International Association of Public Transport
Union Internationale des Transports Publics
Internationaler Verband für öffentliches Verkehrswesen
Unión Internacional de Transporte Público

JANUARY 2009

A UITP position paper

Focus

Assessing the benefits of public transport

1. Why focus on appraisal?

In recent years the economic appraisal of transport schemes has become an ever-more essential part of their development. Increasing constraints on public funding and the sheer volume of competing schemes across the whole sphere of government (or even within transport) require public transport scheme promoters to provide sound and thorough analyses justifying the scheme's value for money.

Public transport appraisal:

- **Helps decision-making** by assessing schemes and policies against possible alternative solutions (option generation, testing and selection) and against local, regional and national policy goals;
- **Helps develop and prioritise** transport strategies and policy packages;
- **Helps monitor the outcomes** of individual scheme and broader transport strategy implementation;
- **Increases public acceptance** by making the decision-making process transparent.

2. Understanding the complete benefits of public transport is vital for decision-makers

The provision of good public transport enables cities to thrive and fulfil their economic, environmental and social aspirations. Good public transport is vital to successful urban areas, enabling people to access jobs and services, employers to access labour markets and businesses to reach the customers for their services. Good public transport is clean, fuel and carbon efficient and enhances the attractiveness of city centres and the health of the citizens[1]. The affordable access provided by public transport to opportunities is fundamental in the drive to creating a more inclusive society[2]. No other modes can come close to the ability of public transport to safely and efficiently provide urban mobility to large numbers of people. Improving public transport systems, therefore, is also the only way in which the future challenges of urban growth and mobility, sustainable economic development and climate change can be successfully tackled.

Good public transport, therefore, underpins the quality of life we enjoy today in all of our cities and towns. Without continuing to invest in and improve public transport, we have no hope of the transport sector successfully tackling the challenges the world faces. Yet transport planners have been particularly reticent in claiming these benefits. Until now, the methodology used to assess the benefits of public transport captures only a portion of these benefits: **public transport offers even better value for money than usually stated.**

[1] See *A low carbon future with public transport*, Focus Paper, UITP, January 2007

[2] See *Tackling Social Inclusion – The role of public transport*, Focus Paper, UITP, May 2007

This focus paper calls on:

- the transport planners to promote the complete benefits of their schemes and strategies;
- academics to develop and governments to adopt the methodology to better quantify these benefits;
- decision-makers to recognise these benefits and ensure better public transport is integral to the development of their cities.

3. Current appraisal methodology does not capture the full benefits of public transport

Public transport contributes to all aspects of urban life, and consequently transport appraisal needs to consider all of the following areas:

- **Economic** - public expenditure and income, user time savings, reliability and wider economic impacts;
- **Environmental** - noise, air quality, greenhouse gases, landscape, townscape, historic heritage and water environment;
- **Social** - safety, security, accessibility, mode interchange, land-use policy, physical fitness and journey ambience.

Public transport appraisal has traditionally concentrated on assessing specific infrastructure projects, but there is increasing need to assess transport policy itself. Demand management schemes are being identified as a possible solution to tackle the congestion that hampers inter-urban and urban mobility. However, such options are difficult to assess with conventional appraisal. The very limited experience and number of practical case studies in demand management make accurate appraisal of their benefits difficult. Furthermore the impacts of demand management are also very broad; their diffuse impacts are difficult to separate from background 'noise' and are complicated to measure.

Cost Benefit analysis expresses both sides of the ratio in financial terms as a benefit:cost ratio (BCR). This therefore requires the 'monetisation' of the quantified benefits of the scheme. Well-established methodologies exist to assess many aspects and are included in appraisal methodology in a large number of countries. These aspects usually include time savings (both for private users and business users and including weightings for the least comfortable aspects of a journey), safety (death and injury), noise, and greenhouse gas emissions (though the appropriate value of CO_2 requires further research).

UITP recommends measuring outcomes against these objectives, and expressing the result as a BCR, as a minimum course of action for all public transport schemes and strategies.

However, monetisation of all impacts is not normally possible, even if they are quantifiable. This can lead to decisions being made on an incomplete assessment of impacts, which in turn can mean economic, environmental or social goals are not met adequately. **Multi-criteria analysis** attempts to fulfil this requirement by including the complete set of impacts of a scheme, whether or not they can be quantified or monetised. This means appraisals can include aspects such as quality of service, biodiversity, landscape and the built environment. This form of analysis can be seen to be more subjective and more difficult to present in a succinct way, although it has the key advantage of enabling decisions to be based on a complete set of evidence.

UITP recommends that multi-criteria analysis is used to complement the BCR and show how the proposal compares to other options and to strategic targets

4. To plan better cities for the future, we need to improve our understanding of the full benefits of public transport

Current methodology still does not do justice to the full benefits public transport schemes can provide to the wider public. Nevertheless, the assessment of a number of individual schemes has highlighted the range of wider economic, environmental and social impacts that could be taken into account. Some notable examples are set out below:

4.1. Improving economic productivity

Public transport schemes, particularly large rail infrastructure projects adding capacity to constrained networks, enable wider economic benefits (known as agglomeration benefits) to be exploited. This contributes billions of euros to national GDPs over the lifetime of major schemes.

The quantification of these wider economic benefits adds significantly to the justification of large-scale public transport investments. The methodology needs further development but, from the work undertaken so far, it is clear that the scale of the wider economic benefits that can accrue is very great.

Ex-ante example - Crossrail, London, UK: by enabling more people to work in central London, increasing the pool of potential employees and customers for central London businesses, and enabling greater concentration of businesses (which is known to be associated with greater productivity) located in central London, Crossrail will contribute an additional GBP 40 billion worth of GDP benefits to the UK economy. This is in addition to user and business time savings. By including the wider economic benefits of the project the BCR increased from roundly 2:1 to 4:1.

UITP urges decision-makers to recognise the role public transport plays in enabling economic productivity improvements and supporting economic growth in their cities.

4.2. A high quality urban realm

A high quality urban realm is important to citizens' quality of life and to businesses deciding where to locate. Public transport has a huge impact on the quality of the urban realm, most significantly by reducing the volume of car traffic on cities roads, and hence the noise, congestion, danger and waste of space caused by such vehicles. The efficiency of public transport provides the capacity for people to access city centres, whilst also allowing valuable public space to be used for walking, cycling, relaxing and enjoying our cities. Transport bodies are increasingly promoting walking and cycling as important modes of transport. However, despite the clear economic and social benefits to be derived from encouraging further mode shift from car to public transport, this contribution to the urban realm falls outside existing transport appraisals.

Ex-post example – tram system, Strasbourg, France: in 1994, Strasbourg became the fourth city in France to introduce a new tramway system. The revitalisation of Strasbourg and its city centre was the key principle of the scheme, whilst also improving the urban quality of life. The first line of the new tramway was opened with a length of 9.8km (now extended to 12.5km). It runs via the city centre and is connected to a national rail station, directly serving 140,000 people. Within its first year, there was a 30% increase in public transport passengers in the city, with a total increase over ten years to 65 million public transport passengers in 2004, from 32 million public transport passengers in 1994. An additional two new lines, bringing the total cost of the scheme to EUR 328m, were introduced in 2000, and have further reduced the volume of through-traffic in the city centre and created a more enjoyable, peaceful and prosperous city centre.

Ex-ante example – London town centres, London, UK: a continuous stream of town centre improvements across London. The programmes will lead to rebalancing of public space in town centres, giving greater priority to pedestrian needs, social inclusion and integration, safe and secure environments and high-quality public realms.

UITP urges decision-makers to recognise the role public transport plays in making a better urban realm and quality of life for their citizens

4.3. Regeneration, social inclusion and additional economic vitality

Transport schemes have indirect benefits on deprived areas by providing access to large centres of employment, healthcare and other essential services such as education. A relatively small addition to the transport network can have a large impact on the opportunities and choices available to residents. These impacts cannot easily be attributed directly to transport schemes given the numerous exogenous factors in play and are difficult to quantify with certainty.

Ex-post example – Jubilee line extension, London, UK: the extension of the London Underground Jubilee line from Green Park to Stratford, through south and east London. Using the current Department for Transport method of transport appraisal, it is estimated that the JLE delivers a BCR of 1.75:1, even after accounting for the cost over-runs experienced on the project. In addition, the scheme has had significant positive impacts upon residential development, land value and the wider economy. A study in 2004 estimated the wider employment benefits to be GBP 6b (in 2003 prices) mainly from agglomeration benefits, and it suggested that land and property effects could exceed that figure. As an example, property value is estimated to have increased by GBP 2.1b just for the Canary Wharf station area between the JLE opening in December 1999 and December 2002, mainly through new completions in the commercial property sector.

Ex-post example – Lyons, France:

The opening of Line D of Lyons' metro system quadrupled the rate of urban regeneration in the corridor it served. The proportion of new or renovated buildings for commercial purposes was 60% in the corridor compared to 13% in a comparable area not covered by the new line, while the share of public open space that was redesigned was 44% compared to 11% elsewhere. Moreover, the population growth rate changed from below average to above average in the districts situated near the new line, underlining an increase of the attractiveness of these districts.

Ex-ante example – East London Transit phase 1A, London, UK: upgrade of Ilford-Barking-Thamesview Estate corridor with high levels of bus priority, improved stops and information. The provision of a high quality bus transit service will encourage modal shift to public transport in a developing area, and is expected to give strong support to the regeneration aspirations of the areas. The project has a BCR of 2.1:1 with an estimated financial cost of GBP 22.6m.

UITP urges decision-makers to recognise the role public transport plays in regenerating deprived areas and supporting social inclusion.

4.4. A more reliable transport system

People and business value reliability. Public transport can offer levels of reliability unachievable by private car (even though there is room for improvement in the reliability of public transport itself). Business and commuters depend on this high level of public transport reliability to make the best use of their valuable time: car- dependent cities waste much of their economic potential through additional time required to make road journeys. However, this broad contribution to cities' productivity by public transport goes largely unrecognised in appraisal methodology.

Ex-post example – Street Management Customer Satisfaction Survey, London, UK: in early 2008 a Street Management Customer Satisfaction Survey was undertaken, in which participants were asked how satisfied they were in being able to accurately estimate how long their journeys would take by different modes. The survey results confirmed that most people were more dissatisfied estimating travel times for journeys by private car than for journeys made by bus. On the basis of these survey results, public transport can help to enable people and businesses to plan their time more effectively and, therefore, contribute to greater economic efficiency.

UITP urges decision-makers to recognise the economic benefits derived from the superior overall reliability of public transport compared to the car for trips within urban areas.

4.5. Supporting population growth

Urban populations are growing, and the demand for housing is increasing as household size diminishes. The integration of housing and transport planning enables cities to grow in size sustainably. In particular, where accessibility to an area is poor or non-existent, there can be a strong case for making sure that good public transport connections are in place before a new housing development is completed, and current methodology needs to be extended to cover such scenarios.

Ex-ante example – Parkstadt Schwabing, Munich, Germany: in the growth area of Parkstadt Schwabing, an urban development project to the north of Munich, permission to complete the final third of the housing development was only granted once the developers had committed to financing and building a tram connection. The tram connection had a BCR of 1.13 to 1, but it enabled the development of 150,000m^2 of commercial floor space and 500 residential units. This high density development with limited parking provision would not be considered feasible without the high quality / high capacity public transport link the tram will provide.

© Fotomontage SWM, Atelier Fischkandl

Ex-ante example – Docklands Light Railway (DLR) extension to Dagenham Dock, London, UK: the extension forms a key part of the infrastructure proposals for the London part of the Thames Gateway and provides a direct connection to the Barking Riverside development area. Planning consent has been granted for 10,800 homes as part of the UK Government's plans for the Thames Gateway. The proposed route of the DLR extension passes through the heart of the Barking Riverside development which would be served by three new DLR stations. The scheme has a BCR of 3.2:1. The proposed DLR extension enables sustainable development of the land for housing.

UITP urges decision-makers to recognise the role public transport plays in enabling sustainable population and spatial growth of urban areas.

4.6. Contributing to a healthier society

There is increasing recognition of the interrelationship between transport, the environment and physical activity. Better public transport means citizens no longer need to depend on their cars. People without cars are also more likely to walk and cycle, either for part or all of a journey. This higher level of physical activity compared to car users improves citizens' health and fitness. It ultimately reduces pressure on health services treating obesity and other consequences of a sedentary lifestyle. It is important that transport appraisal recognises these direct and indirect health benefits.

Ex-post example – Tramway line T3, Paris, France: the tramway line T3 opened on December 16, 2006 at a cost of EUR 312m. It catered for an estimated 25 million passengers during its first year of operation - an average of 100,000 passengers every weekday and 70,000 at weekends – and has facilitated a 25% decrease in car use. The total social benefits, including reductions in noise, pollution and greenhouse gas emissions, are about EUR 550,000 per year.

UITP urges decision-makers to recognise the health benefits which stem from public transport.

4.7. Improved personal security

Many public transport schemes contribute to enhancing security (actual and perceived) and reduce crime rates or fear of crime. Improved personal security is a significant concern for many citizens and can be expensive to address. It is therefore essential to understand the potential benefits of security initiatives. However, despite its importance, few public transport planners are currently able to provide quantified evidence of the expected benefits of security initiatives.

Ex-post example - CCTV enhancements, London Underground, London, UK:
by extending CCTV coverage and upgrading existing systems from the already high levels, there will be an improvement in both real and perceived security and perceived crime reduction on the Underground network. Better quality CCTV systems improve general management and security, aid police in prosecuting offenders, and improve passengers' perception of safety. Inclusion of the value placed by passengers on a more secure journey showed that this project is financially positive.

© Joffley (www.flickr.com)

UITP urges decision-makers to recognise the role public transport can play in providing secure mobility for all citizens.

Recommendations

- Transport authorities and planners should use appraisal as part of their decision-making and outcome monitoring processes in order to:
  - foster transparency and;
  - ensure that the transport solutions adopted - both for individual schemes and broader transport strategies - offer the best possible value for money.
- Appraisal, in particular for strategies, should be not only used against do-minimum scenarios but also against policy objectives and related targets.
- Academics and research organisations should gear their research on economic appraisal more carefully towards the needs of decision-makers, through the development of practical methodologies for scheme appraisal.
- National governments and international organisations such as the European Union, the European Investment Bank and the World Bank should continue to develop transport appraisal methodologies and frameworks to enable the wider benefits of public transport to be included in appraisal;
  - appraisal of transport schemes or strategies should take into account impacts on other relevant public policies such as economic growth, housing (or generally speaking land use), health, environment and social inclusion, wider economic benefits, regeneration and urban realm
  - appraisal of non-transport schemes should include assessment of impacts on the transport network
- Decision-makers should recognise the wider economic, environmental and social contribution made by public transport to the success of their cities, and provide the resources needed to ensure public transport can continue to play this critical role.

This is an official position of UITP, the International Association of Public Transport. UITP has over 3,100 members in 90 countries throughout the world and represents the interests of key players in this sector. Its membership includes transport authorities, operators, both private and public, in all modes of collective passenger transport, and the industry. UITP addresses the economic, technical, organisation and management aspects of passenger transport, as well as the development of policy for mobility and public transport world-wide.

This Focus Paper has been prepared by the Commission on Transport and Urban Life with the support of the Academic Network and the Commission on Transport Economics and approved by the UITP Policy Board.

Downloadable in EN, FR, DE, ES at www.uitp.org

Responsable editor:

UITP
Rue Sainte-Marie 6
BE-1080 Brussels
Belgium

Tel: +32 2 673 61 00
Fax: +32 2 660 10 72
info@uitp.org
www.uitp.org