

2.6 Public Transport Strategy

2.6.1

Principles of the Vision

Owing to natural and historical constraints of the area, particularly in the City Centre, a mixture of rail, rapid transit and bus-based solutions will be needed to create a fully integrated public transport opportunity. This mix would facilitate a hierarchy of public transport choice, based upon user need with rail providing fast and frequent access to the wider national rail network, rapid transit providing efficient linkage between the main centres within the Lancaster District, and bus provision serving the widest possible area, filling the gaps in the mass transit system, and acting as feeder services for the local centres and wider transport network. Bus provision also has a key role in providing sustainable transport to the more rural areas via Demand Responsive Transport (DRT) and other key initiatives.

When frequencies and journey times are maximised and minimised respectively, the key issue becomes accessibility to and reliability of services, and this requires infrastructure to achieve this. The key difference from the current offer in the Lancaster District is that the assurance of guaranteed journey time on public transport begins to be achievable, leading to confidence in the system. Clearly the more reliable, convenient and frequent services become, the more attractive they are to users and operators alike.

It is suggested that the ultimate aim should be to create a reliable public transport network with the highest frequencies and most effective interchange possible. This would need operator support (possibly building on the existing Quality Bus Partnership (QBP) approach) and possibly financed from local initiatives, in addition to LTP and other standard funding approaches. The key issue is how to build upon the existing offer and the identification of priorities for change.

If the strategic network can be improved then provision of local and user specific services can become much more focused and deliverable.

2.6.2

The Integrated Approach

The success of the public transport offer for the Lancaster District relies on certain key criteria being fulfilled. These include the following: -

- Fast and frequent services along key corridors throughout the day and including stronger evening and weekend provision;
- Evenly spaced stops, with appropriate walking distances to them. Generally speaking, the recommended maximum walking distance is 400m to a bus stop and 800m to a stop for a fixed track mode;
- High quality interchange between modes, preferably with other amenities present to aid security and safety; and
- Ease of legibility and use, including information and ticketing.

Whilst cost of use is a key parameter at present, increased economic success of the area would reduce the influence of this in the decision making process.

Clearly, certain elements of the package are easier to realise than others. For example, the delivery of enhanced frequency is dependent on the availability/provision of vehicle resource and generation of sufficient demand, relatively simple from a practical perspective (although clearly an economic case is required). Creation of integrated ticketing between modes is however more difficult to achieve in the current operational and practical arena given the deregulated bus system and privatised rail network. The delivery of QBP's between the Local Authority and Public Transport operators is therefore a minimum requirement in delivering this facility and the expected effect of the recent Local Transport Bill will have a key effect on the realisation of these. Provision of effective information is likely to be one of the most straightforward methods of changing perceptions and understanding but relies upon the basic product meeting expectations.

2.6.3

Key Schemes

There are several key corridor routes within the structured integrated transport network proposed. A selection of potential schemes have been identified as short-term (<5years); medium-term (5–15years) and long-term (10-20years). These are further labelled in terms of cost (Low = 0 - £1million, Medium = £1million - £5million, High = >£5million) and proposed

frequency (Low = >hourly, Medium = hourly – 15mins, High = <15minutes). The schemes are defined as follows:

Table 2.2: Potential Public Transport Schemes

Route	Mode	Key Change from Current	Cost	Potential Frequency	Potential Timescale
Lancaster - Lancaster University - Preston	Rail	Construct Rail Station near Lancaster University on Oubeck Sidings	High	Medium	Long
Bare Lane to Morecambe and Heysham	Rail	Signalling improvements to upgrade capacity between Lancaster and Morecambe /Heysham	Medium	Medium	Medium
Carnforth to Lake District	Rail	Construct West Coast Mainline link chord north of Carnforth	High	Low	Long
Morecambe to Lancaster	Rapid Transit	Construct rapid transit link between Lancaster and Morecambe.	High	High	Medium
Lancaster to Lancaster University	Rapid Transit	Construct rapid transit link between Lancaster University	High	High	Medium
Lancaster to Junction 34, M6	Rapid Transit	Construct rapid transit link between Lancaster and proposed M6 Junction 34 Park & Ride.	High	High	Medium
Lancaster to Morecambe and Heysham	Bus	Introduce 'Red Route' on A6/A683/A589 Corridors between Lancaster Morecambe, Heysham and Lancaster University.	Low	High	Short
Lancaster 'Metro Shuttle'	Bus	Introduce frequent, free/cheap, City Centre circular service serving transport nodes and key city draws	Low	High	Short
Heysham Bus Routes	Bus	Create bus terminus facility in Heysham integrated with rail station and ferry port.	Medium	High	Short

2.7

Rapid Transit Concepts

In the strategy above, no definitive modes have been firmly identified as the preferred rapid transit or 'Red Route' bus systems. This has been left purposely vague due to the range of options for this concept, each with their own set of advantages and disadvantages relative to each other. The section below details a few of the available modes and discusses the benefits and disbenefits associated with each.

2.7.1

The 'Superbus Concept'

The bus traditionally has a poor and unattractive image, seen as a last resort option by many. Recent changes in technology and design have been significant, and combined with a more commercial view of branding and marketing, have been proven elsewhere to make a difference in patronage (for example Leeds 'FTR' and SuperRoute 66 in Ipswich combined marketing, infrastructure, vehicles and operational issues to create a new product).

Owing to rapid changes in technology, new forms of transport have begun to emerge in the UK, often referred to as 'Intermediate modes'. These fit between guided bus and tram and have followed European examples such as the Phileas Guided Bus Rapid Transit System operating

in Eindhoven, Netherlands and a similar scheme in Nantes, France as shown in the following images:



'Phileas' Bus Rapid Transit in Eindhoven and Bus Way in Nantes

The major Public Transport operators in the UK are becoming increasingly interested in these modes, particularly as the key light rail schemes have already been implemented or planned and policy has changed to fully explore low cost alternatives. The concept proposed in this area recognises that over time, the system will respond to new developments, patronage will grow. In this respect, the quality of infrastructure and vehicles needs to be raised over and above the level associated with Quality Bus Corridors (QBCs).



Streetcar Images

In essence, the Superbus concept aims to develop and expand over time:

- Substantial infrastructure changes, including significant segregation over time and can be linked to new development;
- Changes in vehicle provision, towards intermediate modes over time;
- 'Tram-style' stops along the route, acting as focal points and sending a clear message of intent;
- Continuous marketing and re-branding required to maintain patronage and 'sell' the route to new user groups; and
- Joined-up ticketing and information initiatives between modes.

The next stage of development of such a corridor would be to better define route alignments, options and link this more closely with patronage, revenue and therefore phasing options. It is important to consider the required step change needed and difference between the standard bus offer and the target of a 'Superbus' concept.

In recent years, buses have evolved substantially from the traditional single or double deck vehicles that have traditionally provided their recognised and often poor image. Changes in both legislation and customer (both operator and passenger) demand over recent years have led to a whole new range of vehicles emerging across Europe and beyond. At the same time, there is greater recognition in the industry that the bus is a highly flexible means of transport if given the correct support in terms of infrastructure and marketing. Facilities such as guided busways, which have been around for a number of years in locations such as Runcorn,

Merseyside, and low floor vehicles have been part of such changes and have evolved over time.

As discussed, vehicle design, specification and capability has evolved substantially to include a whole range of bus 'derivatives' ranging from simple articulation of vehicles (as seen in Manchester on Route 135 from the City Centre to Bury) up to fully guided rubber-tyred vehicles that look like a tram and uses various types of wire, optical or physical guidance. This set of vehicles, between 'standard' buses and light rail have typically been referred to as 'Intermediate modes'.

The bus service has increasingly been considered as a product, with changes in funding and increased recognition that you can develop effective and attractive services that fit 'between bus and tram' to provide a better product in a cost effective manner at appropriate scale.

The proposal for the 'Superbus' links as part of the Lancaster & Morecambe Vision public transport offer is designed to work towards the provision of an 'Intermediate Mode', recognising that the core routes in the area could eventually develop to be far more high profile than a standard bus route. Owing to the relative size of the urban population, investment in light rail is unlikely to be justified. The beauty of such a concept is that the product can evolve over time, and unlike a tram system, is not an 'all or nothing' investment. In an area such as Lancaster and Morecambe, where change is occurring rapidly, the ability to be flexible to link to new developments, yet provide increased permanency of route over that of the standard bus, makes development of such a concept appropriate.

Table 2.3 below highlights the potential steps along the ladder from simple bus route to full intermediate mode corridor. Clearly, not all bus services merit moving through this evolutionary process, with some services appropriate as operating in the current form. At present, the majority of bus routes within the District are at Stage 1, apart from the defined QBC between Morecambe to Lancaster University, via Lancaster City Centre. The aim is to shift routes along both axes towards the right of the table, over time and in line with opportunity, which can happen either quickly or gradually as appropriate to the land use and demand environment arising.

Table 2.3: Typical Evolution of Bus Services to Full Intermediate Mode

	Evolutionary Stage (Time>>>>)			
	1. Initial Bus Service	2. Prioritised Corridor	3. High Profile Part Upgraded Route	4. Full Intermediate Mode offer
Stops	Simple shelter and flag, perhaps a lay-by	Shelter and flag, with efforts to increase mobility access and reduce parking conflicts	Some tram-style stops at key locations. Real Time Passenger Information (RTPI) throughout. Some uniformity and some dedicated facilities	Tram-style, with high profile interchanges and hubs. Branded throughout and often dedicated to service
Branding/ Marketing	Virtually none, uses whatever bus available.	Initial efforts via vehicle, leaflets and stops	Corridor-long treatment with high degree of co-ordination	Sold to become a product in the same way as 'Metrolink' in Manchester
Vehicles	Standard bus	Low-floor, high quality vehicles	Perhaps articulated and dedicated to route. Some special features	Tram-like, articulated, sleek, low-floor with high capacity and good quality interior

	Evolutionary Stage (Time>>>>)			
	1. Initial Bus Service	2. Prioritised Corridor	3. High Profile Part Upgraded Route	4. Full Intermediate Mode offer
Level of Priority in Road Hierarchy	None	Some segregation, simple signal priority	Route-long priority provided	High priority, almost tram-like, with strong branding and local presence
Propulsion type	Diesel Engine	Diesel Engine	Clean fuel vehicles, some hybrid fuels	Often electric via overhead or with very clean fuel vehicles
Links to adjacent land uses	Generally poor	Start to get improved footway links/crossing improvements	Some funding from developers and links to major sites	Integrated within some major sites, intrinsically linked
Profile	Very localised	Sector/Corridor - Long	City-wide	Regional or greater
Typical User Groups and Patronage needed	Local and generally low choice. Low patronage needs	Low to medium patronage needs	Medium Patronage needs	All groups, appeals to all. Medium to high patronage needs
Degree of Segregation	None	Simple, difficult to enforce, not continuous	Simple with sections of segregation, but almost continuous priority	Large sections of segregated or dedicated route particularly in core sections. Often through major sites with high profile features.
Typical Upgrades in Patronage Levels that can occur	Neutral and declining	5 – 10%	10-20%	Significant, often linked to changes in land use, perhaps 50%
Links to other routes/systems	Low, only at key town centres	Poor, generally only at key centres and core sections of routes	Some, but generally seen as isolated and 'above other' routes	Integral element of the route, both physically, through ticketing and marketing
Examples	Routes throughout most UK cities	Route 135 Manchester SMART routes, Merseyside London Bus Priority Network and typical across UK	Super-route 66 Ipswich, Leeds, Guided Bus Curitiba, Brazil	Typically in modern and new/regenerated areas e.g. Caen, France; Reims, France; Rome, Italy and Leigh – Manchester Guided Busway

The challenge in the Lancaster District is to take routes in columns to the left and to move them over time, towards the right, with particular emphasis on upgrading each of the items in the far left hand column in a balanced manner.

2.7.2

The Tram-Train Concept

The performance of the suburban railway line between Lancaster, Morecambe and Heysham is constrained by capacity limitations due to antiquated signalling at Bare Lane, single-tracked sections, and the lack of available rail paths on the busy the West Coast Main Line. The tram-

train concept, which has been successful in European cities such as Karlsruhe in Germany, and Paris, uses light rail vehicles that can operate on both heavy rail lines and street tram tracks. Advantages include higher service frequencies, release of rail capacity at larger stations, greater penetration of City Centres, higher patronage and lower car use.

The creation of a tram-train operation between Lancaster and Morecambe would use new segregated track for the majority of the route between the two centres adapting the Greenway alignment to accommodate a rapid transit system as well as cycling and pedestrians, and with possible street-running sections in Lancaster City Centre, but would also have the ability to use existing rail track to access Morecambe station and to travel between Morecambe and Heysham. This system would also be versatile enough for the creation of a direct route between Lancaster and Heysham via the Greenway, and the existing Heysham rail line via a new rail chord linking the two. This also presents the opportunity for a new quality interchange at some point before the line split.



Tram-Train Concept

New development in the area could generate a significant market for this line, although it would be imperative that journey times are equivalent to or below that of the private car, as the usage of urban rail and metro systems is highly sensitive to their relative journey times compared with those possible by car. It should be noted that to secure funding from the DfT, a minimum benefit to cost ratio of above 1.5 is normally required.

The concept is soon to be being trialled in South Yorkshire between Huddersfield and Sheffield by the DfT in conjunction with Northern Rail, to address various technical and operational issues surrounding the operation of tram-train in the UK. This will include the crashworthiness of the vehicles and will consider how this can be compensated for through adopting new signalling techniques.

2.7.3

Elevated Rapid Transit

As a more innovative solution to the need for a rapid transit link between Lancaster and Morecambe, the idea of elevated rapid transit systems has been suggested. These modes have the obvious advantage over ground based systems such as Bus Rapid Transit (BRT) or Light Rail (LRT) in that they are unaffected by constraints on the ground (for example congestion in Lancaster City Centre and pedestrian demands). In this case, this mode could use the alignment of the Lancaster - Morecambe Greenway without any implications for current users of the route (i.e. cyclists and pedestrians).

The particular modes put forward for a Lancaster to Morecambe rapid transit include elevated monorail and hanging railway systems (see concepts below), both of which exist elsewhere in the world, although they are more common in Asia and the Far East than in Europe at present.



Elevated Rapid Transit Concept

The elevated mode is fast and clean being predominantly electrically powered. It does not suffer from traffic congestion as LRT or BRT modes, providing direct penetration into town or City Centres. The major disadvantage of these systems is the extremely high cost of construction requiring new elevated track and signalling infrastructure, elevated stations and platforms, and new high-technology vehicles, which could be driverless depending on the level of automation available. There could also be an issue of privacy in urban areas where the system is elevated.

These approaches are considered further in later chapters of this report.

2.8

Improved Interchange/Station Development Zones

The improved transport system would be based around strong interchange locations between modes of transport. This concept introduces the opportunity to identify Interchange or Station Development Zones focusing on high quality safe and secure, attractive nodes where two or more modes of transport intersect and where associated development should be encouraged.

The key principles of such should be: -

- To increase linkage between services;
- To improve profile;
- To improve accessibility from the immediate area;
- To encourage sustainable development around stations; and
- To upgrade actual and perception of personal security.

Potential sites for these zones include: -

- The current White Lund Industrial Estate in between Lancaster and Morecambe;
- The intersection of major roads at the junction between the A6 and new M6 to Heysham Link Road;
- M6 motorway Junctions 33 and 34, where there is good potential to create interchange with Park & Ride especially in light of the proposed New Link Road linked to Junction 34; and
- Existing rail stations such as Bare Lane, which are currently quite basic in terms of passenger and interchange facilities and do not influence the surrounding areas.

The key elements of a high quality nodal point include the following: -

- High quality public realm (e.g. paving, street furniture, planting) complements high usage area;
- High density mixed use development around and associated with the interchange provides natural surveillance as a deterrent to antisocial behaviour, provides complementary amenity and increases the catchment population of the interchange;
- Bus service well linked to rail and or rapid transit service;
- Lifts providing wheelchair access to the elevated platform;
- Secure cycle parking provided in a location with natural surveillance; and
- A new landmark to identify/locate the interchange.

2.9

Integrated Ticketing

Another crucial element to the transport vision for the Lancaster District, and one with global examples, is the integration of ticketing across the district. A key requirement of this vision is

that public transport ticketing should be integrated allowing multi-modal travel on local transport regardless of operating company considerations which are irrelevant to the travelling public. However, the envisaged integration does not end there and means should be explored to combine ticketing across a number of different disciplines around the district to create a form of pre-pay system for all daily expenses. In practice, this could be extended to include public transport, car parking, car and cycle hire, admission to tourist attractions, admission to sports and other leisure facilities, taxi fares, night clubs and other leisure amenities.

Limited examples of this system may be observed in the Oyster scheme in and around London in which transport is paid for using a card which can be topped up in a similar way to 'pay as you go' mobile phones. Schemes in Singapore go further than this with their SmartCard technology integrating public transport fares and congestion charging. However it is felt that these measures do not extend far enough for a truly visionary transport system unhindered by delay or fare collection. In practice, this level of integration is potentially only viable for industries over which the local authority exerts some control, although in terms of transport the new Local Transport Bill is designed to smooth the way for precisely these types of agreement.

Other schemes for potential application to the Lancaster District include First Group's Bus Miles Loyalty Scheme in Bradford, where users accumulate miles to be redeemed against future bus trips. This is a good way of rewarding regular users for sustainable travel practices. Owing to the tourism potential in the Lancaster District, another scheme, perhaps for longer term consideration is the Basle Mobility Card. All persons staying overnight in the city are entitled to the card, giving free tram and bus travel throughout the city, thereby reducing the need to bring the car in the first place and the impact of the private car during the trip. Clearly, this will require the provision of an improved public transport offer and the bringing together of a number of organisations, including public transport authorities and tourism bodies in order to make this work.

2.10

Combined-Use Transport

In addition to the key transport links and modes identified above, this vision for the Lancaster District also makes reference to the potential for combined-use transport vehicles. These are designed to effectively integrate public transport with other key road user activities such as freight traffic or grocery delivery with the aim of reducing the number of road-borne trips to relieve congestion and preserve the environment. These vehicles have a variety of potential applications within the district ranging from simple Post Buses operating on a 'dial-a-ride' basis in more rural areas, to fully fledged light rail services with dedicated space for light freight loads.



[A Royal Mail Post Bus in Cornwall and a Dutch Freight Tram](#)

Increased shopping delivery is also an important element within the future vision of the District, in recognition of the large number of car trips that retail, and in particular grocery shopping currently accounts for. An argument often used in favour of the private car is that, other than taxi hire, it is the only feasible option to fetch large quantities of groceries home. Within the vision for the Lancaster District, it is proposed that a higher percentage of shopping should be encouraged via the internet, with purchases being delivered either to homes, safe storage locations, or to localised collection centres situated outside of the main centres and possibly incorporated into the function of future Park & Ride sites. This in itself is intended to reduce congestion in the urban core by creating linked trips, however it is further envisaged that the

delivery vehicles could provide some form of passenger transport similar to Post Buses, connecting rural communities in areas not well served by scheduled public transport.

As a further innovation and to satisfy the increase in the number of people working from home, Lancaster could lead the way in providing free Wireless Internet across the district further connecting rural communities to complement proposed combined-use and DRT extensions.

Whilst these ideas would help to reduce the number of car trips, the impact would be minimal in comparison to other measures identified in the strategy.

2.11

Cycling Strategy

Encouraging greater use of 'green modes' such as cycling is a central component of the vision for the Lancaster District, building on recent successful initiatives. The proportion of residents cycling in the Lancaster District currently exceeds that of the national average, but the potential for modal shift is still considerable, due in part to the high proportion of population that live within a 5km radius of City Centre, well established off-road routes and Lancaster's 'Cycle Demonstration Town' (CDT) status.

The potential could be developed by the provision of enhanced cycle infrastructure in the City Centre and elsewhere in the district to make this mode choice realistic. This includes the provision of showering and secure cycle storage facilities at work and other key destinations, availability of space for cycles on buses, trains, and other intermediate modes, safe and secure cycleways with CCTV and good levels of maintenance, and cycle specific infrastructure on the District's highways.

Modal shift towards cycling can also be achieved through investment in initiatives such as publicity measures, cycle training and travel planning. The Sustrans Behavioural Change (personalised travel planning) work aims to encourage this potentially large market of people who would be willing to swap their cars for a proportion of journeys in favour of the bicycle by providing information on the benefits of cycling and potential routes to employment locations and services. There is plenty of opportunity to continue the momentum of recent and current initiatives supported by the highway authority and the City Council.

By informing the public of the benefits of cycling, and encouraging more businesses and organisations to produce Travel Plans, which include measures to promote cycling, the numbers of those cycling in the district could be increased significantly.



Examples of Cycle Infrastructure

As discussed in the Baseline Report (January, 2008) the profile of cycling in the District has increased with the successful application and subsequent funding received from the Cycling Demonstration Town (CDT) initiative. Indeed, evidence of success is referenced in 'A Sustainable Future for Cycling' (DfT, January 2008), which indicates that the number of parked cycles counted in the city has increased by 48%. Therefore, the strategy for cycling is to maintain the momentum offered by the investment in infrastructure and facilities across the District.

A key innovation that has been trialled elsewhere in Europe is the provision of bicycle racks on buses and trams so as not to reduce the internal capacity of the vehicle. These rails allow cycles to be easily stored and removed by the passenger so as not to delay the vehicles unduly. Other potential district-wide schemes include encouraging the pooling of work-based bicycles for lease or sharing clubs, and subsidised incentives to encourage non-car use by providing discounts at shopping/leisure centres or bonuses to employee remuneration.



Bus mounted bicycle racks in Washington DC

Ready, steady, go for cycling

2.11.1

Missing Links

Figure 2.6 shows a plan of the proposed District-wide cycling strategy for Lancaster and identifies a number of missing links.

This study has provided an opportunity to identify missing links in the cycle network to ensure that routes are not, wherever possible, discontinuous. For example, the Port of Heysham and surrounding industrial estates provide employment for many residents throughout the District. Currently, there is a lack of direct links to the area from central Lancaster. The provision of a high quality east-west cycle route between the Port of Heysham and Lancaster would connect the area to the National Cycle Network (NCN), and encourage cycling as a means of transport for commuters.



Cycling potential could be particularly developed by the provision of enhanced cycle infrastructure in the City Centre. In a recent study prepared by Mayer Brown, a number of proposals were forwarded to provide improved north-south, east-west links and orbital routes in the vicinity of the City Centre. These are essential to improving cycle permeability.



Any works associated with a revision of the Lancaster gyratory offers the opportunity to re-allocate road space to sustainable transport including cycling, providing either segregated or with-traffic routes. Through the provision of high quality and direct cycle routes to key destinations and public transport nodes, supported by secure and accessible parking facilities at strategic locations, cycling would be further encouraged.

Further afield, possible route extensions to the Lune Valley Ramble to Hornby, Wray and Wennington and along the Lancaster Canal southwards, serving locations such as Galgate and Lancaster University are to be considered. By utilising attractive waterside routes, any improvements would also encourage recreational cycling and walking, and provide visitor attractions, which could boost tourism in the Lancaster District. Improvements may include enhanced signing, seating, lighting and resurfacing works, to ensure cycling and walking are viable throughout the year, including the winter months. In a similar manner, improvements to the cycling and walking infrastructure along the Lancaster Canal will encourage an alternative off-road, sustainable means of accessing Lancaster City Centre for commuters, from Galgate, Forton and beyond to Garstang.



The Lune Valley Cycle Route also provides an ideal alignment for the promotion of 'Park and Cycle' at the proposed Junction 34 Park & Ride site.

