

Bus Infrastructure Investment



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1.0 Introduction

Ove Arup and Partners Ltd (Arup) has been commissioned by Greener Journeys to study and report on where investment in bus infrastructure could help to tackle congestion and unlock wider social, economic and environmental benefits.

1.1 AIM OF THE STUDY

This collection of ideas and journey time enhancements has been shaped by operators of national, regional and local bus routes and reflects the variety of complex issues and opportunities faced on England's bus networks today.

The aim is to demonstrate that investment in bus can have a transformational impact on a city regions economic performance and provide opportunities for growth.

This initial study is intended, in part, to inform the potential future development of schemes that may be funded in full or in part by the Transforming Cities Fund¹.

This report provides a range of graphical analysis with a focus on accessibility which is of value in understanding the utility of the bus network for making journeys and the changes that could result from investment in bus.

“Shaped by operators of national, regional and local bus routes.”

“Schemes that may be funded in full or in part by the Transforming Cities Fund.”

2.0 Desktop Research

2.1 WHY BUS?

Bus is the primary mode of public transport in most towns and cities in England. According to Department for Transport (2018)², in the year ending March 2017, the number of journeys by bus accounts for 60% of all public transport journeys. In large metropolitan areas such as the Liverpool City Region (LCR) bus journeys are higher at 80%³ of all public transport journeys.

The most vulnerable in society are the most reliant on bus services, and as such services offer a way for many out of social isolation.

There is a proven correlation between access to bus services and levels of social deprivation. A 10% improvement in bus service connectivity is associated with a 3.6% reduction in social deprivation⁴.

Numerous studies have found buses deliver sustainable economic, social and environmental impacts. KPMG (2015)⁵ established that investment in bus networks can impact productivity, competitiveness and economic outputs, as well as improving the environment, quality of life and the overall attractiveness of towns and cities as shown in Figure 1.

Economic effects of bus infrastructure are found to be even clearer in small cities.

Faulk and Hicks (2010)⁶ found that there are positive impacts in small cities on lower unemployment, lower growth in family assistance and food stamp payment, and higher population and employment growth.

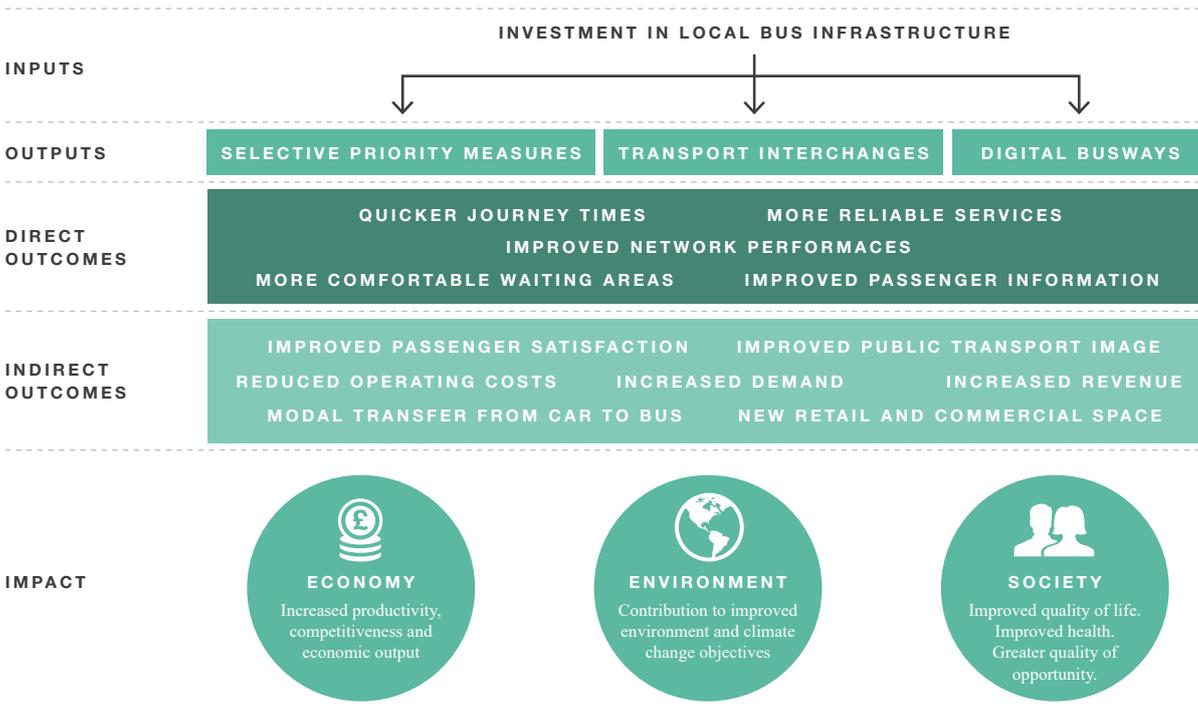


Figure 1 - Economic, social and environmental impact of investment in local bus infrastructure⁷

With regard to benefits of investment in bus infrastructure, recent research undertaken by KPMG on behalf of Greener Journeys in 2017⁸ provides a summary of updated 'value for money' appraisals for:

- Bus priority measures
- Concessionary travel for older and disabled people
- Concessionary travel for apprentices
- Tax incentives for commuters
- Bus Service Operators Grant (BSOG)

In updating the value for money analysis for investing and interventions in local bus markets, the report expands on traditional transport appraisal methodologies to include:

- Additional economic impacts
- Employment benefits
- Health fiscal savings
- Fiscal savings from increased education
- Additional social impacts
- Option and non-use values from WebTAG⁹ Guidance
- Physical health benefits
- Volunteering
- Psychological Wellbeing

Some key outcomes from this study include:

- **Between 18% and 23%** of car users could be encouraged to switch to buses if buses were quicker and more reliable¹⁰.
- The economic, social and environmental return for each £1 spent range from **£2.00 to £3.80** for revenue expenditure and **£4.20 and £8.10** for capital expenditure.
- Whilst much depends on the nature of the intervention and local conditions investment in local bus markets generates significant benefits to passengers, other road users and the wider community.



Figure 2 - The type of intervention needed to meet local priorities can be drawn from a range of available options

2.2 CONSTRAINTS AND OPPORTUNITIES OF BUS INFRASTRUCTURE

Congestion Constraints

Even though numerous benefits of investment in bus infrastructure are widely recognised in recent years, there are barriers which prevent our cities from benefitting from them.

Bus is a primary mode of public transport in most of the city regions. In the year ending March 2017 DfT statistics show a decreasing trend in bus travel. Bus passenger journeys and bus mileage in England decreased by 1.5% and 1.1% respectively in the 2016/2017 financial year compared with the previous year. In terms of local authority supported services in England outside London, there was 13.8% of large decrease in mileage.

One of the largest barriers is congestion. According to the Impact of Congestion on Bus Passengers¹¹, there is a clear trend in the increase of bus journey times with an average of 1% annually in congested urban conurbations in the UK. Results of bus journey time increases include:

- Economy – Bus is a primary mode for commuters and access to city centres. 1% p.a. bus journey time increase would consequently result in loss of access to approximately 5,000 jobs per year. 50% of passenger increase would create 11,250 new jobs.
- Air pollution – Congestion dramatically increases carbon dioxide emissions from vehicles.

The figures noted above demonstrate the need for improving bus journey times and a need to tackle congestion in a coordinate way.

The report suggests “A Five Point Plan” for local authorities and bus operators to tackle congestion, which is:

- Set bus speed targets;
- Demand management, e.g. London Congestion Charge, workplace charging, parking policy etc.;
- Bus priority – local authorities and bus operators working in partnership to release them from the congestion delays experienced by other road users;
- Speed up dwell time at bus stops by extending London-style cashless buses and contactless payments to the rest of the UK; and
- Mobilising bus passengers for pro-bus measures by bus companies communicating with their customers.

Similarly, KPMG (2015)¹² also notes that congestion can be solved by making better use of existing road capacity through targeted investment in local bus infrastructure and selective priority measures in order to encourage modal shift to public transport. The investments should improve passenger journey experience and the performance of the transport network as a whole. Infrastructure measures include:

- Selective priority: reducing journey times and improving service reliability to encourage modal shift from cars to public transport;
- Transport interchanges: ‘transport hubs’ to improve efficiency of bus networks and to provide an opportunity for retail and commercial development; and
- Digital technology: Automatic Vehicle Location and Selective Vehicle Detection systems, travel information, smart ticketing.

Planning Constraints

Another barrier for improved bus journeys is lack of strategic planning in infrastructure that supports bus movement.

In strategic planning of transport networks, the Road Investment Strategy for highways and the High-Level Output Specification for railways set out what the Government wants each network to deliver for the medium to longer term. There is, however, no national plan or policy statement for investment in bus infrastructure and no statement of what the Government wants the bus sector to deliver in return for public funds and resources.

Another rationale for the National Statement for bus infrastructure is that transport schemes will need to compete with other growth initiatives for capital investment due to devolution of transport funding and decision-making to the Local Growth Fund and Local Enterprise Partnership. It will be increasingly important to make sure that devolved decision-makers recognise the role of buses in supporting economic activity, and that funds are made available to improve the reliability of local transport networks.

Greener Journeys (2014)¹³ notes that there is a need for the Government to issue a National Statement on local bus infrastructure to raise the importance of investing in bus infrastructure as part of co-ordinated local growth initiatives.

The report sets out objectives for the National Statement as follows:

- “Promote investment in local bus infrastructure to increase network reliability, reduce journey times and enhance the passenger experience
- Encourage greater partnership working between local authorities and bus operators in developing new schemes and realising the benefits of existing schemes
- Provide passengers and operators with a degree of certainty on the future development of their networks by asking the local decision-makers to set out what they want the bus

sector to deliver and commit to a longer term programme of investment (Greener Journeys, 2014, p.4)”

The National Statement will provide a focal point for local bus infrastructure policy and practice, which will be enabled through:

- “Setting out the Secretary of State’s vision for bus infrastructure
- Promoting best practice approaches to scheme development and partnership working, including providing advice on investment appraisal
- Documenting current and committed bus infrastructure schemes (p.9)”

Bus Services Act 2017

New powers under the Bus Services Act 2017¹⁴ should give Metropolitan areas more effective tools with which to improve services but it stops short of statements and benchmark standards for key strategic outcomes, e.g. journey times, service reliability and passenger satisfaction, together with a dedicated fund.

The new powers and opportunities available under the new act for local authorities when planning improvements to bus services are:

- Providing an inclusive services;
- Improving environmental outcomes;
- Maximising social value;
- Improving the safety of bus services;
- Tackling congestion; and
- Meeting the needs of rural communities.

The government are focusing options on three key themes and note that local transport problems require local transport solutions focused on:

- Better Journeys;
- Better Places; and
- Better Value.

Evaluation

KPMG (2017)¹⁵ points out the importance of evaluation of transport schemes, which can help delivering better outcomes from existing schemes and improving the planning, design and implementation of new schemes. It suggests a framework for ex-post evaluations of local bus infrastructure schemes in current practice.

The evaluation is to establish:

- The extent to which the scheme achieved its objectives;
- The extent to which the scheme provided value for money;
- The contributing factors to the realisation of outcomes; and
- Aspects of good practice and lessons learnt which can be transferred to other schemes.

The report also argues there are merits of establishing an on-going programme of the evaluation with reference to the Highways Agency's¹⁶ Post Opening Project Evaluation (POPE) process.

Bus Priority Benefits

Carefully planned bus priority measures can benefit everyone. A publication supported by the Urban Transport Group¹⁷ notes that bus priority measures work for businesses, shops, communities and growth. Schemes that combine bus priority with public realm enhancements such as that in Rochester, where peak time journeys are now 40% faster, can improve overall traffic flow and create a sense of place.

Bus priority measures involve far more than providing better conditions for bus passengers, such as:

- Making Streets Safer and more attractive;
- Renewing pavements and street furniture;
- Reorganising parking, delivery and drop-off; and
- Bringing activity to streets.

Figure 3 below outlines some priority myths and facts.

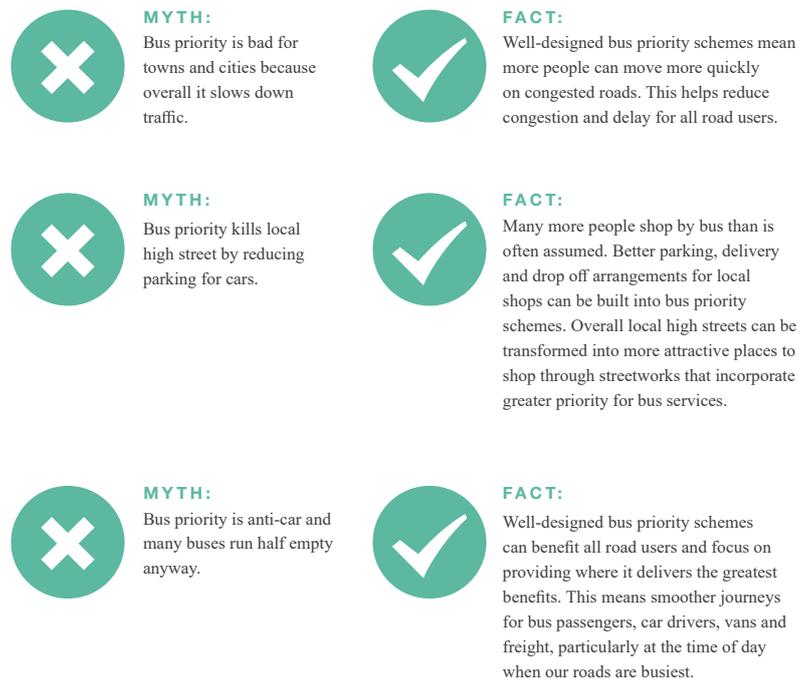


Figure 3 - Bus Priority Myth Busters (From Urban Transport Group)

Whole Journey Approach Benefits

Committed to making bus travel in the West Midlands “Cleaner, greener, safer and faster” Transport for the West Midlands (TfWM) and the Bus Alliance have worked with local highway authorities to combine measures on a key corridor to support growth.

Fast buses and better buses, supported by investments from Bus Operators and local authorities, can increase patronage on corridors.

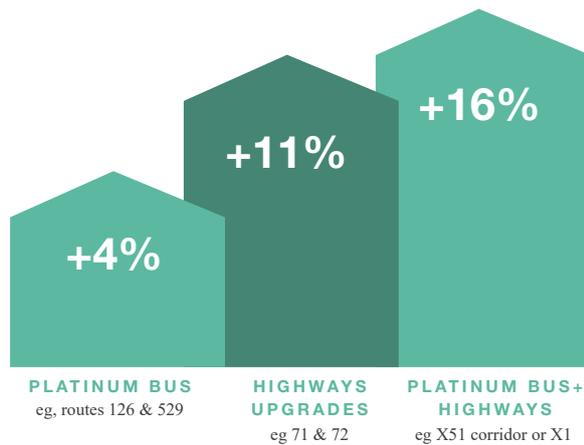


Figure 4 - Fast Buses + Better Buses = very strong patronage growth in West Midlands Corridor

Figure 4 below outlines an example corridor in the West Midlands where highway upgrades and better-quality buses have combined to increase bus patronage growth.

Figure 5 below also outlines whole journey approaches to fare cuts and patronage impact to support growth in local economic centres.



Figure 5 - Fare cuts grow patronage in West Midlands

3.0 Examples of Bus Infrastructure Investment

This section provides a range of graphical analysis for the whole journey approach where bus infrastructure investment and its contribution to social, economic and environmental benefits are outlined. The examples and proposals for bus infrastructure investment have been collected working with operators of local, regional and national bus services and reflects the variety

of complex issues and opportunities faced on England’s bus networks today.

The examples of existing schemes and proposals for new schemes are live and we welcome discussion and engagement with the investment theme and proposals as presented.

Examples and proposals include:

3.1 Infrastructure supporting measures

Example: Crawley Fastway

Example: Mansfield Public Transport Interchange

Example: South East Hampshire Bus Rapid Transit

Example: Leigh to Ellenbrook Guided Busway

Proposal: Bus ‘Super Highway’

Proposal: Road closure / reallocation of road space

Proposal: Conversion of disused railway lines to Busway - West Yorkshire

Proposal: Liverpool John Lennon Airport (LJA) Busway

Proposal: Improvements to Shelters / Stops

Proposal: Seaton Burn Park and Ride

Proposal: Conversion of a disused railway line to Busway - Leicester

Proposal: Conversion of a disused railway line to Busway - Buckinghamshire

Proposal: Busway - Leicester

Proposal: Busway - Milton Keynes

3.2 Demand Responsive Transport

Proposal: Arriva Click - Sheffield

Proposal: Arriva Click - Liverpool

3.3 Traffic Management

Example: Bus Selected Vehicle Detection (SVD)

Proposal: Park and Ride - Derby

3.4 Vehicle / Fuel

Proposal: Eco Buses - Liverpool

Proposal: Eco Buses - Bristol

3.5 Operational

Proposal: Integrated Traffic Control Centre

3.6 Campaign

Example: Catch the Bus Week

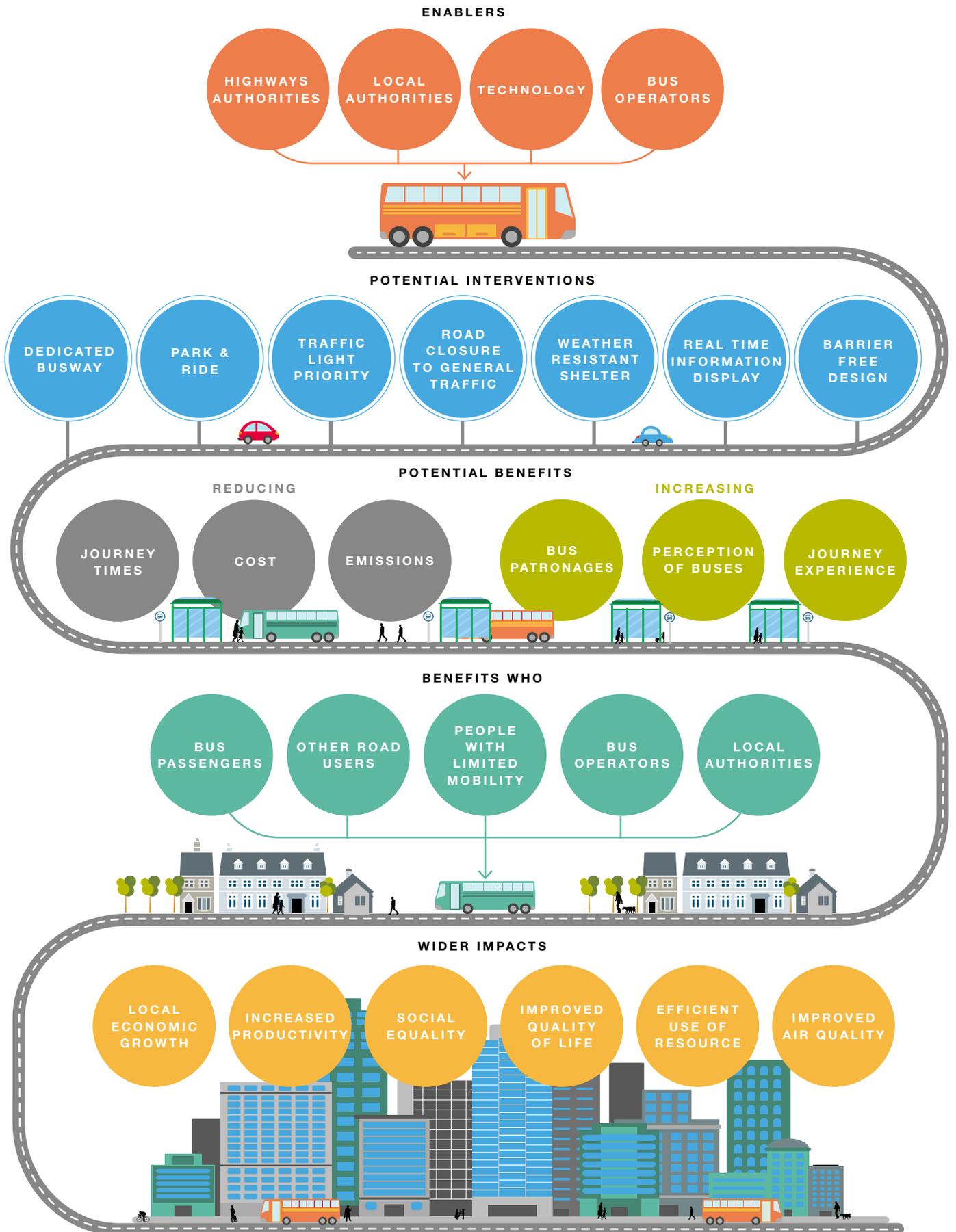
Example: Arriva Merseyside Green Day

3.7 Tickets and Fares

Example: Sandwell and Dudley low-fare zone

Proposal: Single ticketing platform

3.1 Infrastructure Supporting Measures



Example: Crawley Fastway



WEST SUSSEX AND SURREY COUNTY COUNCILS



CONTEXT / PROBLEM

The Crawley FastWay scheme involved the delivery of a series of bus priority measures along two core routes linking Horley, Gatwick Airport and Crawley.

SOLUTIONS

The investment included the re-design of heavily trafficked roundabouts and existing signal-controlled junctions in order to provide reserved bus lanes and priority settings for FastWay services. Parts of the route also involved a segregated bus way with kerb guidance. The service on this route was planned to operate at 10 minute intervals in peak periods and every 20 minutes off-peak, giving 5 minute and 10 minute intervals respectively on the common sections of the route.

BENEFITS

Economic evaluation of the outturn costs and benefits shows that the scheme has delivered a wider economic return on investment at £6.10 for each £1 spent. The scheme has succeeded in attracting increasing numbers of passengers, exceeding targets, journey times have been reduced, service reliability is high and passenger satisfaction is over 90%. In addition, there is evidence to suggest that the scheme has also resulted in a decline in road traffic, achieving modal shift from car.



Example: Mansfield Public Transport Interchange



MANSFIELD DISTRICT COUNCIL



CONTEXT / PROBLEM

The new bus station was designed to address a number of specific issues with the old bus station, including: its limited weather protection; the safety and security of passengers, particularly at night; operational safety; its accessibility; and links with the town centre.

As part of this the project aimed to enhance the public realm, improve the ease, image and attraction of using public transport, and thus encourage modal shift from car use.

SOLUTIONS

The project, in Mansfield town centre, consisted of building an £8.5 million new, fully enclosed bus station building with 80 metre connecting footbridge to the railway station.

BENEFITS

Economic evaluation of the outturn costs and benefits shows that the scheme has delivered a wider economic return on investment at up to £6.80 for each £1 spent. The scheme succeeded in meeting most targets and objectives. The observed demand increase has exceeded expectations while passenger satisfaction has improved significantly. Whilst previously high, the reliability of the bus service has improved further since the opening of the new bus station. Accident rates have also fallen in line with the targets set, although based on previous trends, this cannot be attributed fully to the bus station investment. Other aspects of the service such safety and ease of interchange to rail have also improved.

Old bus station unsafe with poor weather protection

To build a new £8.5 million, fully enclosed bus station

Example: South East Hampshire Bus Rapid Transit

HAMPSHIRE, SOUTHAMPTON AND PORTSMOUTH COUNCIL'S



CONTEXT / PROBLEM

The South East Hampshire Bus Rapid Transit is a high specification, sub regional public transport network designed to provide a viable alternative to the car.

SOLUTIONS

The scheme included an off-road busway in a disused railway line, new bus shelters with CCTV and real time passenger information and cycle parking, amongst other infrastructure measures.

In addition, the private bus operator committed to providing a new high quality fleet and route-specific branding (Eclipse).

BENEFITS

Economic evaluation of the outturn costs and benefits shows that the scheme has delivered a wider economic return on investment at up to £8.10 for each £1 spent. The scheme has been successful at achieving levels of demand and revenues which exceeded forecasts, service reliability and service frequency have improved and passenger satisfaction ratings have gone up more than 20% on average. There is also evidence to suggest that the scheme has led to a reduction in traffic levels.

Poor facilities such as lack of security and shelter at busway

Delivered an economic return on investment at up to £8.10 for each £1 spent

Example: Leigh to Ellenbrook Guided Busway



GREATER MANCHESTER



Source: Wikimedia Commons

CONTEXT / PROBLEM

The corridor between Leigh, Atherton and Tyldesley and Manchester city centre has suffered from poor public transport accessibility and connectivity for many years. Over time a range of modal options have been considered, including heavy and light rail, and bus solutions.

The Leigh-Salford-Manchester scheme (Vantage), which opened in April 2016, has delivered a high quality public transport service linking Leigh, Atherton, Tyldesley, Ellenbrook, Salford and Manchester via a guided busway and on-highway bus priority measures.

SOLUTIONS

The scheme included an off-road busway, park and ride sites at three locations for 450 cars, enhanced passenger waiting facilities, highway priority measures, extensive pedestrian and cycling improvements along the corridor and frequent premium bus services (Vantage).

BENEFITS

At appraisal stage, The scheme had a Benefit to Cost Ratio (BCR) of 2.1:1, showing high value for money, using a methodology consistent with that used by DfT, and a BCR up to 2.8 if wider economic benefits were included.

In the first six months of operation, more than 900,000 passenger journeys were made. In its first full year of operation the guided busway carried in excess of 2.1 million passengers.

Road corridor suffering from poor public transport connections

900,000 passenger journeys made in first six months

Proposal: Bus ‘Super Highway’



NORTH EAST COMBINED AUTHORITY (NECA) - NORTH TYNESIDE



CONTEXT / PROBLEM

Heavy traffic volumes affect the A1 between Seaton Burn and Kingston Park, with local traffic utilising the A1 for short journeys into Newcastle, causing delays for through traffic on this strategic North/South route.

SOLUTIONS

A series of southbound bus lane extensions and junction improvements for buses are proposed along the key commuting corridor between Annitsford and Four Lane Ends. These would link to the existing bus lane on the A188 Benton Road, just North of Four Lane Ends, and to the bus lane currently being constructed on Killingworth Road. Public transport connections to the Metro system at Four Lane Ends and Ilford Road would be significantly enhanced.

BENEFITS

Through a coordinated approach the proposal will bring improved reliability and faster journeys in North Tyneside. There will also be significant improvements to increase the uptake of public transport and connect Newcastle City Centre with major areas of employment.



Proposal: Road closure / reallocation of road space



DERBY CITY COUNCIL



© Dave Bevis

CONTEXT / PROBLEM

Congestion in the city centre has knock-on effects for the entire network and it is challenging to run reliable bus services. There is high volume of other traffic especially along Morledge, Bradshaw Way/Traffic Street and London Road/Osmaston Road/The Spot. The entrance and exit from the bus station is congested due to high volume of traffic and access/egress from a car park.

SOLUTIONS

This proposal creates greater priority for buses and restricts access for other vehicles with following measures:

- Close Morledge to all traffic except for buses between Albert Street and Traffic Street
- Make London Road/Osmaston Road/The Spot a one-way traffic flow
- Add bus lanes to Bradshaw Way and Traffic Street in both directions
- Widen the exit from the bus station at both ends to create more room for vehicle movements

BENEFITS

This proposal is expected to improve bus service reliability and passenger journey time making bus travel more attractive. Bus operators will benefit from operational efficiency, e.g. reduced number of vehicles in timetables. Car use will be reduced in the central area and consequently it will improve air quality.



Proposal: Conversion of disused railway lines to Busway

WEST YORKSHIRE COMBINED AUTHORITY (WYCA)



Source: geograph.org.uk

CONTEXT / PROBLEM

Wakefield and Bradford, are linked by almost no direct rail services. Journey times and punctuality on the 268/268A bus service are impacted by several challenging sections in terms of congestion including the M62. There is very limited priority for buses on the A638 and whenever there is an incident or part/full closure on the M62 then not only do buses get caught at Chain Bar but for long sections of the A638 / Bradford Road on either side of the motorway on approach.

SOLUTIONS

There exists a former railway line between Dewsbury and Low Moor which now operates as a cycleway and footpath (“Spen Valley Greenway”). If converted to a busway, with retained cycle and footpath facilities as required, then journey time between Dewsbury and Bradford would be transformed.

The route would entirely bypass Chain Bar interchange, and still be able to serve the key communities of Heckmondwike, Liversedge and Cleckheaton without need to deviate from the busway. Options could include converting the full distance from Low Moor to Dewsbury, or focussing on a smaller section more closely aligned to the key pinch points e.g. Heckmondwike to Oakenshaw.

BENEFITS

This proposal would improve reliability of links between Dewsbury, Heckmondwike, Liversedge and Cleckheaton with Bradford, Odsal and Oakenshaw. Journey time reduction between Dewsbury and Bradford of over 20%, combined with levels of punctuality unachievable on the existing road network (particularly by bypassing Chain Bar), would help to revitalise the economy of the corridor and open new opportunities for the City of Bradford by improving inclusivity and access to employment.

Absence of direct rail services lead to high volume bus traffic

Convert railway to busway with cycle and footpath

Proposal: Liverpool John Lennon Airport (LJA) Busway



LIVERPOOL CITY REGION



CONTEXT / PROBLEM

JLA is a major employment centre, as well as being the principle international airport for the Liverpool City Region. It does not currently have any rail services and the nearest link into the national rail network is Liverpool South Parkway station, which is approx. 3.3 miles from the airport by road. Arriva currently provide bus services on this route. This route uses sections of the trunk road network which suffers from congestion issues at peak times and journey time variability. Integrated ticketing from the National Rail network is already in place.

SOLUTIONS

Improving the links between the rail hub at South Parkway and JLA could be achieved using dedicated bus lanes and using routes away from the A561 to avoid the main pinch points, where it may not be practical to take existing road space away for bus priority.

BENEFITS

A busway would cut journey times and provide a more attractive proposition for Arriva to increase frequencies and level of service between these two key locations. Improved surface access would help connect the LCR economy with international markets.



Proposal: Improvements to Shelters / Stops

WEST YORKSHIRE COMBINED AUTHORITY (WYCA)



CONTEXT / PROBLEM

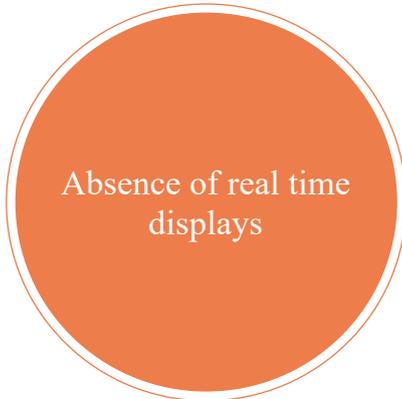
Through the Leeds Public Transport Investment Plan, Leeds is going to have investment in enhanced waiting areas, thousands of additional real time displays at stops throughout the district and an improved look and feel across all stops on key corridors.

SOLUTIONS

Investment in real time displays and enhanced shelters at key locations across Wakefield, Kirklees, Bradford and Calderdale.

BENEFITS

Better access to information and improved waiting facilities will help connectivity between Leeds and surrounding urban areas.



Proposal: Seaton Burn Park and Ride



NORTH EAST COMBINED AUTHORITY (NECA) - CRAMLINGTON



© Richard Vince

CONTEXT / PROBLEM

Newcastle City Centre is a major attractor for commuter, shopping and leisure traffic from Northumberland and North Tyneside. A series of measures are proposed to significantly increase the attractiveness of existing bus services and reduce car movements particularly at peak commuting times when traffic speeds are severely affected by increased volumes.

Heavy traffic volumes affect the A1 between Seaton Burn and Kingston Park, with local traffic utilising the A1 for short journeys into Newcastle, causing delays for through traffic on this strategic North/South route.

SOLUTIONS

A new Park and Ride site is proposed at Seaton Burn between the A19 and A1068 Fisher Lane. This would be served by increasing the frequency of existing services (X9, X21/X22) to eight times each hour during the daytime and would offer a convenient interchange point for car traffic from the A1 and A19/A189.

This would provide a sustainable option for car borne commuters from the whole of Northumberland.

The service would utilise the proposed 'Red Route' along the Great North Road in Newcastle (See 1-15), thereby improving punctuality and connections to the Metro system at Regent Centre and Haymarket. Further punctuality benefit would be derived from the measures proposed for the enhancement of the bus terminal and interchange in Newcastle City Centre (See 1-16).

BENEFITS

This proposal will bring improved reliability and connectivity across the city and encourage sustainable multi-modal trips for private vehicle drivers.



Proposal: Conversion of a disused railway line to Busway

LEICESTER CITY COUNCIL/ LEICESTERSHIRE COUNTY COUNCIL



© GRAEME and LESLEY CRANSTON

CONTEXT / PROBLEM

Buses are currently using the congested Aylestone Road which, despite some small bus priority measures, is a slow route to use.

SOLUTIONS

The former Great Central Railway trackbed south of Leicester is still in place and has not been built upon.

It is currently used as a cycle and pedestrian way. This route to the south western areas of Leicester would reduce bus journey times to a level similar to that of the Luton-Dunstable busway example where journey times were cut from 40 to 12 minutes.

BENEFITS

The ability to bypass this slow road would offer significant journey time savings for people travelling to Aylestone, Glen Parva, Blaby, Countesthorpe and Lutterworth.



Proposal: Conversion of a disused railway line to Busway



BUCKINGHAMSHIRE COUNTY COUNCIL



© Richard Humphrey

CONTEXT / PROBLEM

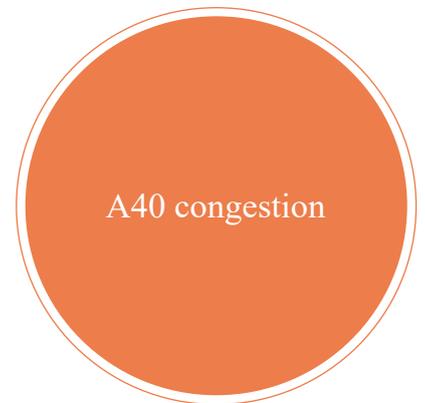
Congestion on the A40 London Road to the south east of High Wycombe.

SOLUTIONS

There is a disused railway line between High Wycombe and Bourne End that could be resurrected as a busway.

BENEFITS

This proposal will bring improved reliability and connectivity and improve journey speed along a congested corridor.



Proposal: Busway



LEICESTERSHIRE COUNTY COUNCIL



CONTEXT / PROBLEM

The A511/A50 corridor between Coalville and Leicester is particularly congested around the Flying Horse junction and the M1 (Junction 22). The increasing residential and logistics development on the eastern side of Coalville means that there is a growing level of travel along this corridor. Buses are caught in the congestion around these junctions but also have added time to their journey due to the arrangements for entering Markfield from the A50.

SOLUTIONS

A busway utilising brownfield land and upgraded country lanes.

BENEFITS

This would mean a significant journey time saving for bus passengers to/from Leicester, Coalville, Ashby De La Zouch and Swadlincote and improvements to the economy.

Bus journey times increasing due to congested junctions

Brownfield land to be utilised for new busway

Proposal: Busway



MILTON KEYNES COUNCIL



CONTEXT / PROBLEM

There is demand for making the cross Milton Keynes service between Stony Stratford and Bletchley more attractive.

SOLUTIONS

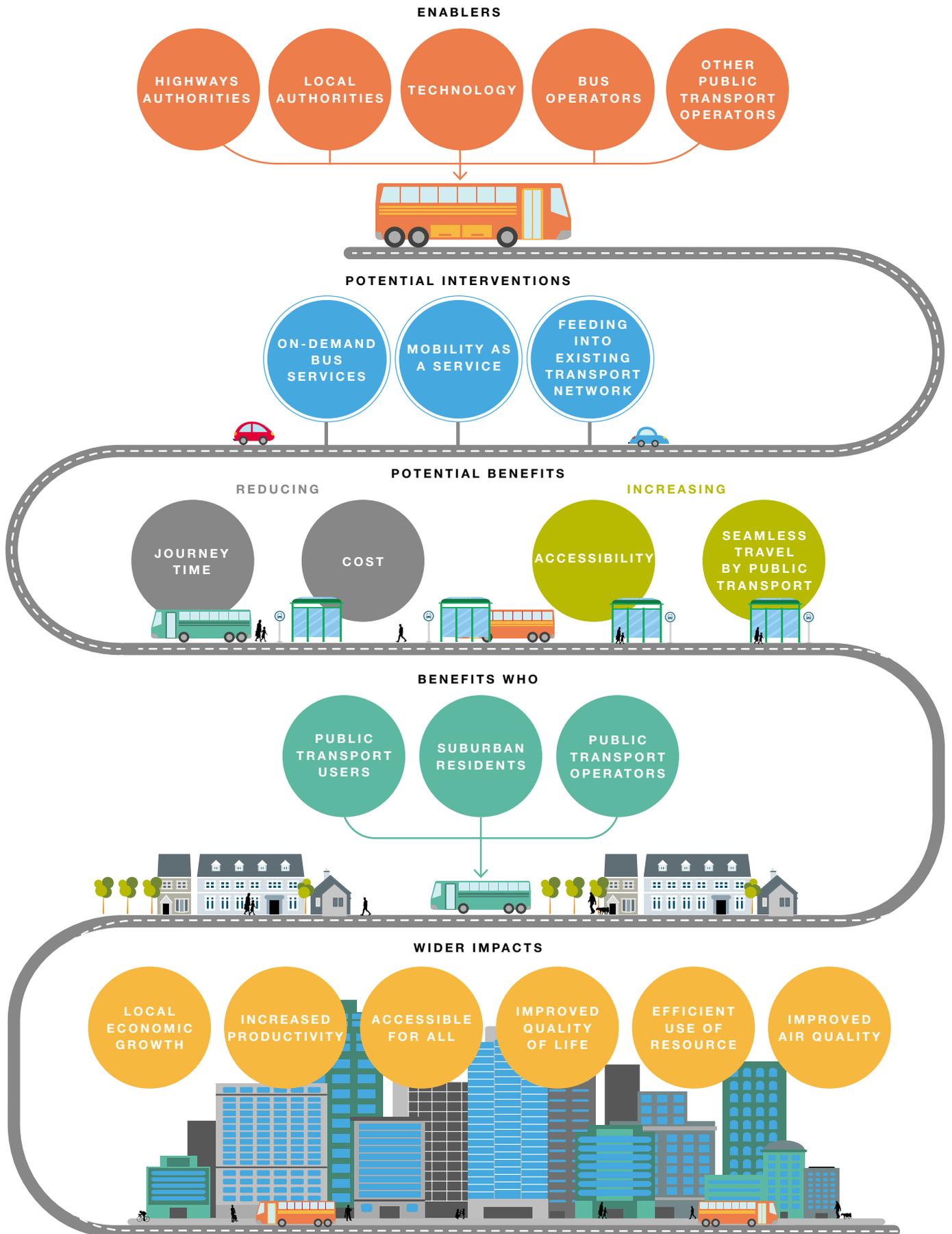
Converting one half of dual carriageway roads in Milton Keynes into a busway would offer significant journey time improvements for passengers and could be done at a relatively low cost. Consequently, this will improve the reliability and speed of bus services.

BENEFITS

This proposal will bring improved reliability and faster journeys.



3.2 Demand Responsive Transport



Proposal: Arriva Click

SHEFFIELD CITY REGION



© Arriva

CONTEXT / PROBLEM

The Sheffield and Rotherham urban area has a combined population of over 800,000 people who live work and travel in this area. The public transport links between the two are relatively poor with the city centres being linked by train and some bus services running between the two.

SOLUTIONS

Arriva Click is an intelligent minibus service that is operated in response to demand.

It does not follow a fixed bus route but predicts where the next pick up may come from by using the latest technology. Rides can be booked instantly and the vehicle will arrive within 20 minutes.



Poor bus links for 800,000 population

Instant bookings with ride arriving within 20 minutes

LIVERPOOL CITY REGION



© Arriva

CONTEXT / PROBLEM

The Liverpool City Region urban area has a combined population of over 1.5m people who live, work and travel in this area.

The public transport links within the city are good but some services are being reduced leading to routes unserved.

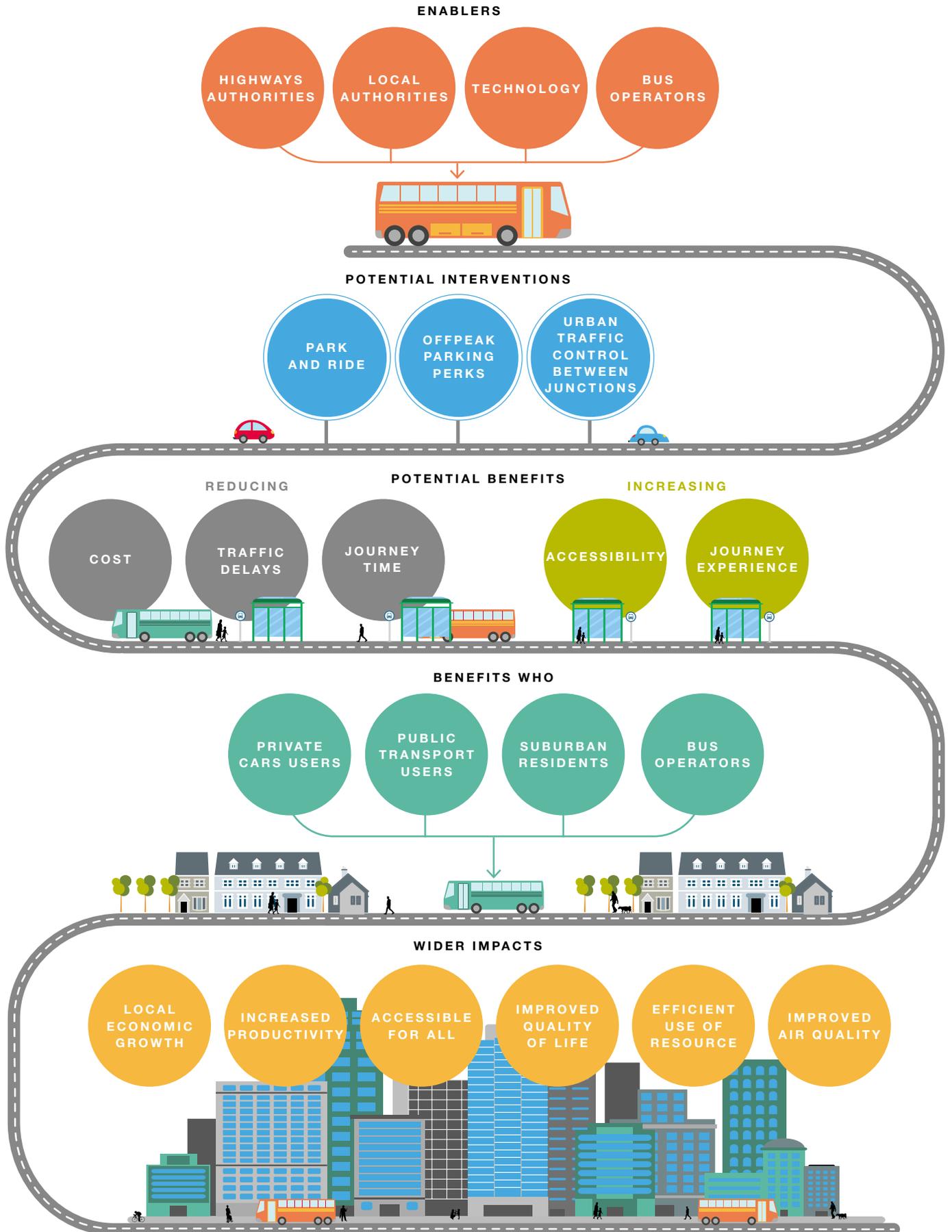
BENEFITS

This proposal will link communities to employment areas and attract businesses to the manufacturing district, providing essential links for the region. Furthermore, this service could relieve congestion by reducing single occupancy vehicles.

Poor bus links for 1.5 million population

Instant bookings with ride arriving within 20 minutes

3.3 Traffic Management



Example: Bus Selected Vehicle Detection (SVD)

COVENTRY CITY COUNCIL / TRANSPORT FOR WEST MIDLANDS



CONTEXT / PROBLEM

Coventry conducted bus lane suspension trials to and evaluated impacts on journey time data for buses and all other vehicles.

SOLUTIONS

For each month journey time data has been collated from the same month the previous year to provide the "before" data with 2017 providing the "after" data following the bus lane mitigation measures and suspension. As the mitigation measures, Bus SVD priorities and improvements have been provided at 10 traffic signal junctions located in the sections of suspended bus lanes.

BENEFITS

No detrimental impacts on journey times for both bus and all vehicle traffic have been found. This is a cost-effective way to improve bus journey reliability along specific sections of bus routes, utilising as much of the existing infrastructure as possible and providing measurable benefits.



Collection of data on bus lane suspensions

Using collected data to improve road usage

Proposal: Park and Ride

DERBY CITY COUNCIL



© David Hawgood

CONTEXT / PROBLEM

Along with bus priority measures to overcome the congestion problem in Derby city centre, improvements of Park and Ride is considered as mitigation for people using cars. The Park and Ride bus service is currently operated with a frequency of 5 minutes and terminates in the bus station.

SOLUTIONS

The proposal includes improvements of signage to direct cars to the site, car parking facilities, and waiting facilities at the bus stop. Bus service will be also improved by increasing the frequency of buses to at least every 10 minutes and taking the route to more of the City Centre including Albert Street and The Spot area.

BENEFITS

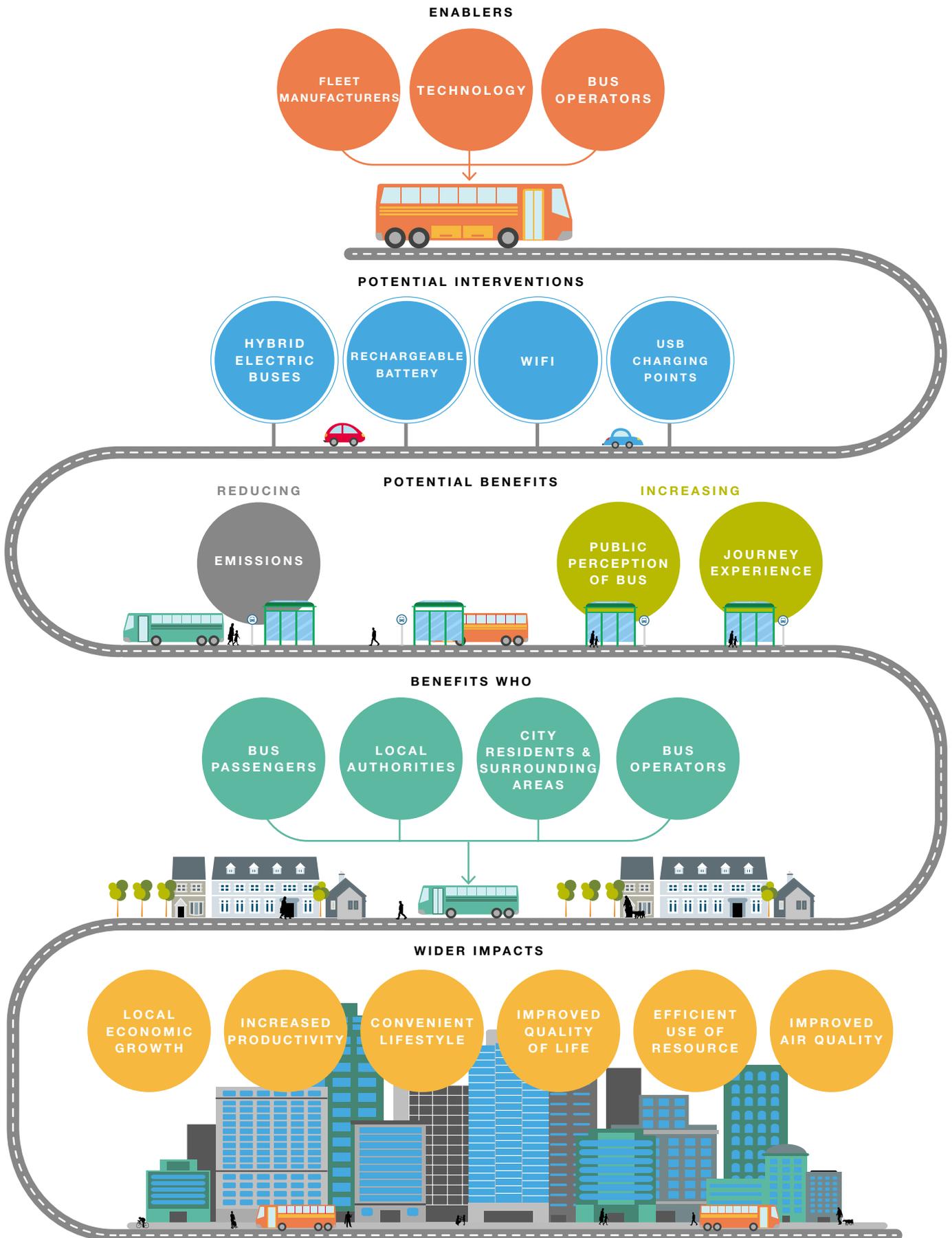
These measures will relieve the congestion in the city centre by reducing car use in central areas, which will consequently improve air quality. This will also increase bus patronage and reverse the declining trend in bus use.



Derby city centre badly connected for car users

Improvement of park and ride signage and frequency

3.4 Vehicle / Fuel



Proposal: Eco Buses

LIVERPOOL CITY REGION



CONTEXT / PROBLEM

After a £21million investment, Arriva North West has cemented its commitment to the environmental green agenda by adding 51 Double Deck Hybrid buses to its fleet.

SOLUTIONS

Arriva's new buses are hybrid electric buses with rechargeable batteries. The buses emit 25% less emissions than standard buses.

The buses also provide free onboard Wi-Fi and USB charging points for those travelling on routes from Croxteth and Halewood to the city centre, keeping passengers connected every stop of the way.

BENEFITS

This will improve air quality, supporting Liverpool's ambitions to create a low carbon economy and contributing to Arriva's environmental goals to reduce the operator's impact on the planet's resources. Wi-Fi and USB charging points will make bus journeys more convenient and attractive, contributing to improved life quality of users.



£21million investment secures 51 Double Deck Hybrid buses

25% less emissions than standard buses

Proposal: Eco Buses

BRISTOL



CONTEXT / PROBLEM

Looking after the environment and air quality agendas in Bristol city centre with frequent bus services running every 10 minutes.

SOLUTIONS

The new buses, fitted with stop-start technology will be in operation across the Greater Bristol area and will be low-emission linking to improvements in air quality.

BENEFITS

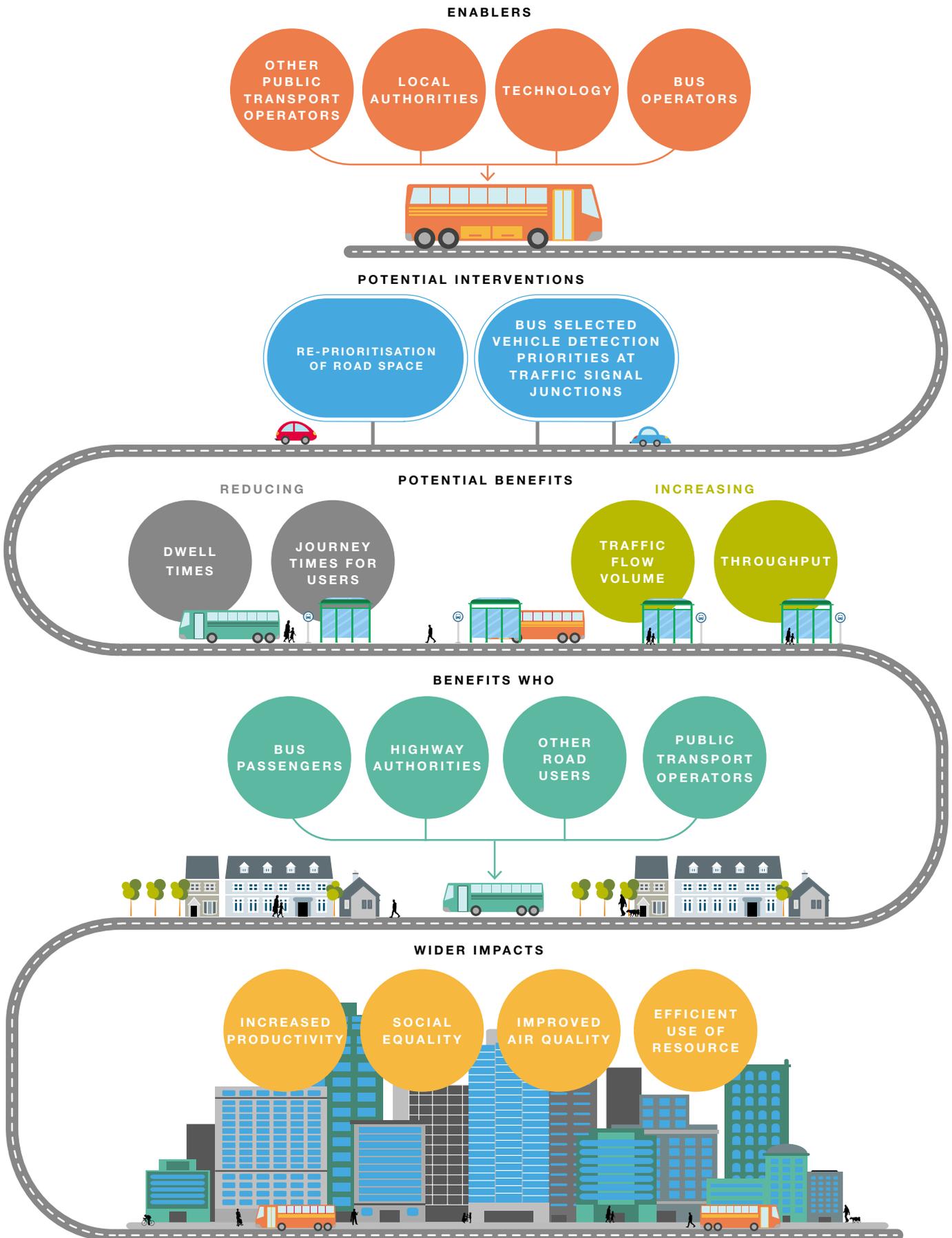
The new buses will mean by 2019, more than half of First's fleet of buses in the Bristol and Bath area will be low-emission or low-carbon.



low-emission or low-carbon by 2019

Stop start technology

3.5 Operational



Proposal: Integrated Traffic Control Centre



WEST YORKSHIRE COMBINED AUTHORITY (WYCA)



CONTEXT / PROBLEM

Communications between partners involved in the running of the WYCA bus network could be improved. The operators don't always get alerts on short-notice highway works being carried out for instance, which can sometimes cause delays on our network.

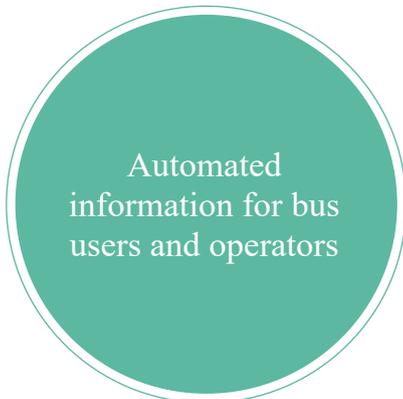
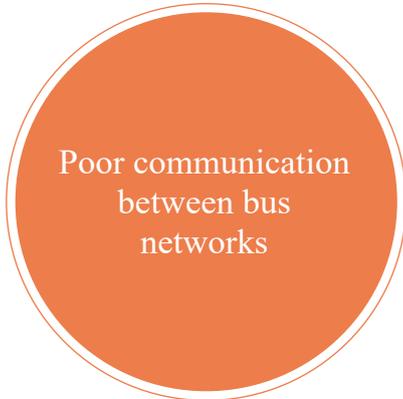
There is already a work stream within the Leeds Public Transport Investment Programme which is looking at a Leeds version of this, which could potentially be scaled up. All 18 bus operator partners are very keen for this to progress at a West Yorkshire level.

SOLUTIONS

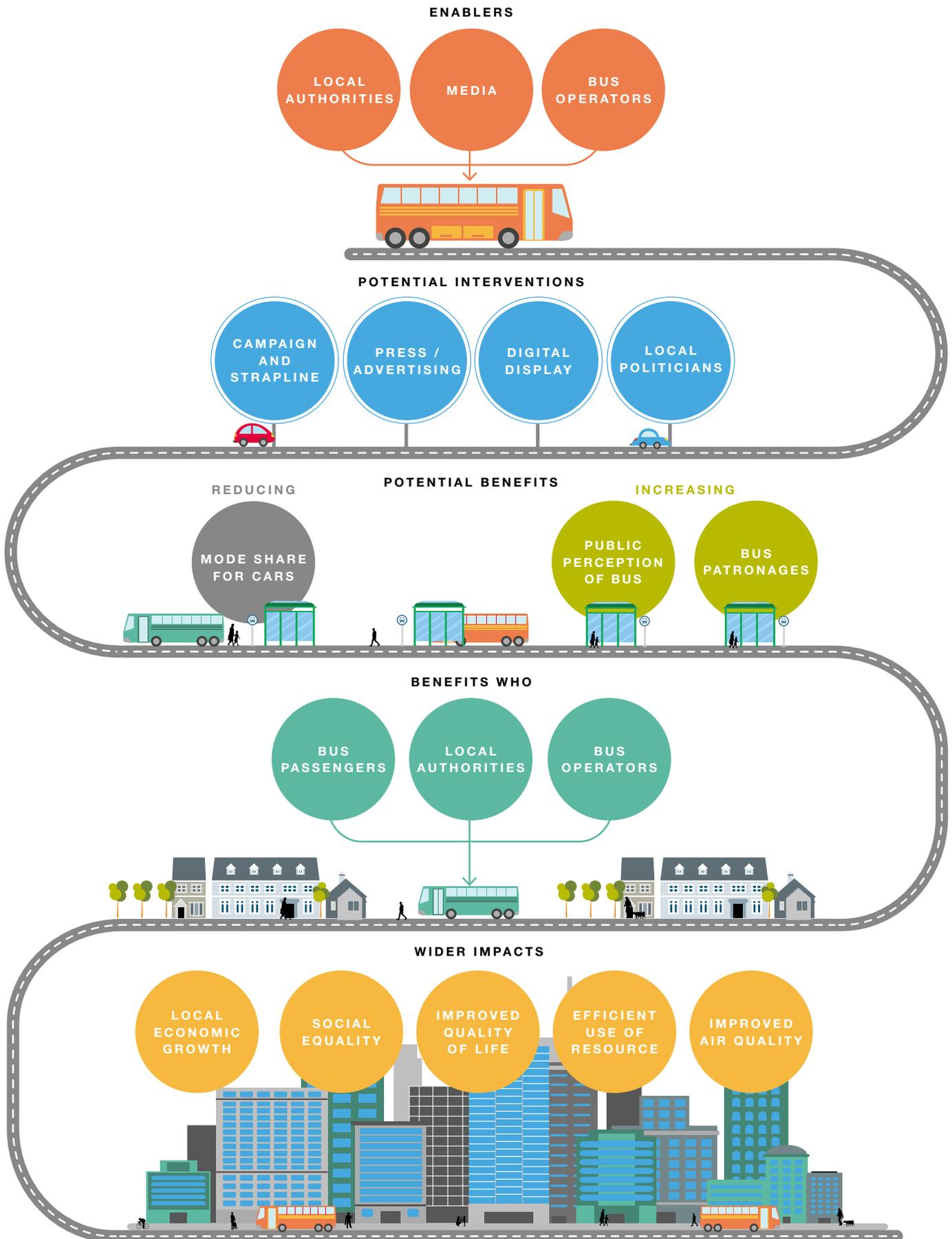
An integrated traffic control centre for the West Yorkshire region, with representatives from all agencies and bus operators. There should be a focus on prioritising public transport. Automated processes for informing bus users across all operators of disruption or delays could be put into place to help build trust in bus services.

BENEFITS

Transformational effect on journey times and reliability. Benefits for cities other than Leeds within the region.



3.6 Campaign



Example: Catch the Bus Week

GREENER JOURNEYS



CONTEXT / PROBLEM

Catch the Bus Week – spearheaded by Greener Journeys – aims to raise awareness of the vast economic, environmental and social benefits of taking the bus. The initiative, now in its 6th year, urges passengers, bus operators and local authorities to work together to encourage the switch from car to bus.

SOLUTIONS

The week marked a special opportunity for these groups to join together to celebrate sustainable travel choices, as well as raising awareness and promoting the benefits of catching the bus nationwide.

BENEFITS

In 2017, a staggering 400 stakeholders got behind the week as well as 35 MPs and local politicians. Activities took place across the country to celebrate the benefits of the bus, including competitions, regional bus tours and bus selfies with the famous Catch the Bus Week giant green hands.



Encouraging the switch from car to bus

400 stakeholders and 35 MPs backed initiative

Example: Arriva Merseyside Green Day

LIVERPOOL CITY REGION



CONTEXT / PROBLEM

To celebrate the arrival of Merseyside's new eco buses, Arriva hosted Green Day on 11th April 2017.

SOLUTIONS

Passengers were offered 50 per cent off all-day tickets bought via M-Ticket. Passengers got a chance to win 1 of 5 £100 gardening vouchers by taking a picture of themselves on a new Arriva hybrid bus and sharing in social media. Furthermore, Radio City celebrated the event by lighting the Tower green during the evening of 10th April. Arriva/Radio City goodie bag was provided for those sending a picture of the tower in green.

BENEFITS

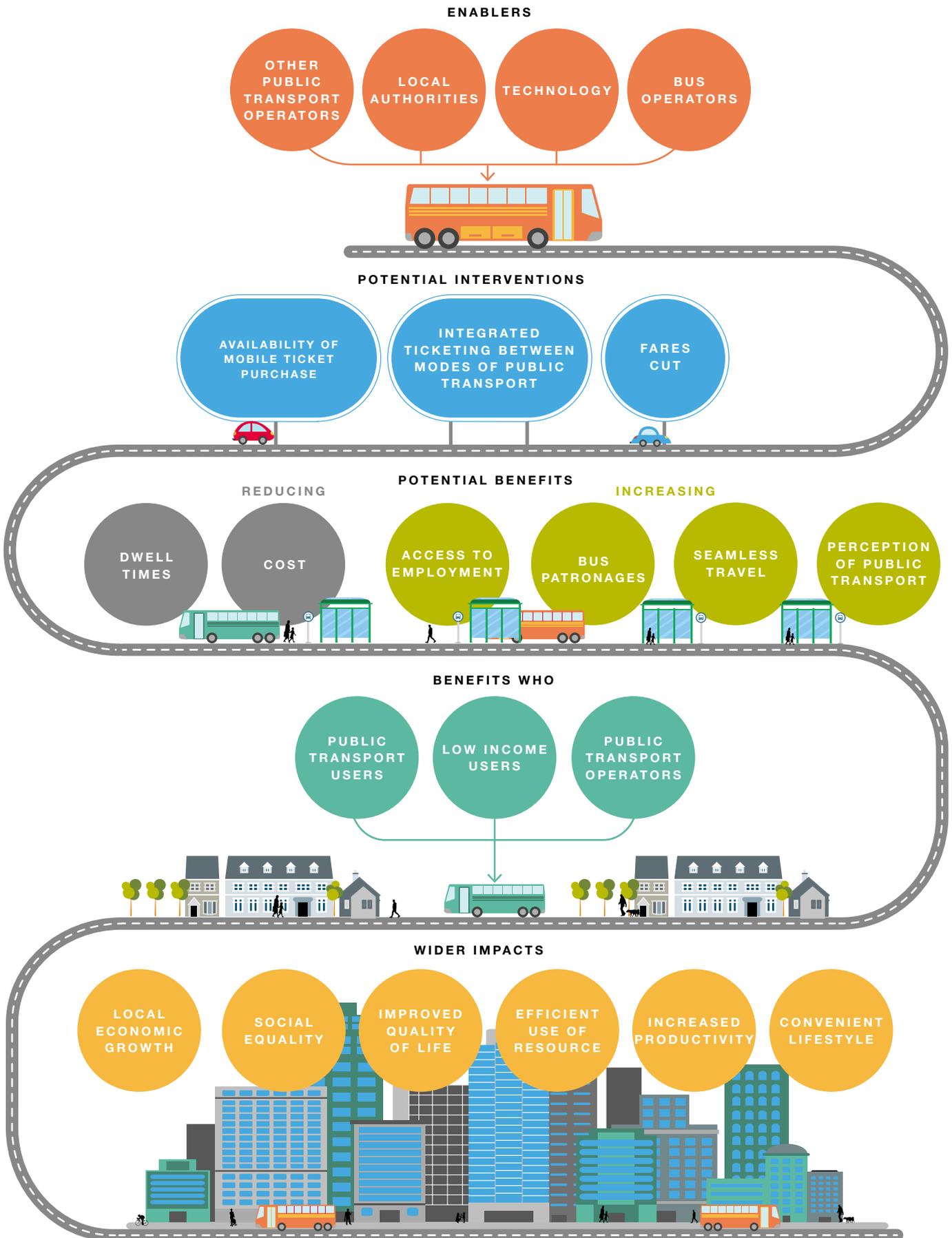
This will increase bus patronage and improve public perception on bus.



50% off all-day tickets bought via M-Ticket

Radio City celebrated event

3.7 Tickets and Fares



Example: Sandwell and Dudley low-fare zone

WEST MIDLANDS – THE BLACK COUNTRY



CONTEXT / PROBLEM

The Black Country found that their public transport fare system is not aligned well with travel patterns of the area and competitive with car use due to plenty of cheap or free car parks. In this context, a substantial price promotion was implemented onto the southern half of the Black Country - Sandwell and Dudley.

SOLUTIONS

All the prices are cheaper if bought on their mobile app, to encourage speedier ticket-buying that doesn't impact on dwell times. The price for an adult Day

Saver available in the zone, all day has changed to £3 cash and £2.80 on mobile from £4.60 (a saving of 35%).

For regular passengers, the new 4-weekly travel card is £40 cash, £38 on mobile. £198 per year can be saved by switching to a new travel card.

BENEFITS

This scheme has tackled declining bus patronage. The total fare cut grows patronage by 5.6% and support local neighbourhoods - travelling more often and making more local shopping. This enhances the local economy.

There are approximately 4,000 extra bus journeys each day in Sandwell & Dudley after introducing the £3 daysaver.

67% of customers surveyed by TfWM said they were making more journeys as a result of the cheaper tickets.

Almost two thirds of these journeys were shopping.

Fully 50% of these journeys simply weren't made before. The low fares are getting new people to travel by public transport to visit our local high streets - good news for the local town centre.



Cheap/
free car parks
disincentivising
public to use
bus

Savings of 35%
on public
travel fare

Proposal: Single ticketing platform

EXETER



CONTEXT / PROBLEM

As population density is growing and to provide improved sustainable modes of transport, there is a need for single ticketing system in Exeter.

SOLUTIONS

Smart single ticketing platform will provide simple zoning system and range of products.

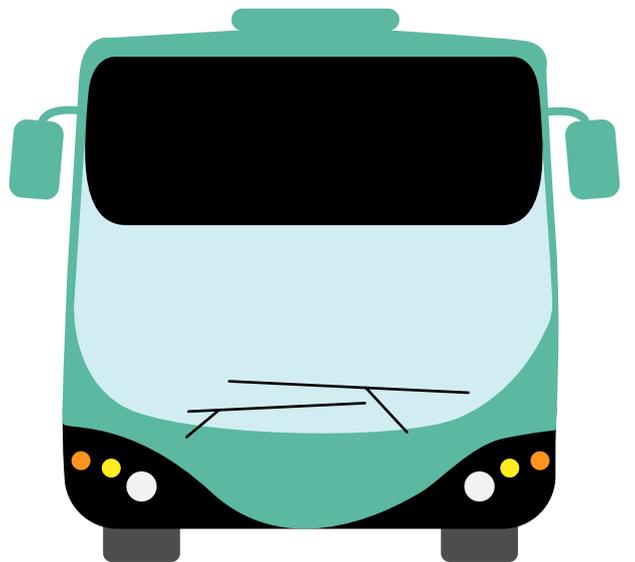
BENEFITS

This will encourage sustainable travel behaviours by enabling seamless multimodal travel and improving journey experience.



Population
growth leads
to an urgency
of facility
improvements

Simple zoning
measures



We shape a better world

Contact

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