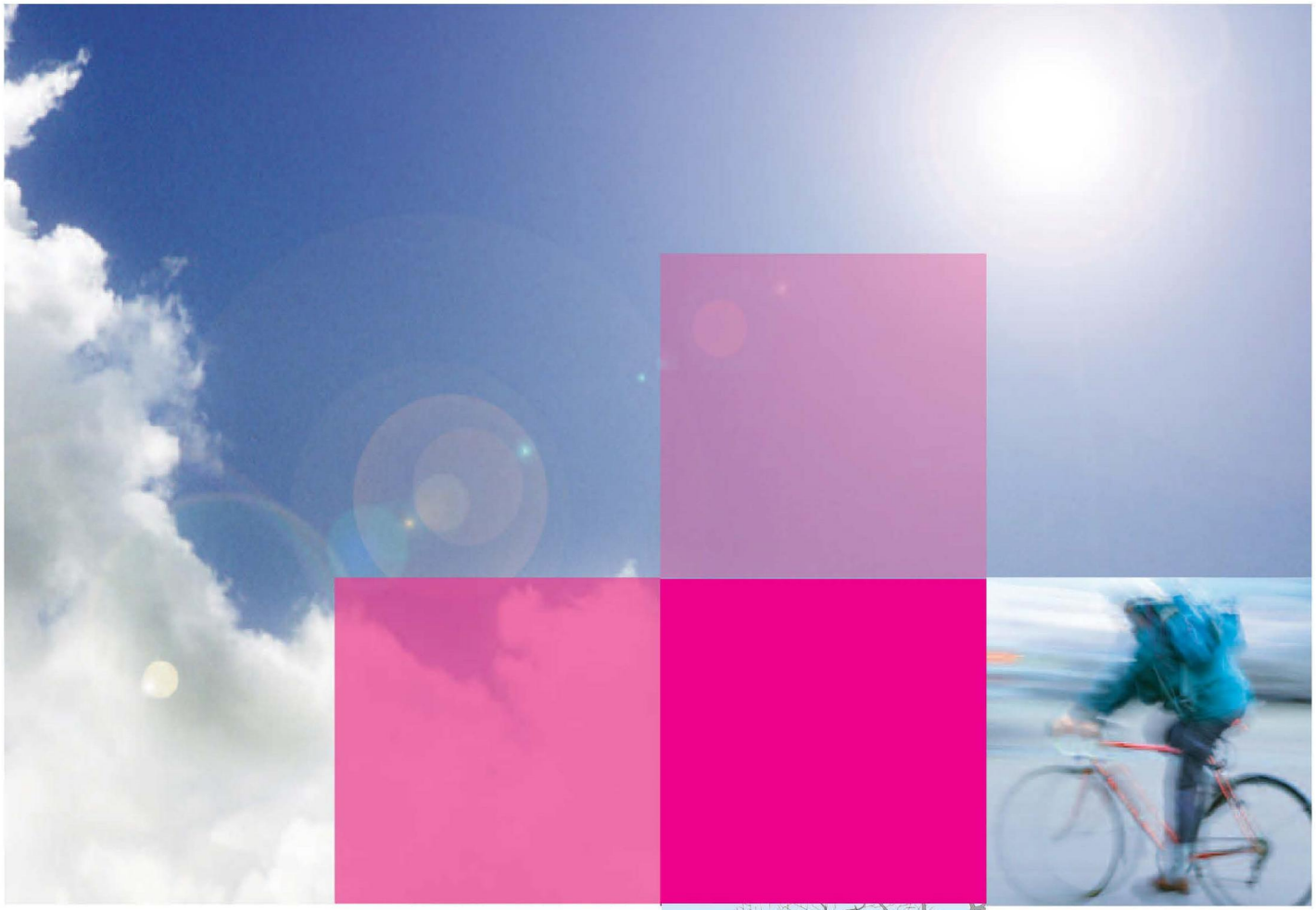

Annex 12

Evaluation Plan

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Bath & North East Somerset, Bristol, North Somerset and South Gloucestershire Councils
working together to improve your local transport

West of England MetroBus Network
Evaluation Plan
September 2014

Contents

1 Introduction

The MetroBus network proposals represent a substantial investment in the transport network by the Department for Transport (DfT) and the West of England councils.

There is a need to demonstrate that this scale of investment is accountable, provides value for money, and enables lessons to be learned from the delivery of the schemes to inform future decision making.

Providing an evaluation plan is necessary to demonstrate that the proposals meet their objectives effectively and represent a robust intervention consistent with national and local transport policies and needs. The submission of an evaluation plan is therefore a condition for the DfT to grant Full funding Approval for major transport schemes.

The three MetroBus schemes in the West of England are:

- The Ashton Vale to Temple Meads (AVTM) and Bristol city centre rapid transit scheme;
- The North Fringe to Hengrove Package (NFHP); and
- The South Bristol Link (SBL)

Whilst the three schemes are individual projects, they are being promoted as a programme, and evaluation will be undertaken under a common framework to take account of this.

1.1 The Evaluation

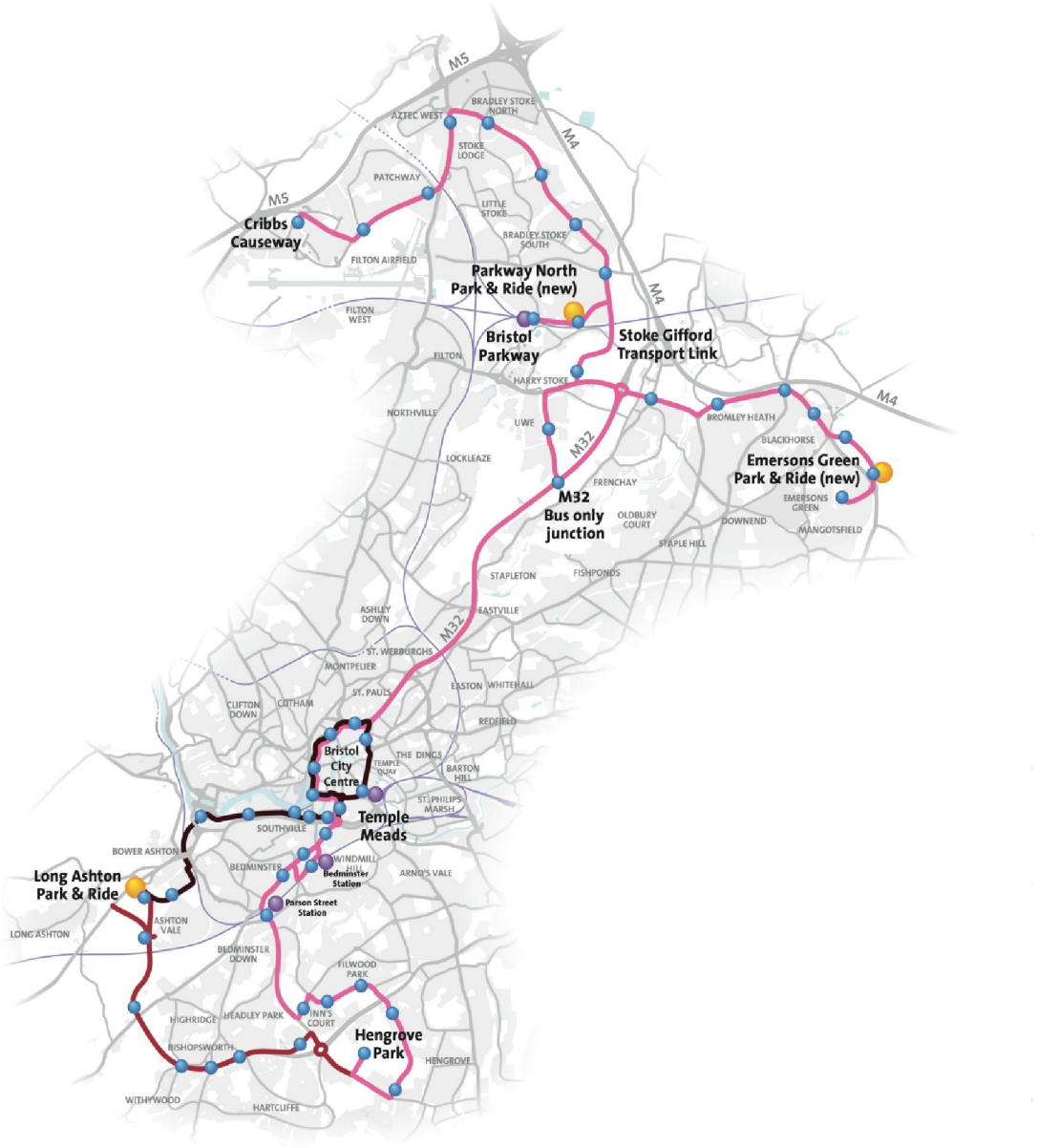
This is the programme-wide Evaluation Plan for the West of England MetroBus Network. Primarily, it sets out what performance measures will be assessed, and the information and associated collection methods and timescales, which will be assembled to demonstrate how effective the investment has been. The plan follows DfT guidance, and is structured as follows:

1. Scheme background and context
2. Scheme objective and outcomes (including logic map for each scheme)
3. Evaluation objectives and research questions
4. Evaluation approach
5. Data requirements and Collection Methods
6. Resourcing and governance

7. Delivery plan
8. Dissemination plan

2 Scheme background and context

The West of England MetroBus network is made up of three distinct projects that each provides a geographically discrete element of the overall scheme. The projects will provide a 50 kilometre bus rapid transit network, linking the key economic and employment centres, regeneration and development areas in the Greater Bristol area, and is forecast to carry over 20,000 passengers per day. The network is illustrated below:



In addition to this provision of the transport infrastructure, programme-wide measures will be applied uniformly across the network, including the provision of high quality bus stops and interchanges, Real-Time Information (RTI), new shelters, marketing and branding, and new, low emission vehicles.

The AVTM scheme provides a largely segregated public transport route to improve journey times and reliability between the Long Ashton park and ride site and the city centre. The segregated bus-way will also provide for background bus services from further afield to take advantage of these benefits along their final approach to the city centre.

The SBL will extend the AVTM MetroBus route via a new single carriageway road (with bus lanes along some sections) into Hengrove Park, will relieve traffic congestion at key hotspots in south Bristol, and will provide a much improved route for the Airport Flyer express bus service to Bristol Airport.

The NFHP will extend the MetroBus network over a considerably wider area, linking the North and East Fringes of the city region with Bristol city centre and south Bristol, via the University of the West of England and a bus-only junction onto the M32. This scheme will also deliver significant public domain and bus interchange benefits in the central area.

2.1 Scheme costs

The overall MetroBus programme represents an investment, including study, bidding and claims costs of up to £200 million. This can broadly be split into scheme costs (excluding certain preparatory and claims costs) as follows:

- AVTM scheme - £47 million
- SBL - £43 million
- NFHP - £93 million

2.2 Delivery timeframe

Submission of Full Approval applications is scheduled to commence in June 2014 with the AVTM scheme. Construction of the network will commence in Autumn 2014, for completion by Summer 2017.

2.3 Wider delivery context

The West of England area is an area forecast to experience significant employment and population growth over the next twenty years. The area has high car ownership and experiences substantial levels of traffic congestion, particularly during peak

periods, on routes to and through Bristol city centre and Bristol's North and East fringes.

The MetroBus schemes emerged from comprehensive studies undertaken between 2002 and 2006, which identified packages of measures to address the impact on the transport network of traffic congestion arising from forecast housing and employment growth. A key part of the proposals was the delivery of a network of cross-city rapid transit routes, now known as MetroBus.

The schemes are designed to reduce car dependency by offering an attractive, rapid and reliable alternative to car use, linking employment, retail, education and leisure centres, particularly for trips to and from development areas where attractive public transport journey times by conventional bus and rail modes is difficult to provide.

In addition, the network is designed to enhance social inclusion, by improving connections between areas of deprivation in South Bristol and job opportunities in the city centre, the North and East fringe of Bristol.

The schemes have since been embedded in the Joint Local Transport Plan, and its successor (JLTP3), forming the backbone of the West of England transport major scheme programme. In particular, the schemes will build on the success of the Greater Bristol Bus Network (GBBN) launched in 2012, and also take account of the Local Sustainable Transport Fund (LSTF) investment, and forthcoming MetroWest passenger rail schemes, to form an integrated local public transport network for the West of England area.

The three schemes are free-standing projects which can be delivered separately. However, it has been agreed with the DfT that the schemes will be delivered as an integrated network. The evaluation of the schemes will take account of this through being undertaken to a common framework.

In addition, in order to draw out specific areas of evaluation interest in any one of the projects, a number of geographically or thematically-limited case studies are also proposed.

3 Scheme objectives and outcomes

3.1 Scheme objectives

A Vision statement for the MetroBus network was endorsed by the Joint Transport Executive Committee (JTEC) in December 2011:

The new MetroBus Network will be a higher quality experience; reliable, easy to use and understand, with modern vehicles and its own right of way.

The MetroBus will have clear information, fast boarding and `smartcard' ticketing linking with wider bus and rail services, creating a new way of travelling and be a catalyst for transforming public transport travel across the West of England area.

The Vision is reflected through the following MetroBus programme objectives, consistent with national, JLTP3 and scheme objectives:

1) To **reduce carbon emissions**, by extending the choice of transport modes, providing a rapid and reliable alternative to car use, and encouraging a shift to more sustainable travel patterns.

2) To **support economic growth**, by tackling congestion, facilitating regeneration, improving local and strategic transport links and helping to sustainably accommodate trips arising from forecast employment and housing development.

3) To **promote accessibility** and social inclusion, by improving access to job opportunities at key employment centres, development areas, and education, leisure, health and retail facilities, and providing a fully accessible system of vehicles, stops, interchanges and information.

4) To contribute to better **safety, security and health**, by reducing emissions across the highway network and promoting sustainable transport modes.

5) To **improve quality of life** and a healthy natural environment, by reducing transport emissions, providing sustainable travel modes and promoting equality of opportunity.

The scheme objectives are consistent with the programme and JLTP3 objectives. The primary objectives of each scheme are as follows:

AVTM

- Extend choice of transport modes for all, in particular for private car drivers, to encourage a shift to public transport.
- Promote sustainable development by providing high quality public transport links.
- Promote social inclusion by improving access to employment, retail, community, leisure and educational facilities.

SBL

- Facilitate regeneration and growth in South Bristol.
- Reduce congestion in South Bristol and adjacent areas of North Somerset.
- Improve accessibility from South Bristol to the city centre and to strategic transport links, including the national road network and Bristol Airport.

NFHP

- To support a buoyant economy, improve quality of life for sub-regional residents and improve local and national travel;
- To tackle congestion and encourage the shift to new forms of public transport and realise the associated economic, environmental, climate change, safety and health benefits; and
- To enhance the opportunities for regeneration and sustainable growth through the linking of areas of economic and housing expansion, promoting equality of opportunity and security through improved connectivity to education, employment, leisure, health and retail facilities.

In order to deliver these objectives and offer an attractive and competitive alternative to the private car, MetroBus is proposed to deliver the following scheme elements:

- Approximately 6 km of new highway;
- 2.5 km guided busway (two-way);
- Approximately 18 km of bus lane and unguided bus alignments (one-way);
- Approximately 10 km of new cycling infrastructure;
- Approximately 48 pairs of new or improved stops and interchanges;
- A fleet of around 50 new hybrid drive vehicles; and
- A reconfigured city centre interchange and public domain upgrade.

These outputs will provide the following outcomes:

- Attractive journey times, frequencies and improved reliability.

- Sufficient capacity to cater for peak passenger demand and future growth.
- High quality interchange facilities for a range of journey options feeding into the service, e.g. rail, car parking, bus stops, footpath links, cycle storage etc.
- Smart and integrated ticketing.
- Connectivity between origins and destinations within and beyond Bristol city centre.
- Opportunities for feeder bus services to also benefit from segregated routes.
- High levels of accessibility for infrastructure and vehicles.
- Where possible, good parallel walking and cycling facilities.
- Overall, an economically viable, affordable, deliverable and practical proposition for the councils, within an acceptable financial risk threshold.

3.2 Scheme outcomes and impacts

Leading directly from the scheme objectives, above, the projected outcomes of the MetroBus network can be divided into three sections: immediate, short-term, and medium-term. These are summarised in Table 3.1 below and outlined in more detail in the Logic Maps (figures 3.2 to 3.4).

Table 3.1 Outcomes and Impacts of the West of England MetroBus network

Programme Objective	Immediate	Short-term	Medium-term
1 – Reduce Carbon Emissions	Increased public transport patronage	Reduced car use, linked to wider council traffic management policies	Reduced carbon emissions in transport sector
2- Support Economic Growth	Increased capacity on the bus network, improving access to job opportunities	Reduced congestion on MetroBus routes and identified congestion hotspots	Accelerate job creation and regeneration sites, improved district centres
3 – Promote Accessibility	Better access to: • Bus network • Key employment sites • FE, HE, health, and retail facilities	increase in through public transport trips between key centres	Reduced unemployment in deprived wards
4 – Health	Better alternative to car use for some journeys, improvement to cycling and walking facilities	Increase public transport, walking and cycling trips	Reduced highway casualties, lower obesity, improved life expectancy
5 – Quality of Life	Improved journey times (duration) and	Reduction in Nitrogen Dioxide levels in	Improved access to job and leisure

	bus reliability, increase in cycling and walking	Bristol's Air Quality Management Area (AQMA)	opportunities, improvement in life expectancy and quality

3.3 Logic maps

Logic maps have been provided for each scheme as well as an overarching logic map detailing how the objectives of each scheme fit with the programme objectives.

The objectives and logic maps provided in Figures 3.1, 3.2, 3.3 and 3.4 are underpinned by the following Theory of Change:

> *The MetroBus programme will provide a step change in the quality and reliability of public transport in the West of England. Features such as modern vehicles, high quality waiting environments, and clear information, combined with improved reliability and journey times, will give confidence to local people that the system provides a credible alternative to the car. Through improving local connectivity, reducing car dependency, and congestion, the network will support employment growth, increase productivity, and reduce carbon emissions.*

Figure 3.1

Programme Objectives

To **Reduce Carbon Emissions**, by extending the choice of transport modes, providing a rapid and reliable alternative to car use and encouraging a shift to more sustainable travel patterns

To **Support Economic Growth**, by tackling congestion, facilitating regeneration, improving local and strategic transport links and helping to sustainably accommodate trips arising from forecast employment and housing development

To **Promote Accessibility** and social inclusion, by improving access to job opportunities at key employment centres, development areas, and education, leisure, health and retail facilities, and providing a fully accessible system of vehicles, stops, interchanges and information

To contribute to better **safety, security and health,** by reducing emissions across the highway network and promoting sustainable transport modes

To **improve quality of life** and a healthy environment, by reducing transport emissions, providing sustainable travel modes and promoting equality of opportunity

Scheme Objectives

AVTM

- **Extend choice of transport modes for all, in particular for private car drivers, to encourage a shift to public transport**
- **Promote sustainable development by providing high quality public transport links**
- **Promote social inclusion by improving access to employment, retail, community, leisure and educational facilities**

SBL

- **Facilitate regeneration and growth in South Bristol**
- **Reduce congestion in South Bristol and adjacent areas of North Somerset**
- **Improve accessibility from South Bristol to the city centre and to strategic transport links, including the national road network and Bristol Airport**

NFHP

- **To support a buoyant economy, improve quality of life for sub-regional residents and improve local and national travel;**
- **To tackle congestion and encourage the shift to new forms of public transport and realise the associated economic, environmental, climate change, safety and health benefits**
- **To enhance the opportunities for regeneration and sustainable growth through the linking of areas of economic and housing expansion, promoting equality of opportunity and security through improved connectivity to education, employment, leisure, health and retail facilities**

Ashton Vale to Temple Meads Scheme Logic Map

Figure 3.2

Scheme Context

The West of England is a key economic centre accounting for 26% of the South West economy. However, the local transport infrastructure has not kept pace with the economic expansion and the sub-region experiences:

- High car dependency
- Acute congestion and associated poor air quality in some locations
- Unreliable journey times
- Significant pockets of deprivation with limited access to jobs, healthcare and other facilities

The authorities intend to deliver a network of new rapid transit services to help address these problems and facilitate growth.

The AVTM scheme forms part of a package of complementary transport improvements that are central to delivering the Joint Local Transport Plan 2011- 2026 (JLTP3).

Inputs & Activities

Inputs:

- DfT grant - £34.51m
- Local contribution - £12.76m
- Additional operator investment

Activities:

- Officer time developing & delivering the programme
- Input from specialist advisors
- Input from elected members
- Contractor time delivering construction works, installing shelters and new equipment
- Operator time developing plans & implementing the new network
- Communications and marketing activities

Outputs

- 2.5 km guided busway (two-way)
- 3 km new or improved bus or priority vehicle lanes
- 2 km new cycling infrastructure
- 16 new pedestrian crossings
- 10 new or improved pairs of stops with lighting, CCTV and RTI
- Fleet of approximately 10 hybrid drive vehicles(shared with SBL) with on-board WIFI
- New drivers recruited and trained
- New rapid transit services (peak period headway):
  - ~ Ashton Vale to Temple Meads (6 minutes)

Outcomes

Immediate

- Delivery of improved public transport infrastructure
- Increased capacity, improved journey times (duration), journey time reliability and bus punctuality, job opportunities
- Better access to:
  - ~ Bus network
  - ~ Key employment sites
  - ~ FE, HE, health & retail facilities
- Better alternatives to car use, improvement to cycling and walking links

Short term

- Residents utilise the new network (including private car users- modal shift to more sustainable modes, and linked to council traffic management policies)
- Increased patronage on the bus network and on through public transport trips between key centres
- Increase in walking and cycling trips
- City Centre and Enterprise Zone regeneration

Medium term

- Reduced carbon emissions from the transport sector
- Accelerate job creation and regeneration sites, improved district centres
- Reduced highway casualties, lower obesity, improved life expectancy
- Improved access to job and leisure opportunities, improved life expectancy and quality

Scheme Objectives and Impacts

- **Extend choice of transport modes for all, in particular for private car drivers, to encourage a shift to public transport**
- **Promote sustainable development by providing high quality public transport links**
- **Promote social inclusion by improving access to employment, retail, community, leisure and educational facilities**

Impacts are consistent with the Programme objectives (see Figure 3.1) and the key goals of the West of England JLTP3, which identifies a vision for:

"An affordable, low carbon, accessible, integrated transport network to achieve a more competitive economy and better connected more active and healthy communities".

Theory of Change: The MetroBus programme will provide a step change in the quality and reliability of public transport in the West of England. Features such as modern vehicles, high quality waiting environments and clear information, combined with improved reliability and journey times will give confidence to local people that the system provides a credible alternative to the car. Through improving local connectivity, reducing car dependency and congestion, the network will support employment growth, increase productivity and reduce carbon emissions.

North Fringe Hengrove Package Logic Map

Figure 3.3

Scheme Context

The West of England is a key economic centre accounting for 26% of the South West economy. However, the local transport infrastructure has not kept pace with the economic expansion and the sub-region experiences:

- High car dependency
- Acute congestion and associated poor air quality in some locations
- Unreliable journey times
- Significant pockets of deprivation with limited access to jobs, healthcare and other facilities

The authorities intend to deliver a network of new rapid transit services to help address these problems and facilitate growth.

The NFHP scheme forms part of a package of complementary transport improvements that are central to delivering the Joint Local Transport Plan 2011- 2026 (JLTP3).

Inputs & Activities

Inputs:

- DfT grant - £51.10m
- Local contribution - £41.84m
- Additional operator investment

Activities:

- Officer time developing & delivering the programme
- Input from specialist advisors
- Input from elected members
- Contractor time delivering construction works, installing shelters and new equipment
- Operator time developing plans & implementing the new network
- Communications and marketing activities

Outputs

- 1.6 km new road
- 13 km new or improved bus or priority vehicle lanes
- 4 km new cycling infrastructure
- 36 pairs new or improved stops with lighting, CCTV and RTI
- Fleet of approximately 40 hybrid drive vehicles with on-board WIFI
- New drivers recruited and trained
- New rapid transit services (peak period headway):
  - ~ North Fringe to Hengrove Park (via Bristol City Centre) (10 minutes)
  - ~ Bristol Parkway to Emersons Green (20 minutes)
  - ~ Emersons Green to Hengrove Park (via Bristol City Centre) (20 minutes)

Outcomes

Immediate

- Delivery of improved public transport infrastructure. Bus only junction onto M32. M32 inbound bus lane. City centre public transport interchange
- Increased capacity, improved journey times (duration), journey time reliability and bus punctuality, job opportunities
- Better access to:
  - ~ Bus network
  - ~ Key employment sites
  - ~ FE, HE, health & retail facilities
  - ~ Rail
- Better alternatives to car use, improvement to cycling and walking links

Short term

- Residents utilise the new network (including private car users- modal shift to more sustainable modes, and linked to council traffic management policies)
- Reduced congestion on MetroBus routes and identified congestion hotspots
- Increased patronage on the bus network and on through public transport trips between key centres
- Increase in walking and cycling trips

Medium term

- Reduced carbon emissions from the transport sector
- Accelerate job creation and regeneration sites including City Centre, Enterprise areas and UWE expansion.
- Access to job opportunities in City Centre, North and East Fringe.
- Improved access to job and leisure opportunities, improved life expectancy and quality

Scheme Objectives and

- **To support a buoyant economy, improve quality of life for sub-regional residents and improve local and national travel**
- **To tackle congestion and encourage the shift to new forms of public transport and realise the associated economic, environmental, climate change, safety and health benefits; and**
- **To enhance the opportunities for regeneration and sustainable growth through the linking of areas of economic and housing expansion, promoting equality of opportunity and security through improved connectivity to education, employment, leisure, health and retail facilities**

Impacts are consistent with the Programme objectives (see Figure 3.1) and the key goals of the West of England JLTP3.

Theory of Change: The MetroBus programme will provide a step change in the quality and reliability of public transport in the West of England. Features such as modern vehicles, high quality waiting environments and clear information, combined with improved reliability and journey times will give confidence to local people that the system provides a credible alternative to the car. Through improving local connectivity, reducing car dependency and congestion, the network will support employment growth, increase productivity and reduce carbon emissions.

South Bristol Link - Logic Map

Figure 3.4

Scheme Context

The West of England is a key economic centre accounting for 26% of the South West economy. However, the local transport infrastructure has not kept pace with the economic expansion and the sub-region experiences:

- High car dependency
- Acute congestion and associated poor air quality in some locations
- Unreliable journey times
- Significant pockets of deprivation with limited access to jobs, healthcare and other facilities

The authorities intend to deliver a network of new rapid transit services and infrastructure improvements to help address these problems and facilitate growth.

The South Bristol Link forms part of a package of complementary transport improvements that are central to delivering the Joint Local Transport Plan 2011-2026 (JLTP3).

Inputs & Activities

Inputs:

- DfT grant - £27.64m
- Local authority contributions- £12.26m
- Third party contributions- £3.19m
- Additional operator investment

Activities:

- Officer time developing & delivering the programme
- Input from specialist advisors
- Input from elected members
- Contractor time delivering construction works, installing shelters and new equipment
- Operator time developing plans & implementing the new network
- Communications and marketing activities
- CPO Public Enquiry

Outputs

- 4.5 km new road

  700m busway (two-ay)
- 2.6 km new or improved bus or priority vehicle lanes
- 4.5 km new cycling infrastructure
- 6 new pedestrian crossings
- 5 new or improved pairs of stops with lighting, CCTV and RTI
- Fleet of approximately 10 hybrid drive vehicles (shared with AVTM) with on-board WIFI
- New rapid transit services (peak period headway):
  - ~ South Bristol Link (18 minutes)

Outcomes

Immediate

- Increased capacity, improved journey times (duration), journey time reliability and bus punctuality, job opportunities
- Better access to:
  - ~ Bus network
  - ~ Key employment sites
  - ~ FE, HE, health & retail facilities
- Better alternatives to car use, improvement to cycling and walking links

Short term

- Reduced congestion on MetroBus routes and identified congestion hotspots to include Barrow Gurney, Hartcliffe Way / Parson Street, Winterstoke Road, Bedminster
- Increased patronage on the bus network and on through public transport trips between key centres
- Increase in walking and cycling trips

Medium term

- Accelerate job creation and South Bristol regeneration sites, improved district centres
- Increased employment opportunities in deprived wards
- Improved access to job and leisure opportunities, improved life expectancy and quality

Scheme Objectives and

- **Facilitate regeneration and growth in South Bristol**
- **Reduce congestion in South Bristol and adjacent areas of North Somerset**
- **Improve accessibility from South Bristol to the city centre and to strategic transport links, including the national road network and Bristol Airport**

Impacts are consistent with the Metrobus Programme objectives (see Figure 3.1) and the key goals of the West of England JLTP3, which identifies a vision for:

"An affordable, low carbon, accessible, integrated transport network to achieve a more competitive economy and better connected more active and healthy communities".

Theory of Change: The MetroBus programme will provide a step change in the quality and reliability of public transport in the West of England. Features such as modern vehicles, high quality waiting environments and clear information, combined with improved reliability and journey times will give confidence to local people that the system provides a credible alternative to the car. Through improving local connectivity, reducing car dependency and congestion, the network will support employment growth, increase productivity and reduce carbon emissions.

4 Evaluation objectives and research questions

4.1 Scope of the evaluation

As defined by the DfT, there are three tiers of monitoring and evaluation for major schemes – standard, enhanced, and fuller. Selected based on the scale of investment, the nature of the scheme, and the benefits to be identified from the evaluation evidence, the MetroBus network is required to undertake a fuller evaluation. This will add an assessment of the delivery process and value for money to the standard and enhanced evaluation elements.

The evaluation objectives shape the monitoring and evaluation activities. The key objectives for the evaluation to support the standard, enhanced and impact evaluation of the MetroBus schemes are as follows:

1. To provide evidence to justify the investment in the scheme, in order to strengthen accountability and support the case for future investment in the sub-region
2. To generate evidence about the network's performance and the extent to which its intended outcomes and impacts have been delivered
3. To examine aspects of programme delivery to improve future joint working between the authorities and provide lessons for future infrastructure schemes

It is important to ensure results are informative - ultimately this would be through strengthening accountability and demonstrating the authorities' capacity to deliver a good scheme (thereby enhancing their reputation and strengthening the case for future investment). Different stakeholders (politicians, residents, neighbourhood groups, employment groups, higher education providers and key delivery partners) will have different requirements from the evaluation, so that where possible attention needs to be paid to a range of priorities. Additionally, to obtain best value, the MetroBus evaluation will share data with related schemes such as LSTF.

<u>Economic evaluation (and external impacts)</u>

As a fuller evaluation, the MetroBus evaluation process will seek to value the benefits of the scheme, relate these to the out-turn costs, and compare this information with the costs and benefits presented in the business cases.

A review of studies assessing the wider economic impacts of transport schemes has been undertaken, learning from which has informed the suggested approach to this element of the impact evaluation. Assessing economic impacts is challenging, and it

is suggested that the schemes are framed as an enabler to growth – a necessary, but not the only, condition (enhancing public transport capacity/ accessibility in relation to the Enterprise Zone, for example, rather than *creating* jobs). An evaluation of the impact of the schemes on regeneration and job creation and the wider economic benefits of the scheme will be undertaken. Other less-obviously direct benefits could be assessed, including:

- Scheme construction (direct employment)
- benefits for walking and cycling (such as reduced morbidity arising from increased physical activity)
- Value of time savings on bus
- Value of reduced congestion
- Value of investment brought forward
- Improved access to employment opportunities

There are, of course, considerable wider economic conditions that will have an impact on scheme delivery and the post-delivery assessment periods, for which a commentary will be provided. Other external factors will also be referenced, such as the introduction of Residents' Parking Schemes; the Bristol-wide roll-out of 20mph schemes; incentives to growth introduced in particular areas that may increase patronage; and significant changes in terms of traffic management. Additionally, DfT forecasts of background road traffic growth will be relevant.

Outturn Appraisal Assumptions / Value for Money

The assessment of the extent to which the Value for Money impacts of the schemes are achieved would consider the core elements of the appraisal as described in the Full Approval Value for Money submission. This would consider both the core assumptions of the appraisal and the principal sources of benefits in the business case.

The preparation of the Business Case for each of the MetroBus schemes includes assumptions within the TUBA appraisal framework which influence the overall appraisal of the scheme. The extent to which the growth forecasts assumed within TUBA are achieved will have an influence on the actual or outturn performance of each scheme. Hence by monitoring national and local statistics the relationship between the assumptions and outturn values can be understood. The assessment will be based on national and local statistics as appropriate, including:

- Office for National Statistics – national monthly statistics on Gross Domestic Product, Retail Price Index;

- Department of Energy and Climate Change – national weekly statistics on road fuel prices; and
- Local bus and rail fares – based on First Group bus fares and local rail fares (using a weighting based on a basket of fares derived from regular contacts with operator).

As recorded on the TEE table, the principal benefits from each of the Metrobus schemes comprise benefits to:

- users of the scheme through journey time savings and reliability improvements
- users of the highway network, mainly through journey time savings but also reliability improvements, operating cost savings and accident reductions
- wider impacts on the economic performance of the local economy

Data collected as part of the monitoring process, and listed in Table 5.1, would form the basis of the appraisal.

Data on the journey times achieved by the service will be accessed through the Real Tim Information (RTI) system. The data will be analysed periodically to derive the average journey times and their distribution, to provide an indication of the journey time reliability. The operator will also be providing the patronage levels for the services to enable the number of passengers gaining the benefits to be included in the assessment. The services covered by the assessment of demand would not be restricted to the MetroBus services but would extend to services operating along the scheme, e.g. Airport Flyer for SBL/AVTM and North Somerset services for AVTM.

Satisfaction surveys of MetroBus passengers would also capture the previous mode used before the introduction of MetroBus for new passengers, which would enable the 'rule of a half' to be applied in deriving the benefits for passengers who switch modes.

The assessment of the journey time changes on the highway network would be based on periodic analysis of data from Trafficmaster to establish the average speeds and their variation along sections of the highway network to provide a measure of the changes in reliability of journey times. The network of traffic counts would be used to provide an indication of the volume of traffic experiencing the changes in journey times.

For the assessment of the monetary benefits from each category, the value of time assumptions from WebTAG would form the basis of the measurement, giving values

in 2010 prices and values. Similarly, the cost elements outlined below would be converted to 2010 prices and values to enable the calculation of the Benefit Cost Ratio.

The overall impact of the scheme in terms of the Benefit Cost Ratio, also includes the scheme costs:

- capital costs
- operating costs

The outturn capital costs would be obtained following the completion of the construction process. The operating costs of the scheme would be obtained from the operator chosen to operate the scheme.

The three MetroBus schemes have been designed to form a network of rapid transit services. As a result there is an overlap in the benefits that will be achieved. This is mainly related to the impact on the highway network in terms of the changes in the journey times and reliability of traffic on the network. For the individual MetroBus services, the benefits to the passengers using each individual scheme can be identified separately using the approach outlines above. However, distinguishing between the impacts of the individual schemes on the highway network will be a more complex issue. The three schemes will have differing impacts on the highway network. For example, the SBL scheme contains a significant highway element and hence there will be direct impacts on the highway network. The impact of the AVTM scheme on the highway network is mainly through changes in mode and hence is less immediate. The NFHP has a combination of new highway (in the form of SGTL) and public transport improvements, and therefore sits between SBL and AVTM. In order to identify the highway benefits that may be attributed to each of the three schemes, it is therefore proposed to allocate the sections of the highway network to each scheme on the basis of the major source of influence.

The stream of benefits and costs would discounted back to 2010 using the standard WebTAG discount rates, giving the rate of return for the first year of operation, first two years of operation, first three years of operation, etc.

Process evaluation

The MetroBus evaluation will seek to learn lessons from the experience of implementing the schemes, and assess whether the schemes have been delivered as intended. This will enable an understanding of how the schemes have influenced the outcome and impact results observed.

It is recommended that the approach taken regularly captures views about programme delivery and includes a more detailed exploration of some key areas of interest. Some of the data will be collected in-house, with external support appointed to undertake complementary qualitative research with key people, deliver a desktop review, and draw all of the evidence together to produce a stand-alone report that would inform the overarching evaluation report.

4.2 Questions that the evaluation will answer

As discussed in Section 3, it has been agreed that a logic map/ Theory of Change approach will be taken. This means mapping out the logic behind the intervention, producing a set of accompanying indicators to verify whether the change has occurred, and using a combination of methods to establish the reasons why change happened and the extent to which MetroBus contributed. Quantitative indicators cannot solely be used for such evaluation.

In considering attribution, MetroBus will be assessed alongside comparator areas or schemes. For example, patronage growth and passenger satisfaction will be benchmarked against GBBN (Greater Bristol Bus Network), JLTP3, LSTF and national levels, while journey times will be compared with what was previously available on the bus network (for end-to-end routes and between key destinations).

Standard evaluation

Proposed research questions for the standard evaluation are outlined below:

1. What lessons can we learn from the scheme build process?
2. How does the delivered scheme compare to that at the full approval stage?
3. How have cost estimates developed over time and in relation to the scope of the scheme?
4. How have the scheme objectives been met?
5. What form of transport would passengers have used otherwise?
6. Have the anticipated journey time savings and reliability improvements been achieved?
7. How has the scheme supported the economy?
8. What overall carbon impact does the scheme have?

Enhanced evaluation

1. What has been the effect on noise and air quality?

2. How do forecast and outcome accident changes compare?

Impact evaluation

Potential research questions for the impact evaluation are outlined below.

1. What changes can be observed in indicators for the MetroBus outcomes and impacts?
2. To what extent has the scheme contributed to these changes?
3. How have the outcomes/ impacts been distributed geographically? For example, what are the key patronage locations across the network? Are the journeys being made linked to employment growth locations? How do social characteristics of MetroBus users compare with the background network?
4. What external factors may have influenced performance against identified outcomes and impacts?
5. What can the research tell us about the drivers of bus user satisfaction and modal shift?
6. Overall, to what extent has MetroBus enhanced the local public transport bus network?

Economic evaluation

Potential research questions for the Economic Evaluation are outlined below:

1. How do the out-turn benefits compare with the business case appraisal?
2. What are the opening year outturn benefits?
3. What external factors may have influenced the economic evaluation result?
4. What is the potential net return of the scheme over the 60-year appraisal period?
5. How has the scheme impacted on regeneration and job creation?
6. What are the wider economic benefits of the scheme?
7. What is the evidence of how economic activity changes as a result of transport improvements?

Process evaluation

It is envisaged that process evaluation will include an independent review of process. Potential research questions for the process evaluation are:

1. How effective were the joint governance arrangements for the MetroBus schemes?
2. To what extent was the procurement approach appropriate and adhered to?

3. How were risks monitored and addressed in the preparation and construction periods (key examples of which could be drawn out as case studies)?
4. What lessons can be learnt from the way construction was managed and programmed?
5. How effective was the process of engaging with operators to achieve the desired quality uplift?
6. How effective was the process of engaging with key delivery partners to secure their buy in?
7. What were the main barriers to scheme delivery and how were they overcome?
8. How effective was scheme evolution in settling on the appropriate final design, including the impact of consultation on this process?
9. What lessons can be drawn from MetroBus to inform future delivery?

Case studies

A number of thematic case studies would enable topics to be explored which are of interest but where the ability to attribute changes to MetroBus may be complex and definitive answers not possible. This is a way of focusing resources on ensuring a robust approach to assessing the network performance indicators. The following studies are proposed:

- Employment growth in South Bristol delivered by the SBL
- Congestion impacts in South Bristol delivered by the SBL
- Congestion impacts within the North Fringe delivered by the Stoke Gifford Transport Link around Bristol Parkway station
- Modal shift employer case studies in North Fringe (utilising LSTF data, supplemented with additional research)
- The impact of public domain and interchange improvements in The Centre (part of the NFHP)
- Cycling improvements resulting from AVTM (programme of monitoring of cycle and pedestrian movements with new automatic counters, user intercept surveys, stakeholder consultations)

As well as forming part of the overall evaluation reports, these case studies could also be presented as stand-alone documents for a general audience.

5 Evaluation approach

5.1 Overarching evaluation approach and Analytical Techniques

The three schemes will be evaluated to a common framework. However, certain indicators may not be appropriate for all three schemes. Table 5.1 outlines which indicators will be selected to assess each scheme.

Table 5.1 illustrates the Objectively Verifiable Indicators (OVIs) that accompany the logic maps shown in Figures 3.2, 3.3 and 3.4. With regard to the network performance indicators, the following assumptions should be noted:

- Journey times - MetroBus will deliver shorter times between origins and destinations compared with the best option available previously on the background bus network
- Reliability - MetroBus will be more reliable than the background network
- Social inclusion has been removed from the logic model and indicators because of the high degree of overlap with Accessibility (assuming that the reference to social inclusion in the programme objectives relates to transport-related social exclusion). A robust, mixed-methods approach to Accessibility, exploring who has benefitted from the investment and for what trip purposes would cover social inclusion. An approach to Accessibility which is solely modelling based would not.

Table 5.1 Objectively Verifiable Indicators (OVIs) to accompany the Logic Map

STANDARD MONITORING Inputs	Rationale for inclusion	OVIs	Means of Verification	Scheme to be assessed
• DfT grant – £113m • Local authority contributions £65m • Third party contributions – £19m • And up to £15m operator investment	To establish how cost estimates developed over time and in relation to the scope of the scheme. Inputs should be confirmed/ investigated to support the value for money assessment and establish any reasons for over/ under spend.	• Full approval applications and grant award letters • Section 106 agreements • Operator investment confirmed in writing • Programme financial reports • Joint working agreements between the authorities	• Inputs/ costs monitored as part of routine programme management • Assessed via process evaluation	All
Activities	**Rationale for inclusion**	**OVIs**	**Means of Verification**	**Scheme to be assessed**
• Officer time developing and delivering the programme • Input from specialist advisors • Input from elected members • Contractors – design work, delivery of construction packages, installation of shelters, and equipment	To establish what lessons we can learn from the scheme build process. Activities should be reviewed to assess efficiency and effectiveness of delivery, understand why outputs were	Preparation period: • Programme Manual • Structure chart and job specifications • Strategies (Joint Promotion Strategies, communications strategy) • PIDs and meeting notes for working	• Activities monitored as part of routine programme management • Assessed via process evaluation	All

• Operators- development and delivery of the new MetroBus network • Communications and marketing activities	achieved/ not achieved and provide learning points for future programmes	groups, project boards, Programme Assurance Board • Progress reports • Gateway Review reports • Planning applications, TWAO application • Programme risk register Delivery (construction) period: • Tender documents and contracts • Stakeholder management plans • Contract management strategies • Risk registers • Implementation log Operations: • Making of Quality Partnership Scheme, including confirmed vehicle standard, fares and frequencies Communications & marketing:		

		• Launch activities • On-going marketing		
Outputs	**Rationale for inclusion**	**OVIs**	**Means of Verification**	**Scheme to be assessed**
• 6 km new road (two-way) • 2.5 km guided and un-guided bus-way (two-way) • 18 km new bus or Priority Vehicle lanes (one-way) • 10 km new cycling infrastructure (two-way) • Bristol Centre area redesign • 46 new or improved stops (pairs) • Fleet of around 50 new, high quality vehicles with hybrid drive • New MetroBus services (peak period headway): o AVTM- 6 minutes o NFHP core – 10 minutes o SBL – 18 minutes o Parkway to Emersons Green & E Green – Hengrove Park – 20 minutes	To establish how the delivered scheme compares to that at the full approval stage. Outputs should be reviewed to assess whether the programme delivered the intended infrastructure, service frequencies and level of quality uplift	• Defects statements/ certificates • Photographic evidence (before and after photos of infrastructure, equipment, new fleet) • Traffic volumes on new highway and comparative relief on other roads • Quality Partnership Scheme and Voluntary Agreement documents • Written confirmation from operator/s regarding new fleet (vehicle numbers and specification) • Publicly available timetables for the new network	• Delivery of outputs verified in-house • Assessment of whether outputs meet expected quality standards via impact evaluation (including passenger survey and stakeholder interviews)	All

Outcomes	**Justification (how the objectives of the scheme have been met)**	**OVIs**	**Means of Verification**	**Scheme to be assessed**
Increased capacity on the bus network	MetroBus is intended to support/ accommodate population and employment growth, therefore it should enhance network capacity to accommodate trips in a sustainable manner	• AM peak period public transport capacity – capacity for additional passengers per hour by the end of 2017 (assuming all MetroBus services running)	• Timetable data for MetroBus and background bus network • Number of vehicles required to provide headways	All
Improved journey times (duration), reliability	To establish if the anticipated journey time savings and reliability improvements have been achieved. These outcomes arise from new priority measures. They are central to the business case and are expected to be key drivers of	• Achievement of modelled journey time reductions at BAFB for AM peak, inter-peak, and PM peak periods • Minimum proportion of MetroBus services departing on time and higher proportion of services departing on time compared with the background network . Also	• Journey times – establish baselines using manually recorded times and a sampling approach or RTI data if available (average journey time for identified periods) • Comparison with existing bus journey times	AVTM, NFHP

	modal shift and a change in perceptions of bus travel: • Journey duration is a significant contributor to passenger dissatisfaction • Better punctuality is passengers' top priority for improvement • Journey times and bus reliability are more of a concern to people in the West of England compared with national average	intermediate timing points and average passenger waiting time.	• Reliability – use national indicator for bus reliability as above, using either RTI data and/or manually recording	
Improved accessibility to: • Bus network • Key employment sites • Further and higher education • Health facilities • Retail facilities	Through services proposed between South Bristol, city centre, North and East Fringe. New priority measures will reduce journey times to key	• Delivered service structure between north and south Bristol and access to Airport • Percentage of residents within walking distance of MetroBus service	• Modelling of accessibility pre and post implementation • Passenger surveys • Review of service frequencies,	NFHP, SBL

	destinations served by MetroBus. Interchange will be improved (e.g. city centre). MetroBus stops and vehicles will be more accessible for those with a range of disabilities and clear information will make the new network easier to use for everyone.	• Service frequencies on the bus network Bus fares (actual and passenger perceptions) • Potential for geo-specific case study e.g. access to employment for South Bristol residents	consultations with operators, • Number of through trips from south Bristol to the North and East Fringe	
Increased patronage on the bus network	MetroBus is intended to tackle congestion, and enable the transport network to accommodate trips from forecast development in a sustainable manner. Quality uplift will attract residents onto the new network, including some who previously used their private car for the journey.	• Patronage totals on MetroBus and the background bus network – MetroBus + bus modal share. • MetroBus users reporting modal shift from private car for that trip	• Annual boarding totals provided by MetroBus operators – comparison with modelled forecasts • Annual boarding totals provided by operators for background bus network • Review of changes in modal share (across all modes) • Modal shift – passenger surveys to estimate proportion of MetroBus	All

	To establish what form of transport bus passengers could have used otherwise		trips for which a car was available	
Improvements in passenger satisfaction indicators	Reduced journey times and quality uplift will increase passenger satisfaction with stop, vehicle, and overall journey	% passengers satisfied with: • Overall journey • Overall bus stop and vehicle quality • Bus reliability • Journey time • `dwell' time at stops • Interchange with bus and rail services	• MetroBus passenger survey delivered on vehicle (including mode shift) • Results benchmarked against GBBN, LSTF, West of England, and national level (Passenger Focus data)	NFHP, AVTM
Increase in walking/ cycling trips	New walking and cycling paths (notably along AVTM guideway, SBL, and SGTL) will enhance existing provision, complement WOE activity aimed at behaviour change, and help to encourage active travel	• Increase in cycling trips in proximity to new infrastructure • Potential for a case study approach looking specifically at AVTM, rather than across the three schemes?	• Footfall surveys at pre-specified locations • Data collected from existing and new automatic cycle counters • Data regularly monitored and benchmarked against rate of growth target and / or at West of England level • Estimation of economic value of additional walking/ cycling	AVTM, SBL

			• Potential for additional work re impact of new routes – e.g. user intercept surveys	
Improved air quality	AVTM and NFHP business cases suggested the schemes would lead to slight improvements in air quality. MetroBus identified in Bristol AQMA progress report (2013) as helping to reduce traffic levels in AQMAs	• Stretch target for reduced NO_2 emissions in central Bristol AQMA	• Data collected from existing automatic NO_2 monitoring sites	NFHP, AVTM
Reduced congestion at identified congestion hotspots	Modal shift to the bus will lead to reduced congestion	• Positive change across suite of scheme-specific congestion indicators • Alternatively – use of Trafficmaster data for the majority of the indicators and conduct a geo-focused case study e.g. congestion impacts in South Bristol • Value of reduced congestion	• Use of DfT Trafficmaster data (for speed/ journey times) and ATC data on identified roads	SBL, Stoke Gifford Transport Link

Impacts	**Justification**	**OVIs**	**Means of Verification**	**Scheme to be assessed**
Reduced carbon emissions	To establish what overall carbon impact the scheme has. Modal shift to the bus will reduce carbon emissions due to fewer car journeys and improved fuel economy for hybrid drive buses	• Reduced carbon emissions resulting from modal shift from private car to bus • Contribution to JLTP3 carbon reduction target – 16% reduction in per capita emissions from road transport by 2020 (2006 baseline of 1.35 tonnes)	• DeFRA / extrapolate data from passenger survey on modal shift/ journey length with associated carbon omissions applied	All
Economic growth	To establish how the scheme has supported the economy. By providing direct employment in construction, improving local transport links, and helping to accommodate trips arising from new jobs/ housing, MetroBus will	• Direct employment – economic impact arising from infrastructure construction • Economic output of MetroBus commuters • Contribution to bringing forward investment associated with additional GVA (through construction)	• Economic output of commuters – calculated using passenger survey data extrapolated (use income levels from survey or national data on bus users' income) • Floorspace / occupancy surveys • Bringing forward investment –	All

	help to sustain productivity and competitiveness and stimulate investment	Site-specific case study – South Bristol Link • Stakeholders report MetroBus / SBL has enhanced site suitability and sustainability and growth prospects	consultations with relevant developers and other stakeholders • Quantitative review of public transport capacity at employment sites, bus/ MetroBus patronage, floor-space, jobs growth • Pre/post modelling of journey times to the sites using public transport	
ENHANCED MONITORING **Inputs**	**Rationale for inclusion**	**OVIs**	**Means of Verification**	**Scheme to be assessed**
Better safety, security, health, and improved quality of life	To establish what has been the effect on noise and air quality. To identify how forecast and outcome accident changes compare. Reduced emissions and new walking/cycling provision will contribute	• Improved perception of personal safety at new stops • Increase of satisfaction with journey time and vehicle improvement indices in annual Quality of Life surveys	• Passenger survey delivered on vehicle, including question/s on perception of personal safety and security • Tie in with annual Quality of Life surveys to include questions on	All

	to better health and improved quality of life.	• Inclusion of benefits noted under air quality, walking and cycling • Inclusion of benefits from noise and accident evaluation – as required by DfT, but not part of logic map	satisfaction with bus/ MetroBus infrastructure	

The indicators proposed for carrying out the evaluation in line with the logic map provide a clear guide to the approach that needs to be taken. Please refer to this table alongside the other information in this chapter.

5.2 Impact evaluation

A suggested approach to the impact evaluation is given in Table 5.2.

Outcome/impact	Suggested approach
Increased capacity on bus network	• Consultations with operators • Timetable scrutiny
Improved journey times (duration), reliability and punctuality	• Bus reliability is a current national indicator, manual surveys of bus journeys • Alternatively, use of RTI system for specific routes to set robust baselines
Improved access to: • Bus network • Key employment sites • FE, HE, health, and retail facilities	• Accession / Track modelling • Passenger surveys • Review of frequencies and fares • Consultations with operators
Bus patronage and modal shift	• Analysis of MetroBus and background bus network patronage data, benchmarked against forecast patronage, GBBN, West of England and national levels • Passenger survey question on modal shift
Improvements in passenger survey indicators	• MetroBus passenger survey, benchmarked against GBBN, LSTF (via locally collected data) and West of England/ national level (via Passenger Focus survey)
Increase in walking/ cycling trips	• Introduction of new automatic counters, analysis of data • Potentially boosted through direct research with beneficiaries, e.g. user intercept surveys
Improved air quality	• Analysis of data from existing $N0_2$ monitoring sites
Reduced congestion on MetroBus routes and identified congestion hotspots	• Use of DfT Trafficmaster data (for speed/ journey times) and radar (BCC – for volume) on identified roads • Targeted assessment of links forecast to experience relief in South Bristol and around Parkway station
Reduced carbon emissions	• DEFRA / extrapolate data from passenger survey on modal shift/ journey length with associated carbon omissions applied
Economic growth	• Economic impact assessment of direct employment (construction) • Economic output of MetroBus commuters valued • Value of time regained calculated • Consultations with relevant developers and other stakeholders re bringing forward investment • Case study looking at impact on South Bristol
Accidents (Enhanced Monitoring requirement)	• Review of existing accident data for corridors and adjacent roads

Quality of Life	• Passenger survey, annual quality of life surveys

5.3 Economic Evaluation

A suggested approach to Economic Evaluation is provided in Tables 5.3, 5.4 and 5.5

Table 5.3

Economic Evaluation	
Research question	How has the scheme impacted on regeneration and job creation?
Summary of approach	Collation of statistics at annual intervals to measure the volume of economic activity
Scheme to be assessed	AVTM / NFHP / SBL
Main tasks and relevant detail	Collate the following data on an annual basis ▪ Number of planning requests received / granted for employment / housing ▪ New employment floorspace / new housing land in period ▪ Occupancy rates / turn around time / length of time premises are vacant ▪ Net additional jobs created and types of employment ▪ Indices of multiple deprivation ▪ New additional houses / number of affordable housing units
Task delivery manager	MetroBus Monitoring and Evaluation Lead
Measure or related measures	Quantitive measure of economic impacts on the corridor
Rationale for inclusion	Supporting Economic Growth is a strategic objective of the scheme
Value of main findings	Understand the impact on the economy of improving connectivity
Existing evidence	Baseline to be established
Data collection methods	Collation of local authority data
Sampling approach	Not applicable
Sample size	Not applicable
Frequency	Annual
Spatial coverage (use maps if need be)	With a specific focus on Enterprise Areas / Enterprise Zones within 800m of a Metrobus stop.
Risks and their mitigation	Impact of other contributing factors (mitigate by taking these into account)
Resource division (internal / external)	Data available within local authorities. Potential to commission external resource to report on data.
Timeframe for data collection	5 years after scheme opening
Deliverables including interim reports	Final report
Inter-relationship with other tasks	Relates to other research areas in the Economic Evaluation process. Potential to provide a case study.

Table 5.4

Economic Evaluation	
Research question	How has the scheme impacted on regeneration and job creation?
Summary of approach	Questionnaires and / or annual survey to local businesses asking about the impact of the scheme on local regeneration and growth and to Economic Development Officers about changes in developer interests.
Scheme to be assessed	AVTM / NFHP / SBL
Main tasks and relevant detail	▪ Questionnaire to be designed – potential to incorporate questions in existing survey ▪ Incorporate elements to establish perceptions about quality and impact on development, business expansion, inward investment, planning applications changes in developer interest ▪ Key stakeholders to be established ▪ Questionnaires to be sent out, results analysed and reported
Task delivery manager	MetroBus Monitoring and Evaluation Lead
Measure or related measures	Qualitative measure of economic impacts on the corridor
Rationale for inclusion	Supporting Economic Growth is a strategic objective of the scheme
Value of main findings	Understand the impact on the economy of improving connectivity
Existing evidence	None in advance of the scheme opening but can draw on existing employer surveys
Data collection methods	Questionnaire
Sampling approach	Not applicable
Sample size	Not applicable
Frequency	Annual
Spatial coverage (use maps if need be)	Focus on Enterprise Areas / Enterprise Zones within 800 metres of a Metrobus stop
Risks and their mitigation	Lack of stakeholder interest in participating (mitigate through early engagement and providing assurances)
Resource division (internal / external)	Potential to commission external resource to undertake this work.
Timeframe for data collection	5 years after scheme opening
Deliverables including interim reports	Final report
Inter-relationship with other tasks	Relates to other research areas in the Economic Evaluation process. Potential to provide a case study.

Table 5.5

Economic Evaluation	
Research question	What are the wider economic benefits of the scheme?
Summary of approach	Interview with key employers to identify the extent to which they have increased interaction / drawn staff / inputs from a wider labour market as a result of the scheme
Scheme to be assessed	AVTM / NFHP / SBL
Main tasks and relevant detail	▪ Key businesses to be established – potential to use those that we have already engaged with through scheme development ▪ Continued engagement with businesses through construction phase ▪ Interviews held 1 year and 5 years following scheme opening
Task delivery manager	Metrobus Monitoring and Evaluation Lead
Measure or related measures	Measure of economic impacts on the corridor
Rationale for inclusion	Supporting Economic Growth is a strategic objective of the scheme
Value of main findings	Understand the impact on the economy of improving connectivity
Existing evidence	None in advance of the scheme opening but businesses will hold information on their staff catchment area
Data collection methods	Interview
Sampling approach	Not applicable
Sample size	Not applicable
Frequency	1 year and 5 years following scheme opening
Spatial coverage (use maps if need be)	Focus on Enterprise Areas / Enterprise Zones and businesses engaged with through scheme development process.
Risks and their mitigation	Lack of stakeholder interest in participating (mitigate through early engagement and providing assurances about anonymity of findings)
Resource division (internal / external)	Potential to commission external resource to undertake this work
Timeframe for data collection	1 and 5 years after scheme opening
Deliverables including interim reports	Trends report 1 year after scheme opening. Final report 5 years after scheme opening
Inter-relationship with other tasks	Relates to other research areas in the Economic Evaluation process. Potential to provide a case study.

5.4 Process evaluation

A methodological approach to answering the process evaluation questions could include:

- Quarterly Project Manager and Network Co-ordinator online survey
- Desktop review of process-related data and documents
- Face-to-face interviews with Project Managers and other key officers at key points during the delivery programme
- Workshop(s) with Programme Assurance Board
- Online survey of contractors (from an early stage)
- Telephone interviews with work-stream leads, contractors and key delivery partners
- A review of the processes put in place for on-going maintenance and monitoring beyond the lifetime of the projects themselves

6 Data requirements and Collection Methods

6.1 Timetable for data collection

The Evaluation Plan requires the collection of 'before' data with which to compare 'after' data collected as part of/ following scheme delivery.

The JLTP3 already provides a framework for strategic data collection, including background bus patronage, road safety, congestion, air quality, cycling and rail patronage. Further use will be made of council-specific data collection undertaken on a routine basis to be representative of the 2014/15 baseline.

In addition, scheme-specific `before' data will be collected in July and/or September / October 2014, to also be representative of the 2014/15 baseline and immediately prior to the commencement of construction.

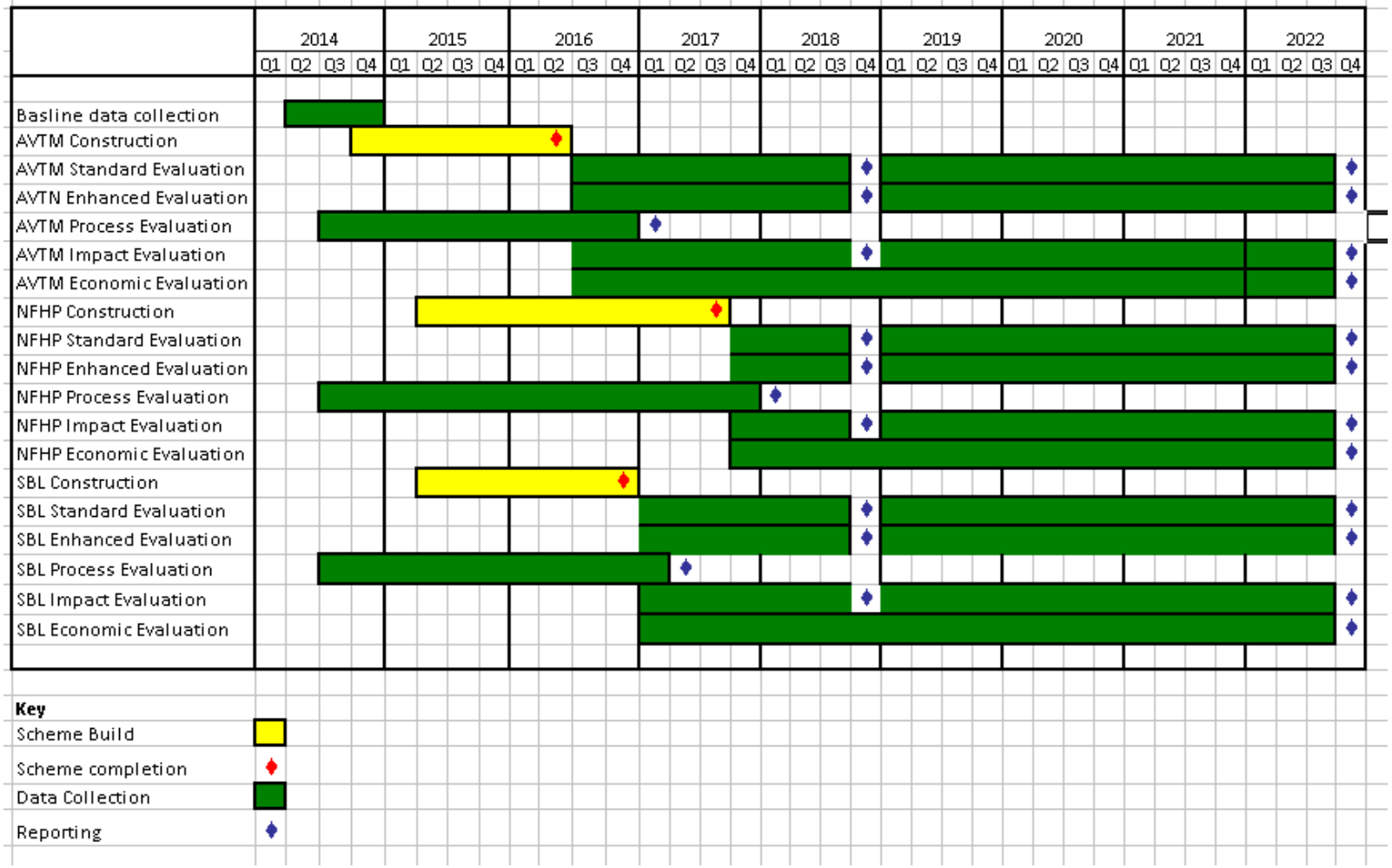
While many of the evaluation metrics will be monitored throughout the construction period and the overall lifetime of the project, there are two key dates for delivery to the DfT (on top of the baseline):

1. A 'One Year After' report that provides evaluation of the first year's operation of the scheme, delivered within two years of construction being completed
2. A 'Final Report', delivered within five years of scheme completion, to show whether the initial benefits have been retained or built upon

A project plan is provided in Figure 6.1

West of England Metrobus Network Monitoring and Evaluation Plan **Figure 6.1**

Project Plan



6.2 Types of data needed and frequency of collection

The emphasis will be on network wide evaluation and reporting of data although some data will be available on a scheme by scheme basis depending on the collection criteria. Table 6.2 identifies which data will be available, and presented, to attribute impacts at the scheme level and which will be attributable at programme level.

Process evaluation

The approach to the process evaluation given in the section 5 provides the basis for collecting the information, and is summarised in Table 6.1. Alongside an objective review of the processes in place and the data and documents produced, key members of the delivery team will be asked for their subjective views on how the processes outlined in the Programme Manual are being enacted as part of a 'live' project. Tracking changes in these views through the programme's many stages will provide valuable information.

Table 6.1 Requirements for the process evaluation

Data required	Means of verification	Frequency	Scheme
Programme Assurance Board's views	Workshop	Annually	All
Project Manager and Network Co-ordinator's views	On-line survey	Quarterly	All
	Face-to-face interviews	Annually	
Contractors' and operators' views	On-line survey	Quarterly	All
	Telephone interviews	Annually	
Workstream leaders' views	Telephone interviews	Quarterly	All
Review of process-related data and documents	Desktop review	Quarterly	All
On-going maintenance and monitoring	Desktop review of processes	Annually	All

Impact Evaluation

Working essentially as an extract of Table 5.1, Table 6.2, below, illustrates the types of data that the MetroBus evaluation's logic map requires for its Objectively Verifiable Indicators (OVIs). Also shown is the frequency with which the data will be required – almost all require a baseline of 'before' data, and most require this to be updated at both one and five years following scheme opening.

Table 6.2 Data requirements for the Objectively Verifiable Indicators (OVIs)

Phase of Logic Map	Means of verification	Frequency	Scheme	Data collection level
Inputs	Letters and other documentation	One-off collection at start		
Activities	Manuals, strategies, contracts, plans	Quarterly collection, part of programme management		
Outputs	Photographic proof of construction, written confirmation of operators' investment in vehicles and drivers	One-off collection at end of construction, then 1-yr and 5-yrs follow-up to confirm		
Outcomes				
Increased capacity	• Consultation with bus operators, timetable assessment	• Baseline, 1-yr, 5-yrs	AVTM, NFHP	Data available at scheme level
Improved journey times and reliability	• Journey times – manually recorded times and a sampling approach or RTI data if available • Reliability – data from collection of national indicator, use journey time data and RTI data	• Baseline, 1-yr, 5-yrs • Baseline, 1-yr, 5-yrs	AVTM, NFHP	Data available at scheme level
Improved access to the bus network and key social facilities	• Modelling of accessibility • Passenger surveys, including interchange • Review of service frequencies, consultations with operators	• Baseline, 1-yr • Baseline, 1-yr, 5-yrs • Baseline, 1-yr, 5-yrs	All	Data available at Programme level

MetroBus and background network patronage	• Review of annual patronage data provided by operators	• Baseline, 1 yr, 5 yrs	All	Data available at programme level
Use of new network (including car users – modal shift)	• Review of annual patronage data provided by operators, Review of changes in modal share (across all modes) • Passenger surveys	• Baseline, 1-yr, 5-yrs • Baseline, 1-yr, 5-yrs • Baseline, 1-yr, 5-yrs	All	Data available at Programme Level
Improvements in passenger satisfaction	• Passenger surveys, benchmarked against GBBN,	• Baseline, 1-yr, 5-yrs	AVTM, NFHP	Data available at Programme Level
Increase in walking/ cycling trips	• Manual counts of pedestrian numbers at set locations • Data collected from new automatic cycle counters, benchmarked against WoE rate of cycling growth • Economic value of walking/ cycling estimated • Potential for additional work re impact of new routes – e.g. user surveys, case studies	• Baseline, 1-yr, 5-yrs • Baseline, 1-yr, 5-yrs • Baseline, 5-yrs • Baseline, 5-yrs	AVTM	Data available at scheme level
Improved air quality	• BCC NO_2 AQMA monitoring	• Baseline, 1-yr, 5-yrs	AVTM, NFHP	Data available at programme level
Reduced congestion at identified congestion hotspots	• Use of DfT Trafficmaster data (for speed/ journey times)ATC data on identified roads	• Baseline, 1-yr, 5-yrs	SBL, Stoke Gifford Transport Link	Data available at scheme level

Impacts				
Reduced carbon emissions	• JLTP3 indicator, and extrapolate data from passenger survey on modal shift/ journey length with associated carbon omissions applied	• Baseline, 1-yr, 5-yrs	All	Data available at scheme level
Economic growth	• Economic output of commuters – passenger surveys (for data to extrapolate) • Value of time regained – calculated using patronage and journey time reduction data • Bringing forward investment – consultations with relevant developers and other stakeholders • Site specific case studies: o Stakeholder interviews o Quantitative review of public transport capacity at sites, bus/ MetroBus patronage, car parking provision, floor-space, jobs growth	• Baseline, 1-yr, 5-yrs • Baseline, 1-yr, 5-yrs • Baseline, 5-yrs • Baseline, 5-yrs	All	Data available at scheme level
Better safety, security, health, and quality of life	• Passenger surveys, • Tie in with Quality of Life surveys	• Baseline, 1-yr, 5-yrs • Baseline, 1-yr, 5-yrs	All	Data available at Programme Level
Final two impacts are DfT requirement but not part of Logic Map				
Accidents	• Review of existing accident data for corridors and adjacent roads	• Baseline, 1-yr, 5-yrs	All	Data available at scheme level

Noise	• Noise monitoring will be carried out at locations identified in the Environmental Statements of each project as likely to experience perceptible increases or decreases in noise.	• Baseline, 1 yr, 5 years	SBL, Stoke Gifford Transport Link	Data available at scheme level

As Table 6.2 illustrates, a considerable range of data collection activities is required. How this is managed, resourced, and programmed is considered in Sections 8 and 9.

Consultation with bus operators

One or more bus operating companies will be responsible for running the MetroBus network through registration of commercial MetroBus services with the Traffic Comissioner. Data on service frequency is easily accessed (as part of the public timetables); information on service capacity and patronage figures will use existing data provision from bus operators as well as secured through its provision written into the Quality Partnership Scheme for MetroBus services. Regular engagement with operators will monitor the impact and effectiveness of the Quality Partnership Scheme on service provision.

Manual and Automatic surveys

There are very varied types of data that need to be collected manually:

- Journey times – this will involve use of Trafficmaster data and timetable information;
- Modal shift – passenger surveys (see survey form in Appendix 1)
- Pedestrian and cycle counts using network of Automatic Cycle Counters supplemented by LA enumerator staff to infill as required – see map in Appendix 2 for locations
- Surveys of traffic volume – using network of ATC sites supplemented by manual counts using LA enumerator staff to infill as required – see map in Appendix 2 for locations
- Air quality data collection – using existing monitoring arrangements for the central area AQMA

Bus passenger surveys

There are various types of information that will be sought from bus users through direct surveys which will include bus satisfaction, modal shift and origin / destination data and further data that can be extrapolated from them. It is proposed for consistency to use the same survey methodology as has been used for the GBBN project and LSTF schemes. This would cover all services operating in the AM peak and would involve enumerators distributing and collecting in survey forms to passengers in transit (see survey form and methodology in Appendix 1). It is difficult to accurately estimate sample size but we would aim for 50% of those travelling. Similar surveys undertaken through the LSTF project have achieved in excess of this.

Extraction of external data

Almost all the data required under this heading is produced by sources external to the project, if not external to the authorities themselves, but could be made available on request; additional time may be required to ensure that it is in a useable and comparable format.

Obtaining RTI data from the bus operating system could be managed via the means already discussed above; traffic, accident, and various metrics to calculate information to feed into economic growth case studies would be collected by the authorities; Traffic master data on journey times can be provided via the DfT.

Stakeholder interviews

There are many individuals and organisations that will have views to be captured on the MetroBus network. Many of these will have existing relationships with the authorities, particularly groups representing businesses, and will be happy to share information on the effectiveness of the project in bringing about its intended benefits.

As noted above, much of the process of evaluation data collection involves the gathering of views from people involved in the delivery of the programme. On a quarterly basis, this would most easily be done via an on-line survey made available to members of the project teams. However, more in-depth views will be collected, possibly once a year, through interviews, either face-to-face or over the telephone. We would aim as a minimum to cover 50 stakeholders. This may be through an overarching representative body for some stakeholders.

7 Resourcing and governance

7.1 Resourcing

The MetroBus monitoring and evaluation will build upon the schedules of monitoring and evaluation being undertaken as part of the on-going JLTP monitoring process. This is the approach which has been taken by other major schemes and large projects across the West of England such as the Greater Bristol Bus Network (GBBN) and the Local Sustainable Transport Fund (LSTF). This will ensure that the monitoring process is cost effective, that data is consistent and will avoid any unnecessary duplication.

This requirement will be met from resources as follows: -

- West of England Partnership Office (primarily the provision of the Evaluation Manager and Evaluation Technician);
- Local authority existing monitoring schedules and monitoring resource;
- Data provision and survey work by bus operators;
- Reprioritisation of existing work programmes to support the MetroBus evaluation plan; and
- MetroBus monitoring and evaluation project budgets.

The MetroBus project budgets have allocated monitoring and evaluation budgets which align with the requirements of the Evaluation Plan as follows:

	Baseline Data 2011/14	Baseline Data 2014/15	1 yr collection 2017/18	5 yr collection 2022/2023	Total (£k)
AVTM		12	34	78	124
SBL	28	4	12	44	88
NFHP		14	38	98	150
Total	28	30	84	220	362

7.2 Governance Structure for Delivery

The governance structure for delivery of the MetroBus Evaluation Plan is embedded within the MetroBus programme governance structures and follows the governance arrangements set out in the MetroBus Network Programme Manual. This ensures that the requirement for monitoring and evaluation remain part of the key decision making processes from an early stage and that there is oversight at a more senior level.

A MetroBus Monitoring and Evaluation Steering Group has been established which is accountable to the Project Boards, Programme Assurance Board (PAB) and Joint

Transport Executive Committee (JTEC). The roles carried out by these groups within the programme governance structure is summarised below.

Joint Transport Executive Committee

The West of England Joint Transport Executive Committee (JTEC) brings together the local authorities' lead transport Members in a legally constituted Joint Committee underpinned by a Joint Working Agreement. The role of JTEC is to provide strategic oversight and political ownership. It receives and considers high level quarterly reports, and exception reports via the Programme Assurance Board. JTEC provide the ultimate political decision-making body for changes escalated through the governance structure.

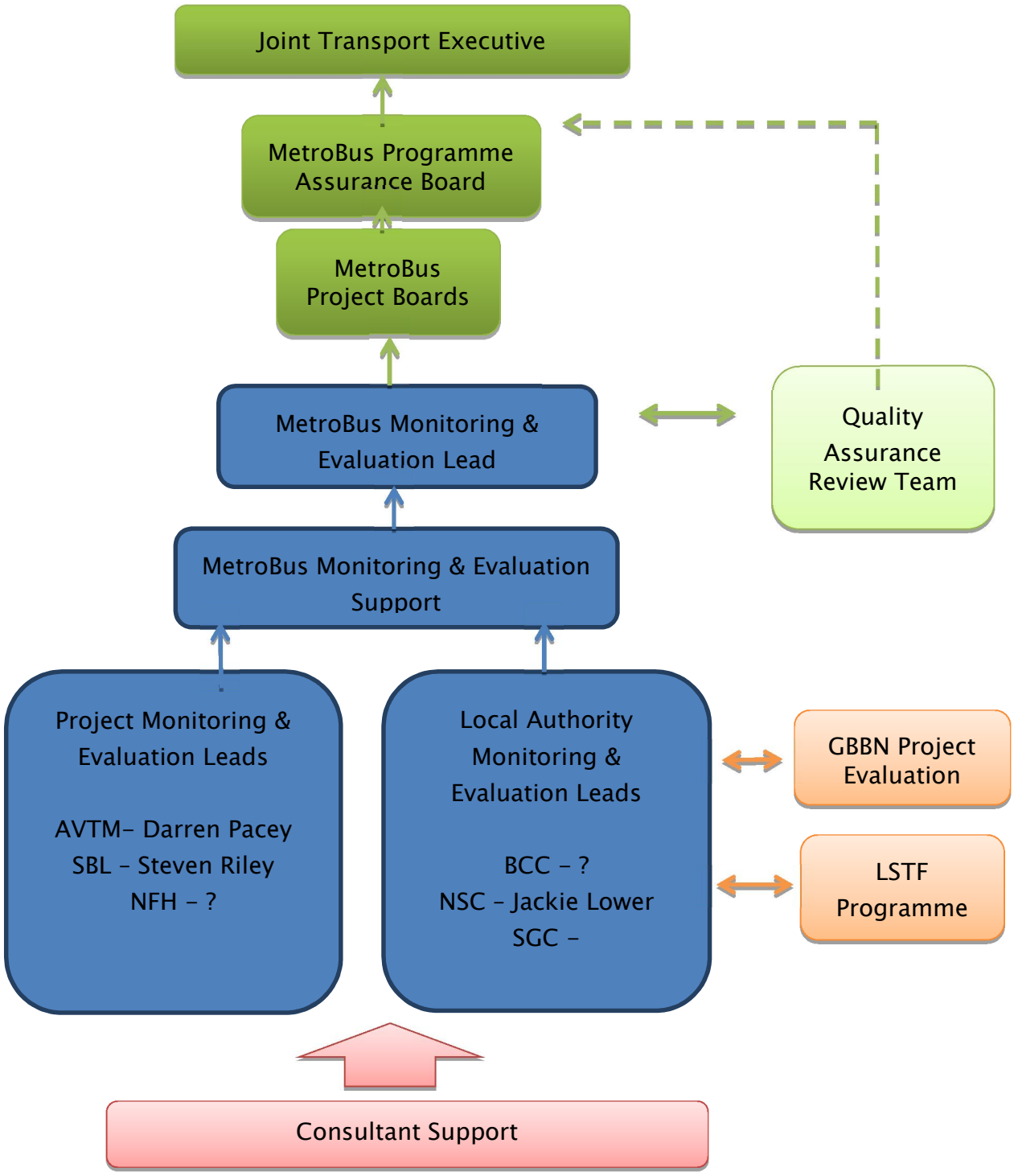
Programme Assurance Board

The role of the Programme Assurance Board (PAB) is to provide high level challenge and independent assessment to Project SRO's, with the chair of the PAB having overall accountability for the delivery of the programme. The PAB is responsible for ensuring that priorities are met, cross-scheme actions are delivered and providing critical review, monitoring of progress and performance and oversight of joint actions. Along with other responsibilities, the PAB is also responsible for overseeing the integrated programme plan and Benefits Realisation Plan and reporting high level progress to JTEC.

Project Board

A Project Board exists for each of the three MetroBus schemes. These Boards consist of the group who direct, steer and oversee the direction of each project. The Board authorise the project plan to be delivered by the Project Manager and authorise strategic decisions, or seek authority for key decisions from PAB and JTEC.

Figure 7.1 MetroBus Evaluation Plan Governance Structure



MetroBus Monitoring and Evaluation Steering Group

A MetroBus Monitoring and Evaluation Steering Group has been established to ensure that an Evaluation Plan is developed and implemented for the MetroBus Network. The Monitoring and Evaluation Steering Group is led by the MetroBus Rapid Transit Network Co-ordinator with support from the MetroBus team based within the West of England Office. Membership of the Monitoring and Evaluation Steering Group consists of cross-authority officers with specialist knowledge of

monitoring and evaluation and representation from each of the three MetroBus project teams. Monitoring and Evaluation leads from JLTP, GBBN and LSTF will also support the MetroBus Monitoring and Evaluation Steering Group.

The MetroBus Monitoring and Evaluation Steering Group will ensure that an appropriate programme of monitoring is developed, with performance regularly reported to the Project Boards, Project Assurance Board, JTEC and DfT. The project and programme boards will ensure that the Group is supported in taking forward the MetroBus Evaluation Plan.

Evaluation reports will be produced at Year 1 and Year 5 and reported through the Governance Structure to Project Boards, PAB and JTEC as required by DfT.

Risk management

Full assessment of risks are undertaken and managed through the PAB and Project Boards. An established Risk Management Strategy is in place which is supported by frequent monitoring of the risk register and the provision of regular updates to the Boards. The MetroBus Projects and Programme have been and continue to be subject to a Quantified Risk Assessment.

Quality assurance (*This section is subject to change as a new quality assurance model is developed across the sub-region which reflects the proposal for devolved funding and best practice within other organisations).*

The programme management processes set out in the Programme Handbook are designed to provide regular checkpoints at which the scheme's progress will be assessed. In addition to Highlight and Exception Reports, the MetroBus PAB has one a named individual with responsibility for Quality Assurance. The PAB will have at its disposal a sub-regional quality review group and Gateway Review to assist with quality assurance.

Sub-Regional Quality Reviews

A Quality Review Group drawing upon expertise from across the four WoE local authorities is being established to support quality assurance for major schemes and major projects. The quality review champion nominated to undertake quality reviews for MetroBus will be independent of the MetroBus programme and will ensure that members of the review group are not directly involved in the delivery of MetroBus. External experts supporting specialist elements of MetroBus or with wider experience will be invited to assist in the quality review process.

The Quality Review Group will be convened at the discretion of the Programme Board member with quality assurance responsibilities to meet and review actual progress against that planned.

The purpose of the group is to provide an internal 'challenge' role to support the Programme Assurance Board and Projects Boards when considering progress reports from the Monitoring and Evaluation Steering Group. Each review will include a detailed proposal for the reasons (linked to issues/risks Peer Review reports or change controls) scope, timescale and budgetary requirements for the review.

All Quality Reviews will include the following minimum requirements:

- Establishment of a review team with the following roles: Review chairperson; Reviewer(s); and scribe;
- Agreed scope and timescale;
- Agreed list of documentation for the PAB and SROs to provide in advance; and
- Formal report following conclusion of the review with, if necessary, an Exception

Report for the Programme Board to consider.

Gateway Reviews

Gateway Reviews will continue to be undertaken throughout the delivery timeframe for MetroBus. DfT guidance requires a Gateway 3 to be completed before Full Approval, Gateway 4 to be completed before final payments can be made and commitment to undertake Gateway 5 following delivery.

The Gateway Reviews will seek to cover any 'mandatory' issues, the exact scope and nature of each review, as with all Gateway Reviews, will be agreed between the Project Partners and the DfT to ensure best use of reviewers resources and maximum 'added value' from the reviews.

8 Delivery plan

8.1 Project plan and timeframe for data collection

There are four distinct phases in which data will be collected to support the evaluation of the MetroBus network:

- Baseline data – before construction begins on any of the routes (including the collation of existing data sources as well as any new survey work)
- One Year After data – following completion of the entire network
- Final Report data – five years after completion of the entire network
- Process evaluation data – throughout, possibly quarterly

The three individual projects that make up the West of England MetroBus network are forecast to end construction and commence operation at different times. There is approximately one year between the start of MetroBus operations on AVTM and that on NFHP. An emphasis will be placed on estimating background inputs to clarify likely, direct impacts of the schemes.

With the baseline data collection needing to be completed before any construction commences, the approximate timetable for the data collection (as set out in the Project Plan in Figure 6.1) is as follows:

1. The present day–winter 2017 – process evaluation data collection
2. May–September 2014 – baseline data completion
3. Winter 2018 – One Year After data collection
4. Winter 2022 – Final Report data collection

8.2 Progress reporting of monitoring and evaluation findings

Three of the data collection phases represent very specific periods of time at which monitoring will be followed by analysis and the production of evaluation data. At each of these stages, a report on the findings will be produced and published (see Section 9 for more information).

The process evaluation data will be collected on an on-going basis, but is likely to focus on a regular cycle, following the structure of the Programme Assurance Board, overseeing and challenging the scheme delivery (potentially every fourth quarter for data needing less regular updating). As described in previous sections of this report, the process evaluation will concentrate on views from people directly involved in the scheme as to how they feel about particular elements of the planning and delivery.

It is anticipated that annual versions of this report will be submitted to the DfT. For those reports delivered while data collection for the other phases is on-going, an update on the progress of these will be appended.

9 Dissemination plan

Timescales for the completion of the evaluation reports are outlined in Section 8.

Reporting and distribution of the evaluation reports (and/or summaries thereof) will include the following recipients:

- The West of England Joint Transport Board (including the Joint Transport Executive Committee) and the Joint Scrutiny Committee;
- The West of England Local Enterprise Partnership Board;
- MetroBus operators and passenger groups; and
- The wider subscriber list for MetroBus and MetroWest updates (currently over 550 subscribers);

In addition, each report will, following its endorsement, be placed on the TravelWest website for wider information.