participation and consultation procedures may lengthen the initial stages of project development but are ultimately likely to lead to more successful outcomes.

- Politicians and transport managers should, where possible, avoid aspects of a strategy which allow the media or opponents to emotionalise an issue. This may require a modification to the overall strategy or the sequence in which it is implemented. In the extreme, this could lead to the strategy being less effective, but this may have to be accepted in the interests of achieving implementation.
A second set deals specifically with institutional structures, and the appropriate relationships between the different bodies involved in urban transport policy (May et al, 2005):

- Concerns over subsidiarity should not be used to discourage EU involvement in regional and local transport policy. The European Union has an important role to play in encouraging consistent actions among member states and, through them, at a regional and local level. The EU is also able to disseminate good practice by comparing performance in different member states.

- Within the context of EU policies, national governments should take the principal responsibility for specifying regulations for safety and the environment, for the regulation of national services and for the basis of competition policy. They should also specify the basis of national pricing policies for public transport and monitor performance of regional and local authorities in terms of these regulations.

- National governments have a key role in providing effective institutional structures at national, regional and local levels, in facilitating an integrated approach to transport and land use policy, in providing an appropriate legislative and regulatory framework, in developing consistent approaches to financing, appraisal, monitoring and benchmarking in encouraging innovation and in supporting enhancement of skills, research and development.

- Where governments decentralise decision-making to regional and local government, they need to ensure that appropriate levels of funding and know-how are also devolved, or to provide effective revenue raising powers. This will have a particular impact on infrastructure provision and maintenance policies and the support of public transport services.

- Local authority boundaries are often inconsistent with travel to work areas. A single authority responsible for a conurbation and its travel to work area, with lower tier authorities responsible for detailed implementation, should be introduced in preference to distributing responsibility among potentially competing single tier authorities.

- There is some evidence that splitting responsibilities between smaller local authorities will induce them to focus on economic development to the detriment of the environment and sustainability. Particular care is needed to ensure consistency between neighbouring authorities in infrastructure provision, demand management, regulation and pricing. Regional or conurbation governments should be charged with achieving an appropriate balance between consistency and competition.

- Private sector involvement in the operation of public transport can achieve greater efficiency of operation and more innovative services. Franchising is an appropriate way to introduce competition for the provision of passenger services, provided a number of conditions are met. For bus services these include specification of fares and service levels. For rail services they include track access charges, track maintenance, timetable allocation, subsidies, strategic planning and oversight of the infrastructure manager by an independent regulator.

- While there may be a case for changing institutional structures in order to improve them, it is important to bear in mind that such changes can cause disruption and lack of focus for a period of two to three years. Such costs need to be assessed carefully against the benefits of change.
A third set of recommendations relates to decision-making processes, and hence the ways in which a given institution establishes its transport strategy (May et al, 2005):

- The objectives of the transport strategy need to be clearly articulated at the outset, and used throughout the decision-making process in a consistent way. Because objectives can be in conflict with one another, it is important to be clear as to their relative importance, so that trade-offs can be made as necessary. Objectives should be expressed in terms of desired outcomes for society, rather than the means of achieving them.

- Policy makers should consider the full range of policy instruments, including those from the fields of land use planning, infrastructure provision, management, regulation, information, awareness and pricing.

- Flexible provision of funding and the balance between capital and revenue funds must be considered to avoid constraining strategy development and instrument choice at an early stage.

- An appraisal methodology which is consistent across modes and policy instruments helps to improve decision-making. Care must be taken to ensure that it captures all impacts and that all impacts receive equal consideration irrespective of whether they can be easily quantified and valued.

- Implementation and planning processes should include full consideration of the management of policy instruments after their implementation, including the approaches to, and costs of, management and enforcement.

- Regular monitoring is important in assessing whether problems are becoming more or less serious. Evaluation after implementation is crucial to the understanding of the performance of transport systems. The results of evaluations, whether positive or negative, should be fed back to those who introduced the strategy, and disseminated more widely.

- Data and data processing limitations have been documented for all major transport modes in the EU. There is a lack of information on costs, demand, revenues and asset condition, which limit effective regulation, management and accountability. Commercial confidentiality is a frequent barrier to information provision. Inadequacies in data are also an obstacle to the construction and calibration of forecasting models. To address these deficiencies, national governments should establish independent information provision units, who should be able to require relevant information from all relevant transport agencies.

These recommendations address the majority of the barriers identified by the ECMT. As noted, they are based on a limited set of case studies, whose experience will not necessarily be transferable to other contexts. Only rarely are they based on before and after studies which demonstrate that a particular approach has been effective. However, they merit further consideration for inclusion in ECMT’s forthcoming report.

One aspect of the ECMT list of barriers which is not fully reflected in the TIPP recommendations is that of financing and investment flows. This was considered in a report by the European Commission’s Working Group on Sustainable Urban Transport (EC, 2004). The Group made a series of recommendations to the Commission under the headings of policy coherence, sustainable urban transport plans, financial policies, monitoring of progress, policy initiatives, improved governance, dissemination of good practice, and promoting awareness.
Many of its recommendations mirror those from TIPP. Those related to finance include:

- making European and national government finance conditional on the preparation of Sustainable Urban Transport Plans;
- providing such finance in support of the overall Plan rather than for specific schemes and measures;
- ensuring that finance for national projects which affect urban areas is compatible with that for the urban transport Plan;
- promoting low cost, and cost-effective, schemes and measures;
- using charges for transport use to internalise external costs; and
- ensuring that taxation policies are consistent with such charging regimes.

Other recommendations of relevance are:

- the encouragement of national governments to require the preparation of Sustainable Urban Transport Plans, and the provision of guidance on how to develop such Plans;
- the development of a common set of indicators and their use for benchmarking performance;
- the importance of achieving coherence between the planning of transport, land use and other policy sectors;
- the use of ex post evaluation to improve understanding of the performance of transport policies, and the dissemination of the results of that research;
- improved training of professionals and politicians in the challenges of complex decision-making;
- the use of awards as a means of encouraging best practice.

These recommendations have not been formally tested, but again merit consideration for inclusion in the forthcoming ECMT report.

5 Conclusions and recommendations

Several messages are clear from the above review.

Integration of policy instruments is important as a means of achieving greater benefits (through the principles of complementarity) and of overcoming barriers to the implementation of the strategy.

The key elements of a successful integrated transport strategy are improvements to public transport fares and services, charges for car use, and a land use policy which focuses new development on city and district centres and on public transport corridors. With these in place, consistent policies to manage the use of road space, and cost effective additions to transport infrastructure will have a part to play.

Such strategies have been shown to achieve reductions in CO₂ emissions of 15% to 20%, and in accidents of 8% to 17%; they can generate benefits of between €1000 and €3000 per
capita. Formal optimisation can be used to generate more effective strategies still, with benefits of up to €6000 per capita.

The principal barriers to the implementation of such strategies are legal and institutional; financial; political and cultural; practical and technological; and related to decision-making processes. The majority of cities perceive the first three of these types of barrier as constraints on the use of most types of policy instrument. Recent evidence suggests that the last type of barrier may also be of increasing importance to cities.

There is some evidence, at least from recent UK research, that the policy instruments which have most to offer in developing effective integrated strategies are precisely those which local authorities find hardest to develop and implement.

Integrated strategies can be designed to reduce the impact of financial and acceptability barriers. In particular, revenues from user charges can be used to make the overall strategy self-funding, without significantly reducing its benefits; public transport improvements funded by charges for car use can make the latter, and hence the overall strategy, more acceptable.

Acceptability can be enhanced by ensuring that there is public agreement on the problems to be addressed, that the appropriateness of the proposed solutions to those problems is understood, that the short and long term impacts of these solutions are clear, that the process for their implementation is seen to be fair, and that the media is not encouraged to emotionalise any adverse impacts.

Institutional structures need to be designed to provide appropriate devolution of powers, finance and skills to regional and local government, with an integrated approach to the management of transport and land use within local authorities and between authorities within a given travel to work area.

Private sector involvement in public transport operation can achieve greater efficiency of operation and more innovative services. It should be based on a franchising model in which fare and service levels are specified by the transport planning authority.

Financing should be based on the preparation of sustainable transport plans, and used to support those plans rather than for specific schemes and measures within the plan.

Good practice in the development and implementation of sustainable urban transport strategies needs to be disseminated more widely. Such practices can be enhanced through the provision of enhanced data and through appropriate guidance and research into methods for strategy option generation, forecasting, appraisal, monitoring and evaluation.
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