

## **9 CITI - Qualitative Assessment of Options**

### **9.1 Section Overview**

- The CITI rapid transit scheme options have been assessed against the five central government's criteria for transport schemes i.e. environment, safety, accessibility, economic and integration. Each of the CITI options – LRT and BRT – have been assessed against a do-minimum scenario which would include the introduction of a Metro bus service. The results are presented in an Appraisal Summary Table.
- The Guidance on the Methodology for Multi-Modal Studies (GOMMMS) also specifies three important Supporting Analyses to supplement the Appraisal Summary Table. As a result, a high level assessment of the distribution and equity impacts; affordability and the financial sustainability of the scheme; and practicality and public acceptability issues for the scheme options have also been carried out.

### **9.2 Introduction**

It is often difficult to apply a monetary value to some of the costs and benefits associated with each of the options. These non-monetary costs and benefits should not be discounted as being any less important than the monetary values, indeed in many cases they are crucial in the decision making process. Therefore a suitable method of evaluating these non-monetary factors must be applied.

Throughout the New Approach to Appraisal (NATA) process the Government's five objectives for transport as outlined in the White Paper are central to the rapid transit proposals for BMA. These include:

- Environment.
- Safety;
- Accessibility;
- Integration; and
- Economy.

Each of the central government objectives are looked at in turn in relation to the proposed CITI rapid transit options. The appraisal process is also in line with the approach used in the appraisal of transport schemes in detailed in the DfT Transport Analysis Guidance Website – WebTAG Unit 3.5.4 – February 2006.

### **9.3 Environment Objective**

The Environment objective considers the general environmental impacts of the scheme proposals under a total of 10 headings. These are outlined in detail below. At this stage in the assessment only published information relating to the scheme proposals has been examined. The following sources of information have been used:

- Draft Belfast Metropolitan Area Plan (BMAP);
- Environment and Heritage Service (EHS) Designations; and
- EHS Monuments and Buildings Record Search.

### **9.3.1 Noise**

The CITI rapid transit proposals on the on-street sections within Belfast city centre and other roads are assumed to make no significant difference to the noise climate in neighbouring areas. The existing roads are all heavily trafficked and include a significant proportion of buses. In the longer term, the successful implementation of the CITI rapid transit scheme (and other rapid transit schemes) could result in an increase in buses (or LRT vehicles, depending on the option chosen) and a reduction in private cars. However, the overall scale of change is likely to be much less than the 30% change in traffic flows generally regarded as necessary to give rise to a perceptible change in noise levels. Even if it was perceptible, it is unlikely to be of more than slight positive significance.

Electrically propelled vehicles (both BRT and LRT) are likely to have a slight beneficial impact on noise levels compared to vehicles which are diesel propelled. It is recommended that technology options which minimise the impact on noise are explored in more detail as part of the detailed design / Outline Business Case stages.

### **9.3.2 Local Air Quality**

The CITI rapid transit proposals on the on-street sections within Belfast city centre and other roads are assumed to make no significant difference to air quality in the neighbouring areas. The existing roads are all heavily trafficked and include a significant proportion of buses. In the longer term, the successful implementation of the CITI rapid transit scheme (and other rapid transit schemes) could result in an increase in buses (or LRT vehicles, depending on the option chosen) and a reduction in private cars. The overall scale of change is likely to be small but it is likely to be of slight positive significance for local air quality.

It should be noted that it is difficult at this stage to assess whether the introduction of cleaner technology will produce a significant difference in air quality with the introduction of the CITI rapid transit options compared to a do-minimum scenario which includes a Metro service.

Translink is currently specifying Euro 4 exhaust emissions requirements for all vehicle deliveries in 2007 and 2008. They will be required to specify Euro 5 emissions requirements for all vehicle deliveries after 2009 which could include any vehicles used for the do-minimum CITI service. The use of Euro 5 vehicles is likely to significantly reduce exhaust emissions. Translink have also completed a trial for the use of bio diesel fuel and have introduced a number of more environmentally friendly vehicles into the Metro service for use in Belfast city centre.

With regard to LRT or BRT vehicles, which are electrically propelled, these are likely to have a slight beneficial impact on air quality levels compared to a diesel-powered solution but only if the electricity source is from renewable energy sources.

However, diesel-electric hybrid or gas-powered vehicles also reduce emissions at the point of delivery and reduce noise levels, while trials of hydrogen-powered fuel-cell electric buses are showing promising results without the need for expensive infrastructure. All are more expensive technologies and while gas-powered and hybrid buses are working in Continental Europe and America, there have been technology problems with them in the UK. However, with announcements of new hybrid designs at Eurobus Expo in November 2006 the hybrid era may just be beginning in the UK. Wrightbus hybrid vehicles are currently being trialed in London.

### **9.3.3 Greenhouse Gases**

Encouraging more people to use public transport, rather than private cars, is expected to help reduce congestion on roads elsewhere and hence reduce the level of greenhouse gases produced.

### **9.3.4 Landscape**

The proposed CITI rapid transit route is entirely within an urban context and no changes to the landscape would result.

### **9.3.5 Townscape**

Through the city centre, existing planting is limited to on-street tree planting. It is assumed that the rapid transit route will run on-street within the existing highway boundaries and therefore no widening of the carriageway will be required except possibly at localised sites to accommodate turning radii. Therefore the impact on existing street trees is expected to be minimal. Within the urban area of the city centre, the introduction of the rapid transit scheme will bring a new modern and dynamic visual element into the area. New shelters, signage and street furniture designed to be in character with Belfast city centre will enhance the visual quality of the town centre.

The route through the Titanic Quarter and up to the west side of the Musgrave Channel is an industrial area setting with no substantial planting other than pockets of ornamental shrub planting or strips of grass at the entrance gates to individual yards. However this area is undergoing an extensive redevelopment which will significantly improve the townscape of the area. It is anticipated that the rapid transit proposals will be accommodated within the highway layout designs for the area and as such are expected to complement the improved townscape proposals for the area.

### **9.3.6 Heritage of historic resources**

For the purposes of this assessment, a high level review was undertaken on cultural heritage within the study area which includes known / unknown archaeology, buildings of historic and archaeological interest and industrial archaeology. A search of the Environment and Heritage Service (EHS) Monuments and Buildings Record (MBR) was conducted as part of this investigation.

There are a number of sites of historical significance close to the scheme including industrial and archaeological sites and listed buildings. It is not however anticipated that there would be an adverse impact on these features due to the fact that the rapid transit proposals would be accommodated on existing roads in the city centre and proposed new roads through Titanic Quarter (built as part of the overall development proposals for the area). However, given the known heritage features already identified in proximity to the scheme there is the potential to uncover additional features which are currently unknown and unrecorded.

### **9.3.7 Biodiversity**

A high level review was undertaken to identify features of biodiversity in close proximity to the scheme. A review was undertaken of the biodiversity features identified in the draft BMAP as well as EHS's designations for Areas of Special Scientific Interest, Special Protection Areas, Special Areas of Conservation, National Nature Reserves and Ramsar Sites.

There is a potential for disruption to biodiversity in general along the proposed CITI rapid transit route. The CITI rapid transit scheme would skirt part of the Inner Belfast Lough Area of Special Scientific Interest (ASSI), which is a site for wintering wildfowl and waders, and is of National Conservation Importance. However, as no land taken from this area would be required it is not anticipated that the scheme would have a detrimental impact on the integrity of the site.

### **9.3.8 Water Environment**

Where the proposed CITI rapid transit scheme runs through the city centre, it is not anticipated that there would be a risk to the water environment. Through the Harbour Estate / Titanic Quarter, the increased risk during the construction and operational phases of the scheme to Belfast Lough would be negligible compared to the industrial and development activities that are ongoing with the site.

### **9.3.9 Physical Fitness**

The key objective of this sub-objective is the contribution of the proposed scheme to overall health by increasing levels of physical activity. People switching from car to public transport would achieve the recommended minimum distance/time to obtain significant fitness benefits. In this regard, the proposed rapid transit scheme is likely to lead to a positive impact on physical fitness.

### **9.3.10 Journey Ambience**

Modern vehicle designs with good heating, ventilation, seating, luggage space and ride quality would improve passenger care and the provision of better travel information, including real time public transport information, would reduce stress for passengers. Passengers would also benefit from new and better designed waiting and boarding facilities and from vehicles giving a less stressful, smoother journey. The innovative design of the rapid transit vehicles gives the user a high acceptance and feel good factor. The permanence of bespoke infrastructure a clear branding also leads to greater levels of acceptance.

In overall terms, the proposed CITI rapid transit scheme is anticipated to have a slight beneficial impact on journey ambience.

## **9.4 Safety objective**

Within GOMMMS there are two sub-objectives under the safety heading: Accidents and Security. These are dealt with separately below.

### **9.4.1 Accidents**

In calculating the present value of benefits relating to accidents, the key quantitative indicators for the assessment of proposals are the number of accidents and the number of casualties. Combining these numbers with values for the prevention of accidents provides a monetary estimate of the overall accident benefit of a scheme.

Three main groups of transport user will benefit from changing transport mode to rapid transit services:

- Those car users who transfer from cars who benefit from switching to a safer mode than previously used;
- Those car users who continue to use the car but whose accident risk is reduced as a result of reduced road traffic levels; and
- Pedestrians and cyclists who will benefit due to reduced car traffic.

The assessment considers rapid transit user accidents only and is based on the change in vehicle kilometres between the do-minimum and do-something scenarios.

The transportation modelling undertaken calculates the vehicle kilometres saved across the network between the do-minimum and do-something scenarios. The BRT rapid transit option was seen to have little impact on the overall vehicle kilometres travelled whereas the LRT rapid transit option was seen to have a small reduction. Therefore the impact on safety for a BRT option is seen as neutral where the impact for a LRT system was seen as slightly beneficial.

The provision of dedicated lanes that allow the segregation of rapid transit vehicles from other traffic and from pedestrians increases the level of safety and decreases the probability and severity of collisions by rapid transit vehicles. In addition, guidance technologies for buses which are incorporated into the running ways allow vehicles to follow a specified path along the running way and in approaches to stations thereby avoiding collisions while maintaining close tolerances.

## **9.4.2 Security**

Passenger's perceptions of their personal security can be a key influence on whether people choose to use public transport. Perceptions of lack of security can impact disproportionately on particular users at particular times of day. For example, vulnerable users (such as unaccompanied females or the elderly) may be more concerned about personal security during hours of darkness.

For public transport passengers, the DTLR (now DfT) Mobility Unit has produced best practice guidelines for railway stations and public transport operators. This raises a number of key security issues and gives guidance on design and management practices and this document will be referred to in detailed design. Although security issues have not been considered in detail at this stage in the assessment process, it is recommended that the following items are considered:

- Effective CCTV system in place designed to encourage staff surveillance and group passengers;
- Passenger information and good lighting at stops and accesses to stops;
- The provision of facilities to ensure that the driver can see the inside of the vehicle;
- Two-way communications between the vehicle driver and the control centre; and
- Good provision of emergency phones, help points, public telephones and information on emergency help procedure.

## **9.5 Accessibility Objective**

The total accessibility benefits are captured effectively by the user benefits included in the economic appraisal. The accessibility objective is therefore limited to the following three sub-objectives:

- Option Values;
- Severance; and
- Access to the Transport System.

Each of these is outlined in more detail in the following sections.

### **9.5.1 Option Values**

Option Values are associated with the unexpected use of a transport facility which is not built into the forecasts produced by the modelling stage, and which would otherwise not appear in the appraisal as a benefit. Hence, option values are, to some degree, a measure of the individual's attitude to uncertainty, in that it represents the amount that a person is willing to pay to have the option of using the rapid transit facility at some unknown point in the future.

Option values are related to the size of the community that is likely to be affected by the introduction (or removal) of a service. Since the introduction of a rapid transit network between Belfast city centre and Titanic Quarter is likely to affect a large community greater than 2,000 people, then it is possible that the magnitude of the impact of the introduction of this proposal could be deemed to be 'strongly beneficial', according to the definitions set out in GOMMMS (WebTAG Unit 3.6.1).

### **9.5.2 Severance**

The severance sub-objective is used to measure the extent to which the rapid transit scheme reduces the level of hindrance experience by pedestrians.

The infrastructure associated with different types of rapid transit technology can result in varying degrees of severance depending on the location. For example, a guideway with high kerbs could have a significant adverse effect on pedestrian movements in a busy shopping district.

The introduction of a rapid transit service in Belfast city centre could result in an increase in severance due to the introduction of additional public transport vehicles but this is likely to be offset by the implementation of traffic management measures and pedestrian priority measures through the BMTP City Centre Traffic Management and Public Realm proposals. The CITI rapid transit route will run alongside a number of Quality Walking Network including Belfast city centre streets; Queen Elizabeth and Queens Bridges; Queens Quay; Sydenham Road and into Titanic Quarter. It will therefore be important to consider improved facilities for pedestrians, including crossing facilities, as part of the detailed design process. The ability to integrate the design of the alignment within the future development of the Titanic Quarter reduces the likely level of severance.

### **9.5.3 Access to the Transport System**

Provision of the CITI rapid transit scheme would facilitate access to the public transport system for car users and non-car users in an area which currently has only a limited bus service and therefore it would have a beneficial impact. However, as the Do-Minimum Metro bus service would also provide access to the public transport system, the overall impact is expected to be neutral.

## **9.6 Integration objective**

### **9.6.1 Policy**

The policy context for the development of rapid transit in Belfast is well defined. The Regional Development Strategy (RDS) outlines a transportation vision for Northern Ireland to “*have a modern, sustainable, safe transportation vision which benefits society, the economy and the environment and which actively contributes to social inclusion and everyone’s quality of life*”. The RDS identified that if this vision was to be achieved it would be important to improve public transport services in the Belfast Metropolitan Area and it made such improvements a Strategic Planning Guideline. RDS stated that if public transport was to become a real alternative to using the car then these improvements needed to be substantial and it recognised the high quality, high capacity, accessible services that could be provided by the development of a rapid transit network for Belfast.

The Regional Transportation Strategy (RTS) developed the transportation policy of RDS at a strategic level. It identified that the future development and prosperity of Northern Ireland depended on a step increase in the level of provision of transport infrastructure and services. The RTS did not include commitments on individual schemes; this was to be done through three Transport Plans. However, it did include an indicative future integrated public transport network for Belfast, incorporating a rapid transit system.

The Belfast Metropolitan Transport Plan (BMTP) is the Transport Plan for the delivery of the RTS in the Belfast Metropolitan Area (BMA). It went through a systematic process of problem identification, consultation, plan development and appraisal which included consideration of a wide range of public transport solutions in each of the BMA’s main transport corridors. The BMTP process identified that there were significant opportunities to substantially improve the quality and scope of public transport provision across the BMA.

The BMTP process included investigation of the role of different forms of public transport in each of the main transport corridors – termed Metropolitan Transport Corridors (MTCs) as per the RDS. It concluded that, longer term, there would be the demand for and opportunities to introduce rapid transit in most of the MTCs radiating out from Belfast city centre – complementing rather than replacing existing rail and bus services.

Analysis of value for money, needs and feasibility indicated that four main corridors should be considered first including EWAY, WWAY, CITI and SuperRoute. Because of the rapidly evolving plans for the regeneration of the Harbour Estate – specifically Titanic Quarter – BMTP also recommended that the option be retained to promote the CITI route as a privately funded scheme in tandem with the redevelopment.

The development of the CITI rapid transit scheme also supports other Government policies such as:

- The Department of Culture, Arts and Leisure objective to foster a creative, informed and active lifestyle would be supported by measures to improve the accessibility of Belfast city centre and measures to improve accessibility by all modes of transport;
- The Department of Enterprise, Trade and Investment objective to encourage growth of the economy is supported by measures to improve accessibility to a Strategic Employment Location;
- The Department of the Environment objectives for the environment would be supported;
- The Department of Health, Social Services and Public Safety objectives to develop policies that will lead to good health and well-being would be supported by measures to improve public transport;
- The Department for Employment and Learning objectives promoting living standards and accessible employment would be supported by improvements to public transport;
- The Department for Social Development objectives to tackle disadvantage would be supported by measures to improve public transport.

### **9.6.2 Transport Interchange**

The implementation of the CITI rapid transit scheme would have a beneficial impact on transport interchange since it would facilitate improved interchange by the provision of quality waiting facilities and greatly improved public transport timetable and route information.

Operation and ease of use of the transport system will be improved both by creating new direct journey opportunities and by improving interchange between modes, facilitating a greater range of other movements. The rapid transit service will also provide new and improved interchange opportunities along the whole of the route including to the Odyssey Complex and the Laganside Buscentre.

In the case of bus-based rapid transit, existing bus services meeting the quality threshold may be able to utilise the rapid transit infrastructure along the length of the route which will minimise the requirement for interchange and allow users of existing buses to derive benefit from the rapid transit network.

### **9.6.3 Land-use policy**

The implementation of the CITI rapid transit scheme supports the RDS's concept of urban hubs with public transport infrastructure, and a modern integrated transport system for the BMA. It also supports the draft BMAP land use strategy of:

- Improving accessibility to the major development locations and strategic employment locations identified in the RDS;
- Improving public transport accessibility within the Metropolitan Transport Corridors to support the focus of higher density development within these corridors;
- Facilitating the regeneration and environmental enhancement of specific sites and areas within the BMA; and
- Providing the level of accessibility required to support the expected future population and demographic characteristics of the BMA.

## **9.7 Economic objective**

### **9.7.1 Economic efficiency**

The economic effects of the rapid transit network are largely quantifiable have been examined as part of the quantitative analysis completed in section 8. Transport Economic Efficiency has been estimated in terms of:

- User benefits related to travel time;
- Private sector provider impacts on the operating environment; and
- Public sector provider impacts on the public sector revenue (along side capital and operating costs).

Other government impacts have also been taken into consideration such as VAT and present value calculations have been estimated for both cost and benefit.

### **9.7.2 Reliability**

This sub-objective summarises the rapid transit proposals' impact on the objective to improve journey time reliability for transport users, including both passengers and freight.

The rapid transit service should provide public transport users with an improved level of reliability due to the implementation of extensive public priority measures along the route and the provision of a regular 5 minute frequency. However, in-vehicle journey time reliability will remain unaffected between the do-minimum and do-something scenarios.

The rapid transit service has limited impact on private vehicle journey times along the proposed CITI core route, when compared to the do-minimum scenario. During the 2015 morning peak hour it is forecast that traffic flows on the main radials into the city centre from the east of the city remain substantially unaffected between the do-minimum and do-something scenarios, and hence any impact on journey time reliability will be limited.

### **9.7.3 Wider Economic Impacts**

The appraisal shows that the rapid transit scheme will deliver significant economic benefits. Key benefits include the facilitation of future development in Belfast city centre, the Titanic Quarter development site and the Harbour Estate. Improved transport infrastructure and public transport services will help address the existing transport problems, which restrict the operation and growth of these economically important areas. Links to key facilities and new centres of employment such as the Titanic Quarter, NI Science Park and BIFHE College as well as interchange with other public transport services in the city centre will improve accessibility for existing residents along the route as well as serving future developments. In particular, the development of the Titanic Quarter site will be a major employment centre and is likely to provide approximately 20,000 new jobs over the next 15 years.

The introduction of the CITI rapid transit scheme is likely to contribute to the regeneration of the local economy and the creation of new jobs or increased employment in a number of ways. Firstly, job opportunities will arise as a result of the construction and operation of the scheme. Although direct employment generation will be relatively low, staff and managers will be required to operate the service. New driver jobs will be created, although a proportion of these may be diverted from existing bus services.

However, more importantly, the CITI rapid transit scheme is likely to make Titanic Quarter more attractive as a business location, thereby encouraging new businesses to locate there or existing business to expand sustainably. The rapid transit scheme will provide access to Titanic Quarter for a suitable workforce, customers and suppliers. From the point of view of an employer, these are important attributes when considering the accessibility of a given location.

If the services are operated by a private operator, increased competition and choice of services could lead to an overall improvement in standards of public transport in the area.

Due to the fact that the Titanic Quarter is identified as a new Major Employment Area, it is recommended that a more detailed Economic Impact Report is prepared for the preferred scheme as part of the more detailed Outline Business Case.

## 9.8 Supporting Analysis

The Guidance on the Methodology for Multi-Modal Studies (GOMMMS) specifies three important Supporting Analyses to supplement the Appraisal Summary Table. These require assessments to be made of the distribution and equity impacts; affordability and the financial sustainability of the scheme; and practicality and public acceptability issues.

### 9.8.1 Distribution & Equity

The Department for Regional Development is committed to the promotion of equality of opportunity, to tackling factors leading to social need and social exclusion and to promoting good relations between the communities in Northern Ireland. This Distribution and Equity supporting analysis considers the distribution of the overall impacts of the rapid transit scheme, thereby enabling a judgement to be made about the fairness of the impacts on those affected. This supporting analysis has been prepared in accordance with the principles underpinning Section 75 of the Northern Ireland Act 1998<sup>14</sup> and the Department's commitments under the New Targeting Social Need policy.

#### 9.8.1.1 Anti-Poverty and Social Inclusion

In line with the Regional Transportation Strategy, initiatives resulting in new or improved public transport services will contribute to the Government's objective of working towards the elimination of poverty and social exclusion by 2020.

Analysis presented in the 2006 Translink Passenger Profile illustrates that public transport users are predominantly drawn from socio-economic groups that represent those in greatest need (see Table 9.1 below).

**Table 9.1: Public Transport Passengers by Socio-Economic Group**

Socio-Economic Group	NIR	Metro	Ulsterbus
AB	29.5%	13.4%	16.9%
C1	28.9%	32%	30.4%
C2	21.4%	20.8%	20.8%
DE	20.2%	33.8%	31.9%

<sup>14</sup> Northern Ireland Act (1998), HMSO

A total of 58.4% of all rail passengers fall into the ABC1 Socio-economic Group compared to 45.2% of Ulsterbus passengers and 45.4% of Metro passengers. The socio-economic profile of public transport users clearly demonstrates that investment in these services targets resources at those in greatest social need. The lowest rate of public transport use (buses) is among the most affluent (AB) groups while the largest rate of bus users is among the poorest socio-economic (DE). The DE group also forms the largest single user group of Metro and Ulsterbus services with around a third of users coming from this group. When taken together with the C2 group, this accounts for over half the passengers of these services. Therefore, the proposed investment in public transport schemes, such as rapid transit, is particularly supportive of the objectives of New Targeting Social Need.

However, abstraction from existing bus services onto rapid transit services may be a cause for concern, as reduced bus passengers may require increased bus subsidy to maintain adequate existing services or a reduction in the services.

#### **9.8.1.2 Contribution to Increasing Social Inclusion**

The scheme proposals have a beneficial impact in promoting social inclusion. The provision of high standard low floor vehicles (BRT only) will enable improved accessibility to vehicles for those with disabilities, whilst older people on low incomes, who travel without charge, benefit from the introduction of a new public transport system.

Improvements in access to employment, leisure, education and shopping to groups who are currently poorly provided with public transport and have no access to a car will be provided. Public transport accessibility will be greatly improved for the communities along the route. The proposals will increase the range of transport choices, reduce journey times and improve journey time reliability.

#### **9.8.1.3 Access to Employment**

Some areas of higher than average unemployment in areas close to Belfast City Centre for Belfast will be connected with a major employment centre (Titanic Quarter), reducing the difficulties of unemployed people gaining access to the workplace and overcoming social exclusion. The system will provide a sustainable mode of transport to the major new residential area within Titanic Quarter which will include a proportion of affordable housing. The rapid transit scheme will provide a public transport link to employment opportunities for residents of this lower cost housing.

#### **9.8.1.4 Access to Education**

Access to educational institutions is an important service for public transport. A new campus for the Belfast Institute of Further and Higher Education (BIFHE) will be located within the Titanic Quarter and along the route of the CITI rapid transit scheme. Over 2,300 full time equivalent students and 500 staff are anticipated to attend this campus. The presence of the rapid transit service will be of particular benefit to those students attending the new BIFHE campus.

### **9.8.1.5 Access to Recreation and Tourism**

The Titanic Quarter will include a significant tourism project (Titanic Signature Project) which is expected to be a major trip attractor for the area. The rapid transit service will provide a direct and frequent link from Belfast city centre and as such will provide travel opportunities to, and therefore enjoyment of the wider areas of the route, including Belfast city centre, Titanic Quarter and the Odyssey Complex.

### **9.8.2 Affordability and Financial Sustainability**

Consideration must be given to the funding required to deliver the CITI rapid transit proposals and the extent to which the proposals are sustainable in the longer term. Affordability is a measure of the likelihood that funds will be available to deliver the CITI rapid transit scheme. Financial sustainability is a measure of the extent to which the scheme can be financially supported. Issues of Affordability and Financial Sustainability are considered in more detail later in this report.

### **9.8.3 Practicality and Acceptability**

Two important and interlinked considerations in developing the rapid transit proposals have been that:

- They must be practical i.e. the scheme must be capable of being implemented within the required timescales; and
- The scheme must have a high degree of acceptability among both the general public and the key stakeholder groups, including those who will be involved in the implementation of the scheme.

Each of these topics is discussed in more detail below.

#### **9.8.3.1 Practicality**

In assessing practicality, it has been necessary to consider the following issues that could hinder or block the implementation of the rapid transit scheme:

- Technical issues;
  - Legal issues;
  - Availability of funding and resources;
  - The need for enforcement of priority measures; and
  - Complementarily and conflicts.
- A comprehensive assessment of each of these issues is provided below.

#### *Technical issues*

Implementation of the rapid transit scheme is expected to involve the use of new and developing technology and could, therefore, present technical issues that would need to be resolved at the detailed design stage to allow full implementation of the scheme. Examples include:

- Using Information technology to detect rapid transit vehicles and give them priority at junctions;

- Using Information technology for enforcement;
- Using SMART cards (Self Monitoring Analysis and Reporting Technology) to implement fares;
- Using an Automatic Vehicle Location system (AVL) to provide real-time information to passengers on rapid transit vehicles and at stops and waiting areas;
- Using new methods of rapid transit route and timetable information for the management of the system and to provide information to customers e.g. internet; and
- Use of bus rapid transit guidance technology on segregated sections of the route.

The adoption of best practice within the industry should allow these and any additional technical issues to be resolved at the detailed design stage. It is considered that no elements of the rapid transit schemes considered in this study should require technology which has not been used before and it should therefore not present insurmountable difficulties in this regard.

#### *Legal issues*

The implementation of elements of the rapid transit scheme will be subject to legislative constraints and regulation. While the requirements do not rule out the scheme, they could, in practice, delay implementation on the ground. These include the following:

- Changes to the Transport Act (NI) 1967 for new public transport services may be necessary;
- New rapid transit vehicles will have to satisfy accessibility regulations under the Disability Discrimination Act 1995;
- New legislation to enable the enforcement of shared bus/rapid transit lanes in non-segregated sections using camera technology;
- New legislation to enable rapid transit services to be delivered and/or operated by the private sector;
- Development of a rapid transit scheme that would require significant land-take would require Planning Approval or an Amendment to the Belfast Metropolitan Transport Plan;
- The implementation of the rapid transit system may require an Environmental Impact Assessment under the Roads (NI) Order 1993;
- If third party land is required, the scheme may require a Vesting Order / Direction Order.

#### *Availability of Funding and Resources*

The Regional Transportation Strategy identifies rapid transit as one of the areas that has the greatest potential for private sector funding. The section on 'Affordability and Financial Sustainability' discusses the availability of funding in more detail.

There will be a need to provide professional resources in undertaking and developing the detailed design, procurement and implementation of the scheme proposals. In addition, the successful delivery of the rapid transit services will be dependent on the recruitment of additional operating staff. Recent experience has shown that such resources are not readily available.

#### *Enforcement*

Extensive use of shared bus/rapid transit priority measures and running on segregated sections will require rigid enforcement if rapid transit services are to operate effectively. This is expected to entail use of fixed and vehicle-mounted enforcement cameras on all rapid transit

routes and an appropriately administered fine system to penalise offenders. Enforcement of shared bus / rapid transit priority measures would need to be tied in with parking controls and enforcement as necessary.

#### *Complementarity and conflicts*

The rapid transit scheme will need to be implemented in conjunction with traffic management measures, improved public transport interchange, park-and-ride, demand management and travel awareness campaigns.

### **9.8.3.2 Acceptability**

Public acceptability for the rapid transit proposals can be demonstrated through:

- The Regional Transportation Strategy (RTS) and its comprehensive consultation process. Public acceptability was the primary reason for supplementing the RTS with additional initiatives including an additional £76million to provide £100million for rapid transit in Belfast;
- The Belfast Metropolitan Transport Plan (BMTP) Working Conference and the BMTP itself – a draft Preferred 2025 Strategy and an Emerging 2015 Plan were presented at the BMTP Working Conference on 10<sup>th</sup> February 2003. The conference was attended by over 200 delegates presenting a wide range of stakeholders. An independent report of the conference, produced by Community Technical Aid presented the views and comments expressed by the delegates regarding the Draft Preferred Strategy and Emerging Plan. Rapid transit was seen by delegates as a positive step forward to enhance public transport; and
- Political support – the rapid transit proposals are likely to receive broad political support from Belfast City Council and Castlereagh Borough Council as well as political parties and a number of Members of the Assembly.

## **9.9 Conclusion**

The Appraisal Summary Table (AST) is a record of the degree to which the five Central Government objectives for transport (environment, safety, economy, accessibility and integration) would be achieved and provides a summary of the impact of the route options. Tabulated overleaf is a summary of the AST assessment scores for each sub-objective for the two options. A more detailed AST is included in Appendix E.

**Table 9.2: Summary of AST Assessment Scores**

	Sub-Objective	LRT	BRT
Environment	Noise	Slightly beneficial	Neutral
	Air Quality	Slightly beneficial	Neutral
	Greenhouse gases	Slightly beneficial	Slightly beneficial
	Landscape	Neutral	Neutral
	Townscape	Slightly beneficial	Slightly beneficial
	Heritage of historic resources	Neutral	Neutral
	Biodiversity	Neutral	Neutral
	Water environment	Neutral	Neutral
	Physical fitness	Slightly beneficial	Slightly beneficial
	Journey ambience	Slightly beneficial	Slightly beneficial
Safety	Accidents	Slightly beneficial	Neutral
	Security	Slightly beneficial	Slightly beneficial
Economy	Transport economic efficiency	PVC = £70.49million PVB = £30.49million NPV = -£40.01m BCR = 0.4	PVC = £3.03million to £7.7million PVB = £23.01million to £23.6million NPV = £20.59million to £15.3million BCR = 7.8 to 3.0
	Reliability	Moderately beneficial	Moderately beneficial
	Wider economic impacts	Moderately beneficial	Moderately beneficial
Accessibility	Option values	Strongly beneficial	Strongly beneficial
	Severance	Neutral	Neutral
	Access to the transport system	Neutral	Neutral
Integration	Transport interchange	Moderately beneficial	Moderately beneficial
	Land use policy	Moderately beneficial	Moderately beneficial
	Other Government policies	Slightly beneficial	Slightly beneficial