



# Bus Rapid Transit

This briefing answers some frequently asked questions about Bus Rapid Transit.

Common to all BRT schemes is the aim to improve passengers' experience and perception of public transport

## Q. What is Bus Rapid Transit?

Bus Rapid Transit (BRT) refers to rubber-tired public transport systems, which deliver a higher quality passenger experience than conventional street running buses. BRT covers a wide array of schemes, ranging from targeted improvements such as high quality bus stops and consistent branding, to large scale investment in new segregated busways. Common to all BRT schemes is the aim to improve passengers' experience and perception of public transport, be it through faster journey times and greater reliability, to the use of real time passenger information and improved ride comfort.

## Q. Why invest in BRT?

- **Speed and reliability:** using segregated busways or other priority measures, BRT systems are able to run a faster and more reliable service than conventional street running buses. On a fully segregated system such as the Runcorn Busway, average speeds are 40% higher than conventional buses operating in the area. These speeds can be achieved reliably at all times due to priority measures and exclusive use of the busway.
- **Flexibility:** BRT systems typically serve key radial corridors, offering a high capacity service which is complemented by conventional bus networks connecting a wider area. Using buses on rubber wheels makes it straightforward to extend, vary or add new routes. BRT systems can also be built in phases and integrated with existing road infrastructure. And the set of enhancements implemented can vary to meet local needs.
- **High capacity:** often operated using large vehicles and benefiting from a high degree of priority, BRT systems can transport large volumes of people using a small fleet. With up to 20 buses per hour in the peak period, dedicated busway Centrelink in Tyne and Wear is able to move upwards of 1,500 people per hour between Metrocentre and Gateshead all day and Newcastle during the morning commute, bypassing key congestion hot-spots.
- **High quality:** Often providing real time information, level bus stop platforms and on-platform ticket sales, BRT can emulate some of the features of Light Rail systems. High frequency, reliable services reinforce this image and help attract new passengers and retain existing users. A 2013 survey of the Cambridge Busway found that 47% of passengers were travelling to work compared to a national average of 21% amongst all bus users. The share of commuters is often highest on rail services, which are able to offer a fast, high quality service. This figure suggests that the Busway is perceived by many commuters as an attractive public transport option.



**BRT can have a greater impact in getting people out of their cars than traditional bus services**

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BRT can also deliver environmental benefits through the following mechanisms:

- **By encouraging modal shift:** BRT systems provide quick, reliable journeys on high quality vehicles and can therefore have a greater impact in encouraging people to get out of their cars. The Cambridge Busway has been particularly successful in this respect, in part due to the fact that, at peak times, vehicles are able to achieve shorter journey times than cars due to the level of congestion on existing roads.
- **Potential for low or no emission vehicles:** modern BRT vehicles typically have low or zero emission engines. With the ability to run on electricity using overhead electric wires and batteries, BRT schemes can deliver strong environmental performance.
- **More fuel efficient and lower cost operations:** as well as delivering journey time savings, busways are also more fuel efficient, enabling buses to flow at a more constant speed, avoiding stop-start journeys, idling in traffic jams and by reducing energy consumption during acceleration and braking. Using partly segregated infrastructure, the X66 Centrelink service is able to reliably connect the centre of Gateshead with the MetroCentre, one of the largest shopping centres in the country, in just ten minutes, implying an operating speed of 30km/h.

### Q. How many bus rapid transit systems are there in the UK?

There are currently around fifteen systems in operation in Great Britain, covering a broad range of schemes. Below are some examples of the most high profile schemes in the country.

In April 2016, the **Leigh to Manchester BRT** scheme opened to the public. This 22km £122million scheme improves links between Manchester City Centre, Leigh, Atherton, Tyldesley, and Ellenbrook, via Salford. Around 7kms of guided busway have been constructed, with the remaining parts of the route provided via more traditional forms of bus priority like bus lanes. High quality hybrid vehicles boasting audio visual announcements, USB charging facilities and free Wi-Fi operate the 'Vantage' branded passenger services. Initially 20 vehicles were purchased but due to high demand, a further 5 vehicles were added in 2017. The new BRT system in Manchester has proved incredibly popular, with around 2.1 million passengers using the system in the first year. A survey has suggested that up to 20% of passengers using the BRT system used to drive their car to make their journeys into Manchester and now instead use one of the three Park and Ride sites available.

During 2016, the **Sheffield to Rotherham BRT North** scheme opened to passengers. The £30 million scheme involved building a new dedicated bus link, as well as upgraded bus priority on other roads. Services operate up to every 10 minutes, using high quality vehicles. With levels of poor air quality high in the area BRT North serves, this BRT scheme helps to address this issue whilst also reducing congestion and relieving pressures on existing roads.



**The Cambridge  
Busway exceeded  
expectations, with  
ridership now  
46% above  
original forecasts**

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### Q. How many Bus Rapid Transit systems are there in the UK? (cont'd)

The **Cambridge Busway** opened in 2011 at a cost of £180 million. It links Cambridge to Huntingdon along a disused rail alignment, and includes two sections of guided busway (where buses are constrained within a concrete track, much like a rail-based system) totalling 26km.

The system has been very well received, with ridership 46% above original first year forecasts. The scheme has gone from strength to strength, with buses now operating with a service interval of seven minutes at peak times, and plans to extend routes all the way to Peterborough. The Cambridge Busway was extended to the new Cambridge North Railway Station in 2017. This provides a key link to the rapidly expanding Cambridge Science Park.

**Luton-Dunstable**, opened in 2013, costing £89 million, with ten km of segregated busways. The system has provided a step change in public transport links between the two towns. Through segregation from other traffic, travel times have been cut by up to 40% in peak hours and services have also become more reliable.

The **Runcorn** system opened in 1973 and consists of 22km of segregated busways. Designed to accommodate speeds of up to 65 km/h and with bus stops at 400m intervals, the service provides a frequent, high speed and highly accessible service with no house in the town more than 500m from a stop.

Opened in phases between 2010 and 2013, **East London Transit** is a part-segregated system, originally intended to connect the Thames Gateway redevelopment with Barking station. The system is expected to eventually reach 40km of busways and priority lanes, with over 75% of the system segregated from other traffic. The system has been designed so as to enable a possible conversion to light rail operation in the future. Recent developments have seen the EL2 route extend to Becontree Heath alongside a service frequency increase due to popularity. In addition, a new route, the EL3 has joined the system following the conversion from a standard bus route. These improvements have been put in place to help support planned developments in the area.

The **Eclipse BRT system** is a network of high quality, high frequency bus routes, linking Fareham and Gosport, which makes use of a ten km section of disused rail track to bypass congestion hotspots on main roads. Designed at just over six metres wide (compared to seven for a conventional carriageway), the segregated busway can also be used by bicycles. Eclipse buses have large leather seats, free wifi, news updates and next-stop announcements.

In **Swansea**, a two km bus only lane, coupled with other bus priority measures along the route and high quality articulated vehicles has enabled a substantial reduction in journey times and improved reliability on the corridor linking the city centre to the University and the two city hospitals.



BRT systems are increasingly being considered as a cost effective way of improving the public transport offer

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### Q Are there further Bus Rapid Transit systems being considered?

BRT systems are increasingly being considered as a cost effective way of improving the public transport offer. Below are some of the schemes in development:

- **West of England Metrobus.** A network of three BRT routes will use high quality modern vehicles, smart ticketing and real time information. Using a combination of purpose built busways and on-street running, the aim is to provide fast reliable services to the city centre. Currently under construction and anticipated to open later in 2018, the Metrobus will connect Bristol and neighbouring West of England authorities via three BRT routes totalling 50km in length. The system will use high quality modern vehicles, smart ticketing and real time information. Using a combination of purpose built busways and on-street running the aim is to provide fast reliable services to the city centre.
- **Birmingham / West Midlands.** A planned network of BRT 'Sprint' routes will link several towns and suburbs with the key centres in the West Midlands conurbation, including Birmingham city centre, New Street Station and the future High Speed (HS2) station at Curzon Street. Designed to look and operate like a tram, the network of routes will use a combination of segregated busways and on street running, further enhanced by traffic signal prioritisation. Construction of three new Sprint routes is being fast-tracked in order to welcome passengers on board in time for the 2022 Commonwealth Games.







# Bus Rapid Transit

## Q. Is BRT the right solution?

An Authorities' approach to public transport improvement is to find the most appropriate solution for the specific circumstances and challenges of a corridor or network. Typically, this work fits into wider economic strategies and long term transport plans.

BRT is one of the options available in their toolkit, alongside smaller scale improvements to bus services and larger scale investment in light rail and heavy rail schemes.

Flexibility and cost effectiveness are the key advantages of BRT systems. They are able to operate on both existing roads with minimum investment, as well as new segregated busways,

The examples in this briefing show that it is possible to operate very successful comprehensive public transport networks based around the BRT concept. But in some cases, BRT can also be a valuable stepping stone to future investment in light rail or other forms of public transport.

**Crucially, BRT schemes can deliver increased public transport capacity and improve passengers' perception relative to conventional street running bus services.**

## Q. How can I find out more?

Keep up to date with bus rapid transit policy developments by visiting our website at [www.urbantransportgroup.org/resources/bus](http://www.urbantransportgroup.org/resources/bus)

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