

South Bristol Link  
Major Scheme Business Case

0  
Executive Summary

A Summary of the South Bristol Link





## 0 Executive Summary

### 0.1 INTRODUCTION

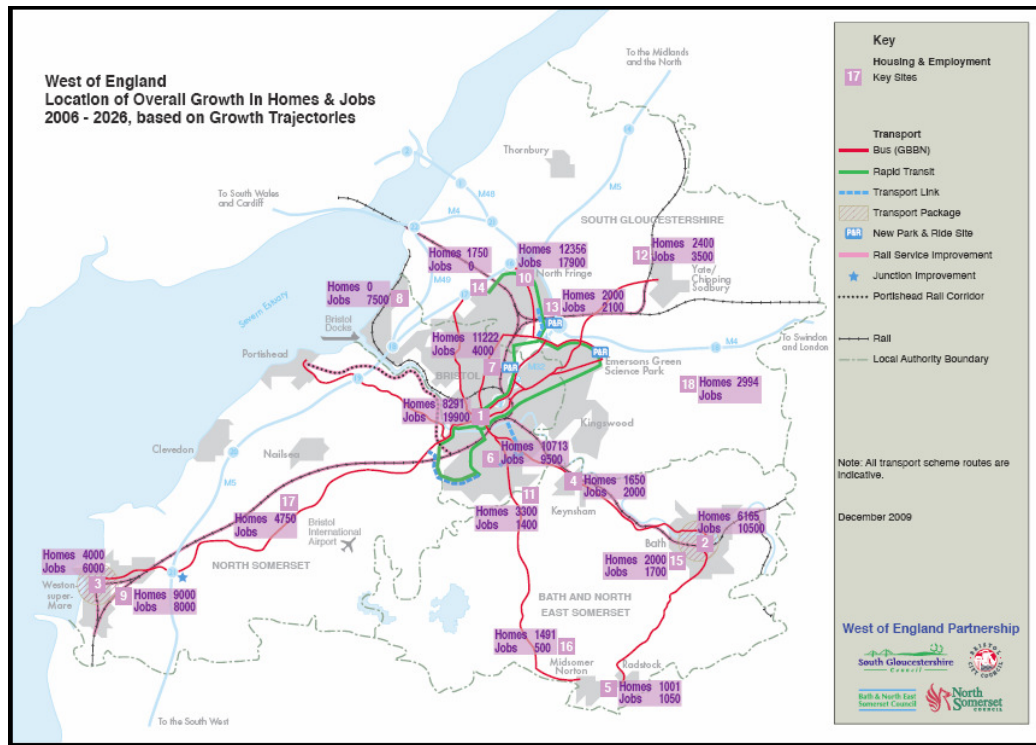
This Chapter gives an Executive Summary of the South Bristol Link. It includes: -

- An introduction to **The West of England and South Bristol**;
- An introduction to **The Scheme**;
- A summary of **The Strategic Case**;
- A summary of **The Value for Money and Appraisal Case**;
- A summary of **The Delivery Case**;
- A summary of **The Commercial Case**;
- A summary of **The Financial Case**;
- Conclusion
- The **Appraisal Summary Table**

### 0.2 THE WEST OF ENGLAND AND SOUTH BRISTOL

The West of England sub-region, which covers the four unitary authorities of Bristol, North Somerset, Bath & North East Somerset and South Gloucestershire, is the economic hub of the South West. The strong economy is set to continue to grow with currently emerging Core Strategies planning to deliver some 86,500 homes and 95,500 jobs up to 2026 in the context of the Draft South West of England Regional Spatial Strategy (RSS), which is yet to be finalised. Figure 0.1 shows the West of England, its major cities and towns and principal transport links.

Figure 0.1 – The West of England



The West of England also faces significant transport challenges. Large scale housing growth and economic development over a number of years has not been accompanied by sufficient investment in transport infrastructure and this low level of investment, compounded by an unreliable public transport system, has resulted in high levels of congestion.

The latest version of the government’s English Indices of Multiple Deprivation Index (2007) shows that much of South Bristol is amongst the 10% most deprived in the country and two areas are in the most deprived 1%.

South Bristol is also characterised by poor transport links and congestion. Whilst bus service frequencies in South Bristol are very good, journey times are relatively poor largely due to congestion. Congestion in the City reduces the average peak hour speeds to 17.5mph (National Congestion Indicator 2008/09, DfT).

A more detailed description of the West of England and South Bristol is included in Chapter 1

## **0.3 SCHEME DESCRIPTION**

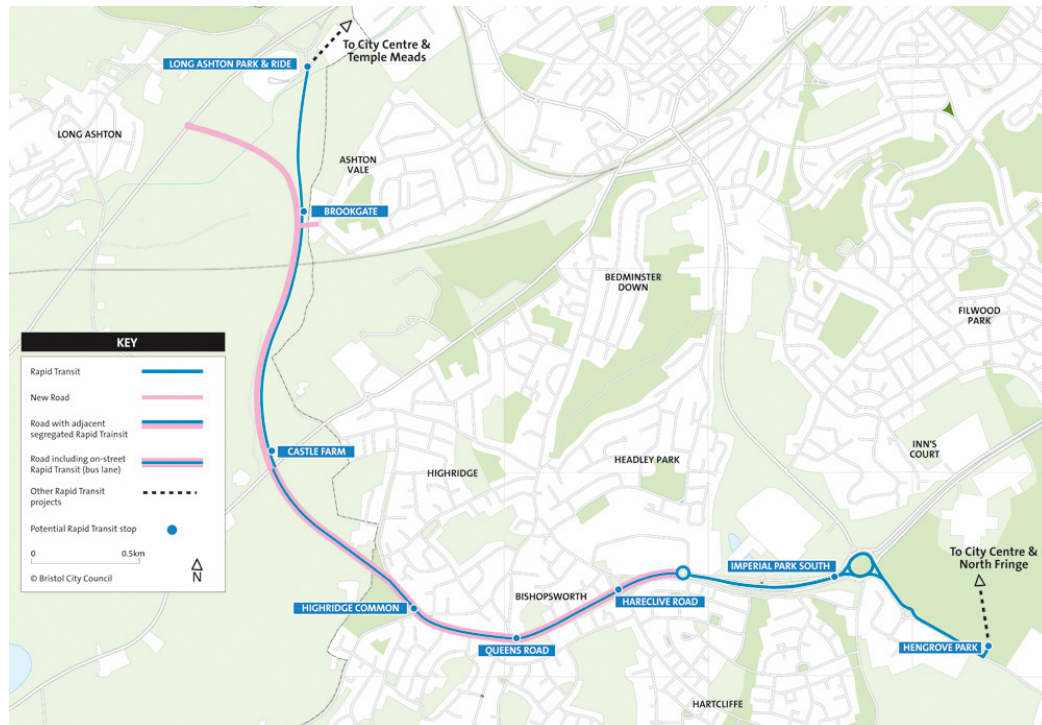
### **0.3.1 Preferred Scheme**

The Preferred Scheme has evolved through a comprehensive appraisal process as described in Chapter 2. It provides a solution that best meets national and local requirements and accords with DfT appraisal criteria. The scheme is approximately 5 km overall and comprises four distinct elements, each of which is needed in order to meet the objectives effectively:-

- extending rapid transit from Long Ashton Park & Ride site (Ashton Vale to Temple Meads Rapid Transit line) to the new Community Hospital, Campus and Leisure Centre at Hengrove Park in South Bristol
- a single carriageway highway between the A370, the A38 and the existing A4174 at the Cater Road Roundabout.
- Cycling and pedestrian facilities parallel to the rapid transit and highway elements that will link to existing facilities.
- Traffic management measures on surrounding highways to maximise the benefits of the Scheme by discouraging traffic from using less appropriate routes

The rapid transit, highway and cycle and pedestrian elements will be constructed adjacent to one another, within the same corridor, except near the A370 where the highway and rapid transit elements diverge.

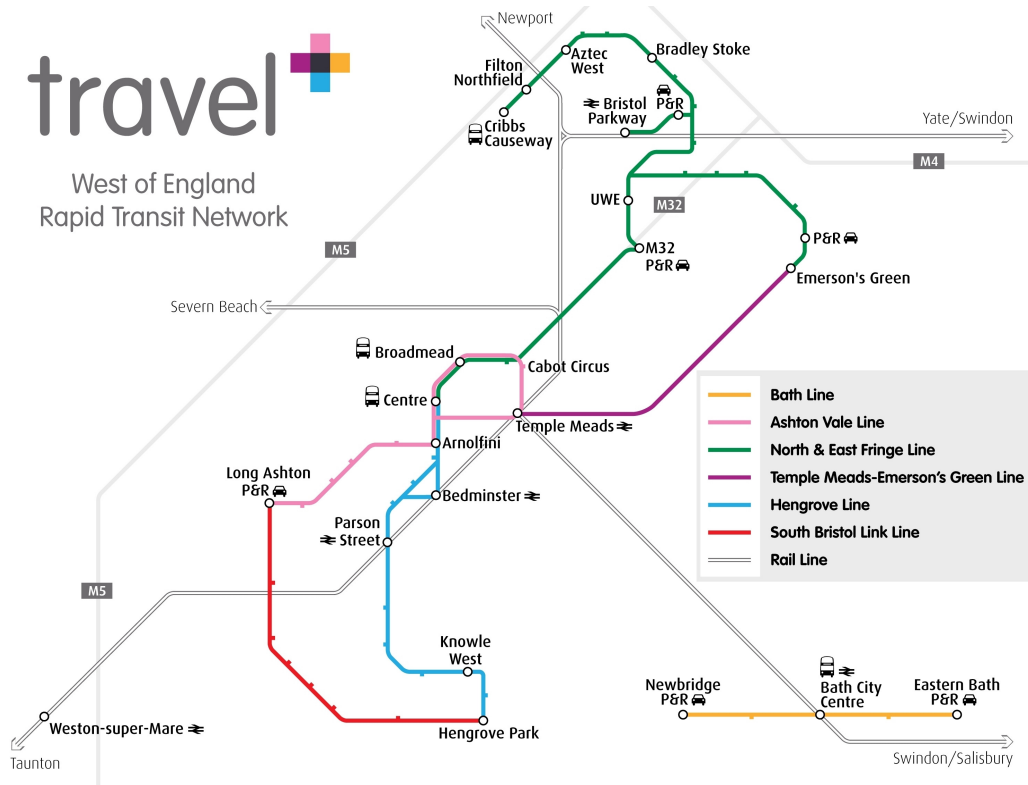
Figure 0.2 - Overview of the South Bristol Link – Preferred Scheme



### 0.3.2 Rapid Transit

A comprehensive network of Rapid Transit routes radiating across the city is identified in the Joint Local Transport Plan and in the Regional Programme (RFA2). The Rapid Transit element of South Bristol Link extends the Ashton Vale to Temple Meads line from the Long Ashton Park & Ride site to the A38 (for Bristol International Airport), onward to South Bristol and Hengrove Park.

Figure 0.3 - West of England RFA Prioritised Rapid Transit Network



The Rapid Transit element of the South Bristol Link (red in figure 0.3) will consist of a segregated guided busway section and a segregated on-street section.

The segregated busway section will extend the Ashton Vale to Temple Meads Rapid Transit line (pink in figure 0.3), which has recently been granted Programme Entry, from the Long Ashton Park & Ride site, to the A38. From the A38 the opportunity exists to extend Rapid Transit westwards to Bristol International Airport. This extension is not included in this bid, although Airport Flyer bus services will utilise this section of segregated busway and continue on to the Airport using the A38, gaining improved journey reliability.

The segregated on-street section will head eastwards linking the A38 to the new development of a Community Hospital, Campus and Leisure Centre at Hengrove Park. This section will utilise bus lanes with central running within the highway element. Stops will be provided at appropriate locations.

It should be noted that North & East Fringe line (green in figure 0.3) and the Hengrove Line (blue in Figure 0.3) are being submitted for Programme Entry at the same time as South Bristol Link, as part of the North Fringe to Hengrove Package.

### **0.3.3 Highway**

A new roundabout junction will be constructed on the A370 near Long Ashton. From there, a single carriageway 40mph road will run southeast for approximately 1.5km to meet the A38, where a further roundabout will be constructed.

Between the A370 and A38 a highway connection will be made to the existing industrial area of South Liberty Lane.

From the A38 a single carriageway 30/40 mph highway will continue eastwards for approximately 2.5km; across Highridge Common and along King George's Road; before passing through a reserved corridor and joining the existing 'Bristol ring road' at Cater Road roundabout. Construction of the highway element will reduce traffic on several residential rat-run routes in the surrounding area. Traffic management measures on some of these routes will maximise benefits by discouraging through traffic.

### **0.3.4 Cycling and Pedestrian Infrastructure**

A segregated, 4m wide, tarmaced, Cycle and Pedestrian path will be constructed parallel to the Highway and Rapid Transit elements along the total length of the scheme with connections to existing adjacent footways and cycleways.

### **0.3.5 Lower Cost Option**

A Lower Cost Option has been developed following wide-reaching consideration of possible variations to the Preferred Scheme. A single alternative to the Preferred Scheme, rather than a Next Best and Lower Cost Option, has been identified as explained in Chapter 1. The Lower Cost Option comprises:

- Replacing the segregated Rapid Transit busway between the Long Ashton Park & Ride site and the A38 with conventional bus lanes within the highway;
- Replacing the central running bus lanes between the A38 and Hartcliffe Roundabout with conventional bus lanes;
- Removal of the eastbound climbing lane between the A370 and A38;
- Removal of signalisation and dedicated slips from the A38 and A370 roundabouts;
- Procurement of conventional bus services rather than high specification Rapid Transit Vehicles;

### 0.3.6 Phasing

The proposed phasing of the project to full operation is as follows:-

- September 2010 Programme Entry
- September 2010 – June 2012 Preparation for Statutory Process
- June 2012 – December 2013 Statutory Process  
including public enquiry, planning consent and compulsory land purchase.
- March 2013 – July 2014 Design & Build contractor procurement
- December 2013 bid for Conditional Approval
- January 2014 Conditional Approval
- July 2014 Full Approval
- January 2015 Construction start
- January 2017 Programme Complete

A more detailed description of the Scheme can be found in Chapter 1 and the scheme drawings are presented in Appendix 1.2.

## 0.4 STRATEGIC CASE

The Scheme's local objectives were considered carefully at project inception, following preparation of an initial review of historic projects that were seen as relevant to the South Bristol Link. The link will contribute towards a number of national, regional and local objectives in terms of transport and wider economic and environmental purposes. The local objectives are to: -

- 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 trunk road network and Bristol International Airport.

<b>DaSTS – Delivering a Sustainable Transport System</b>	
To <b>support</b> national <b>economic competitiveness and growth</b> , by delivering reliable and efficient transport networks	The project specifically supports regeneration and growth by contributing to a reliable and efficient transport network, assisting creation of up to 5,600 new jobs
To reduce transport's emissions of carbon dioxide and other greenhouse gases, with the desired outcome of <b>tackling climate change</b>	The project assists regeneration and growth, potentially reducing the need for travel.
To <b>contribute to better safety security and health</b> and longer life-expectancy by reducing the risk of death, injury or illness arising from transport and by promoting travel modes that are beneficial to health	The project assists regeneration and growth giving greater opportunities for prosperous, healthy communities. The project offers more sustainable transport choices, potentially improving personal fitness.
To <b>promote</b> greater <b>equality of opportunity</b> for all citizens, with the desired outcome of achieving a fairer society;	Improved rapid transit, cycling and walking links give greater transport choice when accessing education, employment, healthcare and leisure particularly for those who do not, or choose not, to own a car. Regeneration and growth gives greater opportunities for a prosperous, fairer society.
To <b>improve quality of life</b> for transport users and non-transport users, and to promote a <b>healthy natural environment</b>	The project assists regeneration and growth giving greater opportunities for a prosperous community with an improved quality of life.

<b>Draft Regional Spatial Strategy for the South West</b>	
<b>Development Policy A</b> Development of Strategically Significant Cities and Towns (SSCTs)	The project specifically assists the regeneration and development of South Bristol in accordance with the policy, contributing to some 5,600 new jobs
<b>Development Policy D</b> Infrastructure for Development	The project specifically provides infrastructure to aid regeneration and development in accordance with the policy.
<b>Sub-Regional Strategy for Bristol</b> Improvements to the roads in South Bristol, including the South Bristol Ring Road, improving access to the Airport and facilitating investment for regeneration of south Bristol	The project specifically improves accessibility to the city centre and to strategic links, including the trunk road network and Bristol International Airport in accordance with the sub-regional strategy for Bristol

<b>Joint Local Transport Plan</b>	
To tackle congestion	The project reduces traffic flows on some key routes within the city.

<b>Joint Local Transport Plan</b>	
To improve air quality	The project assists regeneration potentially reducing the need to travel
To increase the number of cycle trips	The project includes substantial cycling and walking infrastructure

<b>Bristol &amp; North Somerset Core Strategies</b>	
Develop South Bristol's social economic & physical regeneration. Transport & development proposals will be integrated (BCC)	The project specifically provides the transport infrastructure to assist the regeneration and development of South Bristol.
Integrate transport networks to allow a wide choice of modes to jobs, homes, services & facilities. (NSC)	The project supports access to jobs, homes, services and facilities (facilitating regeneration and growth), offering a wide choice of transport modes.

### **Regional support**

The West of England sub-region is the promoter of the South Bristol Link and local authorities and other key stakeholders attend regular meetings of the Project Board. The South Bristol Link is identified in the Regional Funding Allocation.

A full description of the Strategic Case is set out in Chapter 2.

## **0.5 VALUE FOR MONEY AND APPRAISAL CASE**

The appraisal demonstrates the strength of the case for the Scheme with a Benefit-Cost Ratio (BCR) of around 5.8, meeting the Department for Transport's (DfT) criteria for high value for money schemes (BCR>2:1).

### **0.5.1 Transport Modelling**

The South Bristol Link (SBL) has been assessed using a specifically updated version of the Greater Bristol Transport Study model (G-BATS3). This is a multi-modal transport model, consisting of a highway assignment model, a public transport assignment model and a demand model.

The G-BATS3 model has been developed in consultation with the DfT and its advisers, and was used for the Rapid Transit Ashton Vale to Temple Meads MSBC submitted to the DfT in March 2009. The SBL methodology adopts a two-stage modelling process combining the strengths of the existing G-BATS3 demand model (the 'higher stage') and new, more detailed assignment models (G-BATS3 SBL) for the SBL local area (the 'lower stage'). The new

lower stage model has been validated to a 2009 base year. It includes updated highway and public transport networks, and new demand matrices using recently collected highway and public transport survey data.

The SBL model has been developed by the Councils' modelling and appraisal term consultant, Atkins, in consultation with The Denvil Coombe Practice.

### **0.5.2 Model Forecasting**

Transport forecasting is a three-stage process. The first stage requires the generation of future year travel demand and is referred to as the 'reference case'. The second stage requires known changes in the supply of transport to be incorporated into the model, and is referred to as the 'without-intervention' case'. The final stage is to add the transport intervention under consideration, and this is referred to as the 'with-intervention case'.

The Preferred Scheme and Lower Cost Option with-intervention cases have been assessed in two forecast years (2016 and 2031) against the without-intervention case. In addition a number of sensitivity tests have been carried out.

### **0.5.3 Scheme Impacts**

The Preferred Scheme gives significant reductions in total vehicle delay, particularly in the evening peak. There is a small increase in the total distance travelled.

The link provides reductions in traffic on the B3103 Barrow Gurney, A3029 Winterstoke Road, A38 through Bedminster and on local roads to the north of the scheme. Increased traffic flows are predicted on the A370 east of the scheme.

There are a total of 79 passengers boarding the SBL Rapid Transit service on the new section between Hengrove Park and the Long Ashton Park & Ride site in the AM peak hour in 2016, rising to 130 by 2031.

### **0.5.4 Cost Benefit Analysis**

The headline figures for the Preferred Scheme are:-

- The scheme outturn cost (present value of cost) is £59.6m
- The modelled scheme benefits (Net Present Value) are £285.9m.
- The resultant Benefit Cost Ratio is 5.79 and represents 'very high' value for money.

### **0.5.5 Risk Assessment and Optimism Bias**

A Quantified Risk Assessment (QRA) has been undertaken for the Preferred Scheme and the Lower Cost Option to support this bid for Programme Entry.

An allowance for the additional cost of mitigating the risks identified has been included in the overall scheme costs.

DfT recommend the level of optimism bias for highway schemes at Programme Entry should be 44%. Therefore a 44% uplift has been applied to all applicable costs.

### **0.5.6 NATA Assessment**

The Appraisal Summary Tables [ASTs] 1 and 2 at the end of this summary show the main impacts of the scheme. The main issues related to the Preferred Scheme are:-

- Environmental – The impact on Landscape and Townscape elements have been appraised as Moderate Adverse; impacts on Biodiversity are appraised as Slight Adverse; impacts upon Historical Heritage are considered Slight Adverse; impacts on the Water Environment are assessed as Slight Adverse; impacts of Physical Fitness are considered Moderate Beneficial; impacts upon Noise is Negligible; a Decrease in Carbon is predicted in the opening year.
- Safety – An Increase in Personal Injury Accidents is expected due to the increase in overall vehicle kilometres travelled. The scheme has a Moderate Positive effect in terms of improvements to security;
- Economic – the scheme would underpin the regeneration of South Bristol and facilitate the proposals in the emerging Core Strategies.
- Accessibility – the scheme would improve accessibility in terms of option values, severance and access to the transport system;
- Integration – the scheme would contribute to a wide range of local, regional and national objectives, with some local adverse impacts as discussed in Environmental (above).

### **0.5.7 Sensitivity and Scenario Analysis**

Sensitivity tests have been undertaken on Low Growth (without-intervention and with intervention) and Highway Model Sensitivity Tests. No public transport sensitivity tests have been undertaken at this stage.

### **0.5.8 Supporting Information**

An analysis of **Distribution and Equity** issues has been undertaken. The main impacts of the South Bristol Link are:-

- improving access to the transport system by non-car modes,

- promoting social inclusion by improving access to key services and new employment opportunities for all social groups.

An **Affordability and Financial** review of the scheme shows that it could be delivered using a combination of council capital funding, developer contributions and RFA funding. Highway and Rapid Transit maintenance costs would be funded by the councils and potentially by access fees payable by commercial bus service operators.

An assessment has been made of the project's **Practicality and Public Acceptability**. The project is deliverable technically, legality, politically and in terms of funding and phasing. The project could be influenced by progress with complementary projects such as Ashton Vale to Temple Meads and Hengrove Park to North Fringe. Public views of the scheme are split; despite local support there is opposition from environmental groups and households adjacent to the scheme. Key stakeholders including business and local transport operators are supportive.

The project fits well with the **Ten Year Plan Targets**.

### **0.5.9 Overall Value for Money Conclusion**

The overall scheme Benefit Cost Ratio (BCR) compares the monetised present value benefits with the present value cost of the scheme. The Overall BCR for the scheme at 5.8 represent high value for money according to the DfT guidance. Moreover, the Appraisal Summary Table showed that the scheme contributes strongly to other non quantified objectives and does not have any severe adverse environmental impacts.

A full description of the Value for Money and Appraisal Case is set out in Chapter 3.

## **0.6 DELIVERY CASE**

### **0.6.1 Governance**

The West of England authorities have joint working arrangements as summarised below.

#### West of England Partnership Board

The Board (the Partnership) is a cross-party member and strategic partner board. The role of the Partnership is to realise improvements in The West of England's economy, public infrastructure, environment and quality of life. It sets the long-term direction to support the development and the delivery of key strategies. It ensures appropriate delivery arrangements and performance management frameworks are in place.

### Joint Transport Executive Committee

The Joint Transport Executive Committee has been established comprising the four Executive Members of the Unitary Authorities with responsibility for transport. This arrangement has been legally constituted via a Joint Working Agreement. Committee Members exercise their executive powers collectively. The committee is responsible for developing and recommending sub-regional policy. It is the political decision making body. It ensures the delivery of the transport elements of the Multi-Area Agreement.

### Joint Scrutiny Committee

The Joint Scrutiny Committee supplements the cross-party member and strategic partner engagement and contribution made at the Partnership. The committee provides specialist advice and recommendations to the Partnership and scrutinises proposals under consideration and the implementation of proposals approved.

### Proposed Joint Delivery Vehicle

It is the West of England's intention to establish a Joint Delivery Vehicle, and this would be the preferred option for delivery of major transport schemes in the sub-region. However, pending its introduction, the proposed governance for delivery of the South Bristol Link is set out below.

### South Bristol Link Governance Structure

North Somerset would be the lead authority, working in a close contractual relationship with Bristol City Council and with support from the sub-region; both at Project Board and Delivery Team levels (discussed below). North Somerset's Project Management Method is based on the Office of Government Commerce's (OGC's) project management method PRINCE2 (PProjects IN Controlled Environments 2) which forms the basis of management methods used by all the West of England Authorities.

### Project Board

The Project Board guides and steers the progress of the scheme and is responsible for its delivery. The Board authorises the project plan and will authorise strategic decisions or seek the authority of the JTEC. It includes representatives of the West of England authorities, the Government Office for the South West (GOSW), South West Regional Development Agency (SWRDA) and the West of England Partnership Office (WEPO) and the Highways Agency (HA). The Board was formed at the start of the project in October 2006 and has met approximately every three months.

### Senior Responsible Owner

The Senior Responsible Owner [SRO] for the South Bristol Link is the North Somerset Council Assistant Director, Development and Environment, Karuna Tharmananthar. The SRO has overall responsibility for ensuring that the project meets its objectives and delivers the projected benefits within the time, cost and quality parameters. The SRO is the Chair of the Project Board.

### The Project Manager

The Project Manager is responsible for delivering the Project in line with the agreed controls and procedures set out in the Project Initiation Document. The PM is responsible for the highest possible level of compliance with the relevant investment and project management approaches including third parties' processes. The primary focus of the PM is to ensure that the Project is delivered on time, within specification and budget.

### Project Delivery Team

The PM would be supported by a Project Delivery Team, which includes the requisite range of experience required to take the South Bristol Link to Full Approval and then to implement it. The Team would consist of Bristol and North Somerset Council officers and term transport planning and design consultants.

## **0.6.2 Risk Management**

Risk management is the process of identifying risks, evaluating their potential consequences and determining the most effective methods of controlling and/or responding to them.

Three risk workshops have been held for the Scheme to date. Each has involved a range of expertise, including representatives of consultants, other authorities and the Highways Agency. At these workshops the evolving Risk Log was reviewed. Quantified Risk Assessments were then undertaken for the Preferred Scheme and Lower Cost Option to support this bid for Programme Entry.

The risk log and register will be used throughout the preparation and delivery of the Scheme to manage project risks and mitigate them wherever possible. It will be regularly reviewed and updated in order to ensure actions necessary to mitigate risks are being implemented.

## **0.6.3 Stakeholders**

A Communication Plan was prepared at the outset of the project and has been maintained as preparation work has progressed. A wide range of stakeholders have participated in the development of South Bristol Link to-date, including residents, council members, officers, town and parish councils,

local businesses, transport operators, statutory consultees, interest groups, developers and land owners.

Two public consultations on the South Bristol Link were undertaken: in Autumn/Winter 2008/2009 and at the end of 2009. Further consultation will be an integral part of project preparation as scheme designs are worked up and the requisite permissions sought.

#### **0.6.4 Scheme Monitoring and Evaluation**

An impact evaluation will be carried out to measure both the positive and negative impacts of the scheme. The aim of the evaluation would be to assess the performance of the scheme in achieving the original objectives as set out in 0.4 above. The monitoring methods will be determined based on these objectives and will be a mix of existing proxy indicators and new indicators using bespoke surveys.

#### **0.6.5 Assurance**

An arrangement has been established across the West of England sub-region to provide Quality Assurance. The approach for South Bristol Link Quality Assurance arrangements will operate in the form of:

- Individual investigation by the Project Board's QA nominee.
- A Strategic Review Group reporting to the Joint Transport Executive Committee;
- An internal 'challenge' by a Peer Review Group;
- External Quality Reviews convened at the discretion of the Project Board.

The Joint Scrutiny Committee has also been presented with regular progress reports and scrutinised the draft report that was submitted to the Joint Transport Executive Members. The scrutiny function ensured that additional detail was provided for Executive Members prior to their recommending that the bid should be taken forward.

DfT guidance recommends that a Gateway Review be undertaken for schemes with a total cost of £50m or more and the councils recognise Gateway Review as a good project management practice. Four Gateway Reviews are programmed throughout the project's life at key milestones. The first Gateway Review is planned to take place after submission of this bid in early summer 2010. The timetabling of the remaining Reviews is included in the project programme included in Appendix 4.1

A full description of the Delivery Case is set out in Chapter 4

## **0.7 COMMERCIAL CASE**

### **0.7.1 Outline Procurement Strategy**

The procurement of the scheme involves the following major work streams:-

- Infrastructure (e.g. rapid transit busway; carriageway, structures)
- Hardware systems (e.g. ticket machines);
- Rapid Transit services (e.g. vehicles and operation of vehicles);
- Client-side management of the Rapid Transit operation.

#### Infrastructure

Procurement of the civil engineering elements of the project will be under a Design and Build model with a single contract anticipated as covering all the main works. The details of our selection of Design and Build model in favour of other models, such as Early Contractor Involvement, are set out in Chapter 5.

The authorities are currently exploring the advantages of a Joint Delivery Vehicle as described above. Given a situation where Programme Entry is confirmed and the JDV is not in place the authorities have a proven record of delivering cross-boundary civil engineering projects and similar arrangements would be put in place. For South Bristol Link, North Somerset Council would be the lead authority with the project team including officers from Bristol City Council. A contract between the local authorities will be put in place to define roles and responsibilities.

#### Hardware, rapid transit services and client-side management

The proposed Rapid Transit link between Long Ashton Park & Ride and Temple Meads is well advanced, a bid having been submitted in 2009 and work proceeding with Transport & Works Act documentation. The Rapid Transit element of South Bristol Link is effectively the extension of this service and, in practice it will be operated as an integral part of it.

Subsequent to submission of the Ashton Vale to Temple Meads Major Scheme Business Case, work on that project has continued to examine options and define the preferred methods of procurement for vehicles and associated hardware and services. Also, work has continued to define the most appropriate way to manage the route and arrangements for providing access to the route for existing public service buses. The Ashton Vale to Temple Meads Rapid Transit scheme is thus establishing the groundwork for the most suitable procurement and operational standards for the whole network, of which the South Bristol Link will form a part.

A full description of the Commercial Case is set out in Chapter 5

## **0.8 FINANCIAL CASE**

### **0.8.1 Cost Estimates**

Estimates of works costs have been prepared for the Preferred Scheme and Lower Cost Option based on widespread experience of similar works, using item rates and preliminary estimates of quantities. The capital cost estimate has been calculated using Q3 2009 prices.

The total capital cost estimate for the Preferred Scheme including risk is £41.156 million at current prices (2009).

The total capital cost estimate for the Lower Cost Option is £37.602 million at current prices.

The capital cost estimates have been independently reviewed.

### **0.8.2 Quantified Risk Assessment**

Quantified Risk Assessments have been undertaken for both the Preferred Scheme and Lower Cost Option. These assessments have predicted the likely level of confidence that funding will be sufficient to cover the construction of the Scheme with due allowance made for risks. The QRAs are confined to the capital cost elements of the scheme and the construction programme from the present day to the Scheme opening. Risks to operational revenues, costs or performance have not been quantified at this stage.

### **0.8.3 Treatment of Inflation**

Following discussions with the DfT an inflation figure of 2.7% has been assumed for construction and all other costs up to and including 2014/15. After that and for 30 years 6% is assumed for construction costs with all other costs at 2.7%. It is not considered that inflation assumptions would differ between the Preferred Scheme and the Lower Cost Option.

These inflation rates have been applied to the current cost estimate assuming start of construction early in 2015 and lasting 2 years. The resulting out-turn costs are set out in the following table.

### **0.8.4 Preparatory Costs**

Preparatory costs have been prepared on the basis of known costs for existing arrangements, estimates from the project manager on likely costs and benchmarking with other major schemes to understand the relative level of investment in scheme development. It is not considered that preparation costs would differ significantly between the Preferred Scheme and the Lower Cost Option.

### 0.8.5 Total Quantified Cost Estimate

The breakdown of the Quantified Cost Estimate (total capital cost and preparatory cost estimates) for the Preferred Scheme is provided in Table 0.1

Table 0.1 Total Quantified Cost Estimate (outturn prices, £m) Preferred Scheme

Costs	Total (All Costs)	Total (Only Eligible Costs)	Local Contribution (non-eligible Costs)	Local Contribution (Eligible Costs)	Local Contribution (All Costs)	DfT Contribution	Total Local Contribution (All Costs)	DfT Contribution
	£m	£m	£m	£m	£m	£m	%	%
Preparatory Costs	6.920	5.910	1.010	2.955	3.965	2.955	57.30%	42.70%
Capital Costs	50.466	50.466	0	3.104	3.104	47.362	6.15%	93.85%
Total QCE	57.386	56.376	1.010	6.059	7.069	50.317		
% QCE (Eligible Costs)				10.75%		89.25%		
% QCE (All Costs)					12.32%	87.68%		

The breakdown of the Quantified Cost Estimate (total capital cost and preparatory cost estimates) for the Lower Cost Option is provided in Table 0.2

Table 0.2 Total Quantified Cost Estimate (outturn prices, £m) Lower Cost Option

Costs	Total (All Costs)	Total (Only Eligible Costs)	Local Contribution (non-eligible Costs)	Local Contribution (Eligible Costs)	Local Contribution (All Costs)	DfT Contribution	Total Local Contribution (All Costs)	DfT Contribution
	£m	£m	£m	£m	£m	£m	%	%
Preparatory Costs	6.920	5.910	1.010	2.955	3.965	2.955	57.30%	42.70%
Capital Costs	43.372	43.372	0.000	2.668	2.668	40.705	6.15%	93.85%

Costs	Total (All Costs)	Total (Only Eligible Costs)	Local Contribution (non- eligible Costs)	Local Contribution (Eligible Costs)	Local Contribution (All Costs)	DfT Contribution	Total Local Contribution (All Costs)	DfT Contribution
	£m	£m	£m	£m	£m	£m	%	%
Total QCE	50.292	49.282	1.010	5.623	6.633	43.660		
% QCE (Eligible Costs)				11.41%		88.59%		
% QCE (All Costs)					13.19%	86.81%		

### 0.8.6 Ongoing Financial Sustainability, Maintenance and Operating Costs

Forecast operating costs have been calculated based on modeled service running times and distances, with unit costs such as drivers' time, fuel and engineering costs accounted for. The size, composition and cost of extra vehicle fleets required for the provision of the services were also generated using this operating cost model.

The service extension from the Ashton Vale to Temple Meads line, to include the SBL rapid transit line, while providing an improved service for the user, was not anticipated to produce high revenues in proportion to the level of operating cost involved. Therefore analysis was undertaken to determine whether the SBL RT line might require any subsidy payments to be made to the operators in order to make it in their interests to run the service.

In isolation, the Rapid Transit Ashton Vale to Temple Meads line (RT2) is forecast to generate high levels of revenue for a relatively modest expenditure on operating costs. This demonstrates that on opening, the demand for the Ashton Vale to Temple Meads service will generate sufficient revenue to make running the service beneficial to the operator.

With the introduction of the SBL line as an extension to RT2, both services together generate enough revenue to be profitable to the operator, even in the SBL opening year.

The Authorities will pay for the infrastructure maintenance costs. Additional maintenance costs are £0.32 million per year (in the opening year, 2009 Q3

prices, without allowance for real inflation or optimism bias). These are related to the upkeep of the track, ITS and RTPI systems, bus stops and bridges.

### **0.8.7 Funding Sources**

The South West Councils have approved £50.1million funding – £47.3 million towards capital construction costs and £2.8 million preparatory costs (outturn prices).

There are a number of anticipated developments in Bristol and North Somerset where contributions to the project would be appropriate and the Authorities are in discussion with relevant developers regarding potential contributions for infrastructure and /or services. Bristol International Airport have submitted a planning application to extend their operation, although not currently approved, it is anticipated that a significant contribution to the project will be made. At this Programme Entry stage, funding for the scheme does not presume Section 106 contributions will be available.

Bristol City Council and North Somerset Council have agreed to underwrite the £7.07million local contribution. As the scheme development work continues, the opportunities for meeting this local contribution will be explored and agreed with possibilities including LTP capital, Council Non Earmarked Capital and / or future Section 106 developer contributions.

### **0.8.8 Section 151 Sign-off**

In accordance with DfT guidance for local authorities, the cost estimates for the scheme have been considered by each authority's Section 151 Officer.

The cost estimates for the scheme and the capacity of the authorities to meet expected and potential financial liabilities for the scheme have been confirmed. The signed declaration to this effect is included with the bid.

The full Financial Case is set out in Chapter 6.

## **0.9 CONCLUSION**

The South Bristol Link has a strong strategic case with its roots in the Greater Bristol Strategic Transport Study, which identified both Rapid Transit and Highway improvements as necessary to ensure the continued growth and development of South Bristol and the West of England.

The South Bristol Link is strongly placed to contribute to the 5 DaSTS Goals whilst meeting the objectives set out in the emerging Core Strategies. It is a regional priority for the South West and is endorsed by South West Councils and the Regional Development Agency.

With an opening date of early 2017, the South Bristol Link will contribute to the regeneration and growth of South Bristol, whilst reducing congestion on key

routes and improving accessibility to the City Centre and to Bristol International Airport.

**0.10 APPRAISAL SUMMARY TABLE – PREFERRED SCHEME**

<b>Option:</b> Preferred Scheme South Bristol Link		<b>Description:</b> Implementation of an Integrated Transport Link (Road, Cycling and Rapid Transit) between A4174 Hartcliffe Roundabout to A370 Long Ashton Bypass. This Option includes a direct link with the proposed Ashton Vale to Temple Meads Rapid Transit Scheme.	<b>Problems:</b> Localised deprivation; congestion on major transport corridors resulting in traffic on residential roads; unreliable bus journeys	<b>Present Value of Costs to Public Accounts</b> <b>£59.637m</b>
OBJECTIVE	SUB-OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE ASSESSMENT	ASSESSMENT
ENVIRONMENT	Noise	At a relatively small number of properties there is a large noise disbenefit by the introduction of a new noise source. This is outweighed by a small noise benefit at a relatively large number of houses.	Estimated Population Annoyed Do-Minimum: 2415 Do-Something: 2359	Net population win / lose: -56 NPV: +£1,542,051
	Local Air Quality	There would be an overall improvement in local air quality with the Scheme in place within the Opening Year for both nitrogen dioxide and particulate matter. This improvement would remain unchanged within the Design Year. The variations in population exposure however for both assessment years, are predicted to be extremely small.	Assessment scores: NO <sub>2</sub> : Opening Year = -1770; Design Year = -1559 PM <sub>10</sub> : Opening Year = -461; Design Year = -287	Change in population exposure: NO <sub>2</sub> : Opening Year = -0.07; Design Year = -0.08 PM <sub>10</sub> : Opening Year = -0.02; Design Year = -0.01

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OBJECTIVE	SUB-OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE ASSESSMENT	ASSESSMENT
	<b>Greenhouse Gases</b>	The Preferred Scheme leads to a decrease in Carbon emissions compared to the Do-Minimum (without South Bristol Link). Emissions decrease over time due to changes in the speed of vehicles and reduced travel times.	2018 – decrease in emissions due to the Scheme of 0.01%	Change in tonnes of C: 2018 = tonnes 78
	<b>Landscape</b>	Despite the existing baseline conditions and presence of local A roads, this relatively open landscape currently considered as typical rural urban fringe would be further fragmented and degraded with the addition of the Scheme.		Moderate Adverse
	<b>Townscape</b>	The strong 19 <sup>th</sup> and 20 <sup>th</sup> century suburban townscape would be likely to be adversely affected by the proposals, with changes to the scale, density and appearance of the area as a result of the Scheme. The proposals would be a prominent feature within the townscape affecting both character and visual amenity within the local area.		Moderate Adverse

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OBJECTIVE	SUB-OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE ASSESSMENT	ASSESSMENT
	<b>Heritage Historic Resources</b> of	No direct effects to any designated heritage assets. Some minor changes to the setting of Castle Farm Grade II Listed Building may result from operation. Construction could result in physical loss of the potential archaeological resource, which are unlikely to be of substantial quantity or of greater than local importance. Construction would also result in changes to the form, pattern and character of a section of the historic landscape which is of low value. Adequate mitigation to prevent and/or reduce the significance of the predicted effects can be specified using standard techniques.		Slight Adverse
	<b>Biodiversity</b>	Direct habitat loss from a number of locally designated sites and impacts to nationally and internationally protected species including badgers, reptiles, breeding birds, otter, great crested newts and bats likely. Appropriate mitigation would reduce potential adverse impacts. Compensatory habitat as mitigation should be considered where the Scheme is likely to directly impact designated sites.		Slight Adverse

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OBJECTIVE	SUB-OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE ASSESSMENT	ASSESSMENT
	<b>Water Environment</b>	Would cross several watercourses which would require culverting/bridging which may result in disruption/alterations to surface water flows and quality. Discharge of road drainage to surface water may also adversely impact quality. The Scheme would pass through several EA designated flood zones and the underlying soils predominantly have impeded drainage, so that additional runoff may exacerbate flooding in these areas. Potential impact to surface water flows and groundwater sustained habitats at construction. Groundwater quality may be adversely impacted through the infiltration of road runoff and from leachates from landfill.		Slight Adverse
	<b>Physical Fitness</b>	Increase of Physical Fitness by encouraging pedestrian and cycle journeys both over and under 30 minutes from the implementation of a cycleway and pedestrian route. In addition, the provision of lighting along the route would create a safe atmosphere so would appeal to a larger section of the public.		Moderate Beneficial

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OBJECTIVE	SUB-OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE ASSESSMENT	ASSESSMENT
	<b>Journey Ambience</b>	Improvement in journey quality by improvements in Traveller Care, Views and Stress. The appraisal assumes that between 500 and 10,000 people would benefit from the Scheme on a daily basis. Improvements in Traveller Care by the provision of more facilities and cleaner services, and stress and route uncertainty are expected to diminish due to integrated design.		Moderate Beneficial
<b>SAFETY</b>	<b>Accidents</b>	Whilst the Preferred Scheme provides a new optimally designed alternative route, presenting a lower associated accident risk than the surrounding roads, an increase in PIAs and associated costs is expected. This is due to the increase in overall vehicle kilometres travelled within the study area and the expected accident increase is the result of very small incremental increases in accidents across many links.		PVB: - £22.2
	<b>Security</b>	High quality public transport infrastructure will provide a safer environment for passengers		Moderate Positive

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OBJECTIVE	SUB-OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE ASSESSMENT	ASSESSMENT
<b>ECONOMY</b>	<b>Public Accounts</b>	The public sector experiences costs associated with construction, ongoing maintenance and loss of indirect taxation. The amount of indirect tax paid by road users decreases as a result of the reduction in vehicle operating costs. As the level of bus patronage increases with the scheme in place, there is further loss of tax income as no tax is payable on bus fares.		PVC = £59.637m PVB = £345.539m BCR = 5.77 (including accidents) NPV = £285.902m
	<b>TEE: Business Users &amp; Transport Providers</b>	Users of all modes of transport receive timesavings as a result of the scheme. Savings in vehicle operating costs are also received for each class of highway user. Additional benefits will also be experienced as a result of the priority measures and improved crossing facilities and by cyclists through the construction of the cycle route.		PVB = £192.598m
	<b>TEE: Consumers</b>	Benefits are primarily received by highway users with over 90% of total being from road trips.		PVB = £174.623m

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OBJECTIVE	SUB-OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE ASSESSMENT	ASSESSMENT
	<b>Reliability</b>	The RT priority measures and segregated route will provide improved reliability for bus /RT journeys. Reduced traffic on show-case routes will assist in improved reliability for other bus services.		Slight Positive
	<b>Wider Economic Impacts</b>	Contribution to the creation of some 5,600 FTE jobs close to the Scheme in Regeneration Area.		Moderate Beneficial
<b>ACCESSIBILITY</b>	<b>Option Values</b>	The scheme will increase the transport options available in the south west of Bristol		Moderate Beneficial
	<b>Severance</b>	The provision of walking and cycling routes along the alignment will offset any increase in severance caused by the route itself		Slight beneficial
	<b>Access to the Transport System</b>	The Rapid Transit element will improve accessibility to key facilities from an area characterised by low levels of car ownership		Moderate positive

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OBJECTIVE	SUB-OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE ASSESSMENT	ASSESSMENT
INTEGRATION	<b>Transport Interchange</b>	The Rapid Transit element provides access to the greater Rapid Transit Network for those who do not, or choose not, to have access to a car. The Rapid Transit element improves sustainable access between the City Centre, South Bristol and Bristol International Airport. The highway element improves connectivity of the Primary Road Network, improving access between the city and Bristol International Airport. The cycling and pedestrian element improves access to the existing cycling and walking network, improving sustainable access between South Bristol and the City Centre for those who do not, or choose not, to have access to a car.		Moderate Positive
	<b>Land Use Policy</b>	The Draft Regional Spatial Strategy and Draft Bristol Core Strategy identify land within South Bristol for employment and housing use. SBL supports these land use policies by improving sustainable travel and highway access to these sites. The alignment of SBL is reserved in the Bristol City and North Somerset Local Plans.		Beneficial

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OBJECTIVE	SUB-OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE ASSESSMENT	ASSESSMENT
	<b>Other Government Policies</b>	<p>Communities &amp; Local Government; Aids regeneration &amp; sustainable economic development. Possible localised negative impacts on protection of the environment.</p> <p>Environment, Food &amp; Rural Affairs; Possible localised negative impacts on protection of the environment.</p> <p>Health; Improved access to health facilities. Potential contribution to increase physical activity.</p> <p>Business, Enterprise &amp; Regulatory Reform; Aids regeneration &amp; sustainable economic development.</p> <p>Children, schools &amp; Families; Increasing opportunities for access to education</p> <p>Innovation, Universities &amp; Skills; Increase opportunities for access to education</p>		Moderate Beneficial

