

# West of England Investment Board

## Full Business Case

### **Scheme:** Bromley Heath Viaduct Major Maintenance and Improvement Programme Acceleration.

1	Version 3.0	JMunslow SGC260417			
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## Executive Summary

Bromley Heath Viaduct Major Maintenance and Improvement Project is a funded highways maintenance and sustainable transport scheme to provide a fit for purpose southern bridge on the A4174. The Bromley Heath Viaduct consists of two separate structures. The southern structure is in need of maintenance and improving now. The northern structure is in a better condition and does not need work carried it now.

The scheme is to carry out major maintenance and refurbishment of the 60 year old southern structure to enable it to carry traffic for the next 40 years without the need for major disruptive maintenance. The project will also enhance the cycling and walking provision across the structure by replacing the current narrow unprotected path with a new wide protected cycle and footway separated from the vehicular traffic.

The objectives of the project are to:

Put the southern bridge into a fit for purpose state of maintenance.

Reduce the ongoing and future maintenance requirements and costs.

Reduce the need in future to restrict traffic across the bridge whilst carrying out maintenance.

Provide a high standard safety compliant cycle and pedestrian way over the structure.

Remove the risk of having to close or reduce traffic flow over the bridge due to further deterioration.

Remove the risk of pedestrian/cycle, pedestrian/vehicle and cycle/vehicle collision.

The objectives will be obtained through the project outputs;

1. Replace the worn out bridge supports, bearings and joints.
2. Replace the failed, unmaintainable drainage system.
3. Replace the waterproofing.
4. Replace the sub-standard barriers, parapets and restraint systems.
5. Replace the road construction layers.
6. Replace the narrow bridge cantilever with a stronger wide one.
7. Replace the cycle/footway on the cantilever.
8. Put in new cycle, pedestrian protection barriers.

**This business case is asking for financial support of £2.8million to accelerate the programme of works so they are completed in a shorter timescale than the council can currently afford.**

**The funding for a programme that will involve major traffic disruption for a 52 week period is already secured and the scheme is ready to start on site.**

The disruption caused by the works, which is currently programmed at 52 weeks duration of major traffic management is estimated to cost the economy in the region of £31.2million in additional transport and travel time costs. The costs will be as a result of

journey time increases due to delays to traffic as an unavoidable part of the traffic management.

By investing £2.8million to accelerate the works and reduce the programme to 33 weeks of major traffic management, the West of England can save the economy in the region of £13million as well as an estimated reduction in greenhouse and pollution gases from delayed and disrupted vehicles of 800tonnes

A 33 week programme is forecast to be the best balance of economic benefit, community impact of the works taking place outside of normal working hours and risk of delivering to time, quality and cost.

The OBC set out a number of options and selected a £3.8million 25 week programme. However further risk analysis and programme development has been undertaken and the request changed to reflect the most beneficial option for a deliverable scheme that balances risk with economic and community impact.

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## Strategic Case

The Bromley Heath Viaduct (South) is a major, 105 m long and 12m high structure on the A4174 spanning the Frome River valley.

The A4174 ring road around the northern and eastern fringe of Bristol provides the main commuter and business route to the two Enterprise Areas at Filton and Emersons Green, linking them to the Motorway Network and Bristol. The road serves densely populated communities in the North and East of Bristol. The A4174 is the busiest local road in the West of England carrying up to 52,000 vehicles per day (forecast to increase to around 60,000 by 2020). Over 500 cyclist use the bridge each day each way.

The area directly served by the A4174 contains 3 Enterprise Areas, 4 New Neighbourhoods, 2 major business parks, the University of the West of England, as well as the major employers of MOD Abbeywood, Friends Life AXA and the Bristol and Bath Science Park. The road serves all the communities within the whole of the North and East of Bristol.

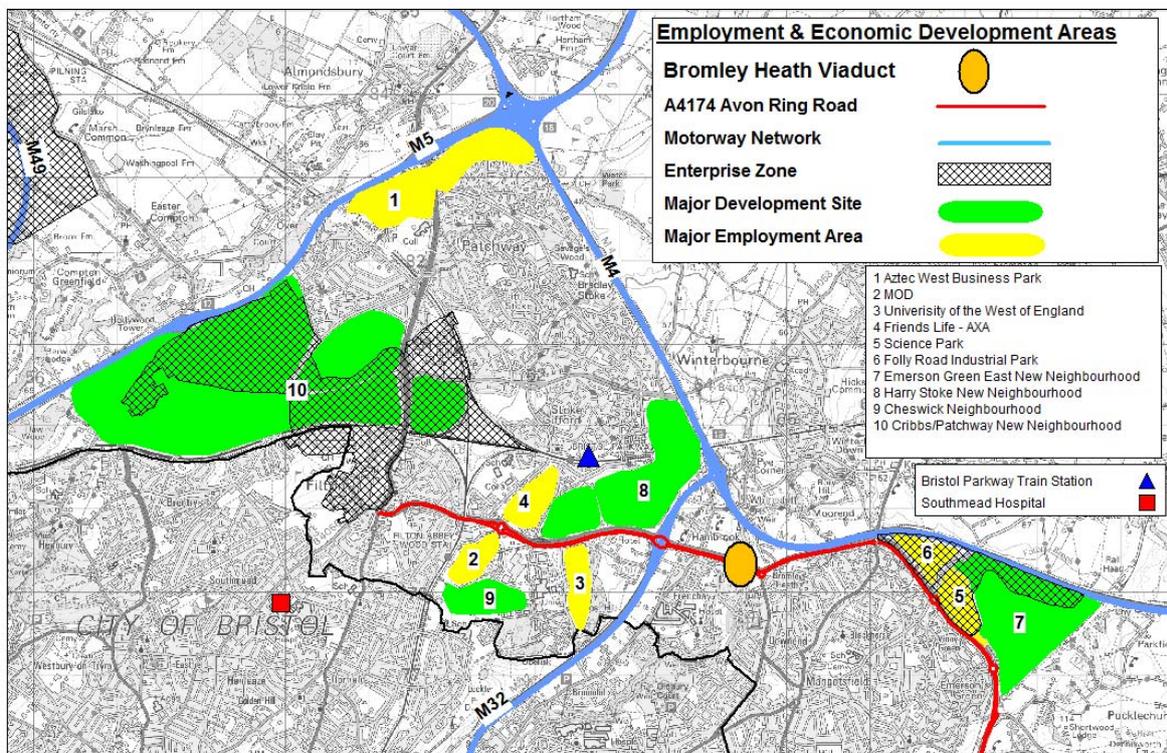
Significant development is planned adjacent to and to be served by, the A4174; Emerson's Green Enterprise Area; Harry Stoke New Neighbourhood; University of the West of England campus; Frenchay Hospital redevelopment; Filton Enterprise Area and the Cribbs Patchway New Neighbourhood.

In total, 9000 new homes and 225 hectares of employment land are planned within these areas, with the number of jobs created being up to 16,000.

The Bromley Heath viaduct is on the busiest section of the A4174 and requires major maintenance work to avoid lane closures and speed restrictions for safety. Lane closures on this section cause tailbacks of up to 8km and delays of up to 2 hours at peak times choking the adjacent road network and putting stress on the M4 and M32.

The A4174 is a high importance strategic route and will form the backbone of the Key Route Network (Once established). The A 4174 is a crucial part of the future transport strategy for the West of England and as such needs to be capable of supporting the wider transport network by providing the key road corridor connecting Bath to the North and East of Bristol.

The route is also the designated strategic diversion route for M4 and M5 closures.



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## 1.0 Promoter and Delivery Arrangements

This project is promoted by South Gloucestershire Council and will be delivered by the Council's StreetCare division strategic supply chain. This supply chain is well established and has successfully delivered the council highways maintenance and improvement programme for the last 7 years

StreetCare is the councils arm that asset manages and maintains the council's public infrastructure and delivers the waste management and transport functions of the council. This is carried out through a combination of in-house management, design and delivery and selected specialist industry and supply chain partners.

All procurement, via the term contract already in place with StreetCares strategic supply chain partner, will be managed by StreetCare using the Council's robust procurement model and resources.

This model has successfully delivered the £6million major maintenance scheme on the A403 and £4 million of carriageway maintenance on the A4174. Both in the last 18 months.

The Bromley Heath Viaduct is a Highway asset and as such the completed works and assets will remain highway and continue to be owned and managed by South Gloucestershire Council. As part of the project a long term asset management plan for the structure will be produce to ensure a sustainable maintenance regime is maintained for the future.

The project is already designed and a programme for the project drawn up.

## 2.0 Project Description

The project is a non- complex Civil Engineering project to maintain an existing structure and at the same time improve it to current transport design and safety standards. The video in the link shows the viaduct and its condition.

<https://vimeo.com/184502794/c84787c40a>

The Bromley Heath Viaduct scheme is made up of two elements;

Maintenance - as part of a major highway maintenance project to improve the condition of the A4174 Ring Road. The project is funded 90% Department for Transport via the Challenge Fund programme and 10% South Gloucestershire Council. The total Challenge Fund project is £15million.

<http://www.southglos.gov.uk/transport-and-streets/streets/roads-road-works/major-roadworks/challenge-fund/>

<http://www.southglos.gov.uk/documents/SGCMCF-Bid-A4174-Final1.pdf>

Cycling Improvement – as part of the West of England Cycle Ambition Fund project also funded by the Department of Transport. The works on the Bromley Heath Viaduct are to improve the cycleway to provide a safer route and encourage take up of sustainable travel choice.

<https://travelwest.info/projects/cycle-ambition-fund>

<https://travelwest.info/projects/cycle-ambition-fund/archive>

The two funding streams for the direct works viaduct total £5.9million. South Gloucestershire Council has also committed £500,000 to the scheme. The total cost of the 52 week programme is £6.4million. By combining the two schemes the council has already reduced the timescale of the works from two years to one year and enabled the Challenge Fund and Cycle Ambition fund to share a range of costs that would otherwise be duplicated if the projects were to be done separately.

The WoE is asked to fund an acceleration of the works by investing £2.8million to reduce the works programme from 52 weeks to 33 weeks. The WoE funding will be added to the current project budget to enable the accelerated works programme.

The project is designed and preliminary and accommodation works are underway.

The contractor and supply chain is engaged and early contractor and specialist supply chain involvement has produce a deliverable risk assessed programme.

### **3.0 Project Objectives and Case for Change**

The objective of the requested intervention by WoE is to reduce the impact of carrying out the works on the local and national economy and the local community.

The objectives below can be met if the WoE invests £2.8million in the project. Specifically to speed up the rate at which the works are delivered.

#### **Objectives;**

1. Reduce the economic cost of the works on businesses and commuters by £13million. Measured through traffic monitoring before and during the works.
2. Reduce the greenhouse gas emissions as a result of the works by 800 tonnes (estimated). Measured through traffic monitoring before and during the works.

3. Reduce the duration of the works to 33 weeks. Measured through the submitted works programme and works monitoring.
4. Bring forward the benefits of the works by 19 weeks. Measured through monitoring the works programme.

The objectives of the Challenge Fund project are detailed in the business case submitted to and approved by DfT Challenge Fund

<http://www.southglos.gov.uk/transport-and-streets/MCF>

The objectives of the Cycle Ambition Fund Project are detailed at

<https://travelwest.info/projects/cycle-ambition-fund/archive>

#### **4.0 Strategic Fit**

The transport strategy for South Gloucestershire is set out in the Joint Local Transport Plan (JLTP3), jointly prepared by South Gloucestershire, Bath and North East Somerset Bristol City and North Somerset Councils. The JLTP3 was adopted in March 2011 and covers the period 2011 to 2026.

The transport policies and goals set out in the JLTP3 have also been embedded in the South Gloucestershire Core Strategy adopted by the Council in December 2013.

The transport vision set out in the JLTP3 is for 'an affordable, low carbon, accessible, integrated, efficient and reliable transport network, to achieve a more competitive economy and better connected, more active and healthy communities'.

To achieve this vision, the specific transport goals set out on the JLTP3 strategy are to:

- Reduce carbon emissions
- Support economic growth
- Promote accessibility
- Contribute to better safety, security and health
- Improve quality of life and a healthy natural environment

This proposal contributes significantly to reducing carbon emissions and supporting economic growth.

#### **Reducing Carbon Emissions.**

The greenhouse gas emissions from the project will be concentrated on a limited number of routes in and around Bristol. The areas affected will suffer from an increase

in air pollution for the duration of the works. This will have an effect on the wellbeing of the local workforce living within the communities affected. Accelerating the works on the viaduct and reducing the time to complete will reduce the carbon and greenhouse gas emissions from the delayed and diverted traffic. The requested £2.8 million investment would reduce the carbon and greenhouse gas emissions produced by the works by around 40%

During the works cyclist and pedestrians will need to share a temporary footway. Reducing the duration of the scheme will enable both user groups to benefit from the improved cycleway earlier. The new cycleway over the viaduct will provide a safer route which could encourage additional uptake of cycling as a travel choice.

### **Supporting Economic Growth.**

The WoE investment of £2.8 million will reduce the adverse impact of the works on the local and national economy and support economic growth by:

- Significantly reducing the impact of the works on the business and commuter traffic by removing £13million of transport and travel disruption costs from the economy.
- Create in the region of a third more jobs in the local areas as would be created if the works are undertaken over the planned 1 year. This will be as a result of dual shift working and the associated management and supervision roles due to the need for dual shifts running each day of the works.
- Acceleration of the works will reduce the negative impact on local businesses and the Enterprise Areas.
- Encourage businesses to locate in the Bristol area by enhancing the reputation of the WoE as an investor supporting existing and new business in the area.
- Enabling the delayed Metrobus route to commence earlier than if the work are not accelerated.
- Reduce the impact of queuing and delayed traffic on the centre of Bristol and the National Strategic Road Network.

## **5.0 Rationale for Public Intervention**

This scheme is to maintain and improve public highways. This proposal supports public infrastructure critical to the local and national economy by enabling the essential works to take place faster than can be afforded by the Council on its own.

The Bromley Heath Viaduct is a major structure on the A4174 at Bromley Heath. It consists of two separate Northern and Southern structures spanning the Frome River valley. The southern viaduct needs major strengthening and maintenance work now and the cycleway/Footway needs upgrading to meet current safety standards.

South Gloucestershire Council has secured £6.4 million from two Department for Transport competitive funding streams for the required works. To deliver within the funding available the works will require the closure of the southern viaduct for 1 year (52 weeks) with major traffic management in place throughout.

It is estimated that the disruption will cost the local economy around £31million in delay and travel costs. An investment by the West of England of £2.8 million would enable the duration of the major disruption caused by the works to be reduced to 33 weeks saving the local economy costs in the region of £13million. Each £1 of WOE investment will benefit the local economy by circa £4.64.

The ownership and responsibility for highway infrastructure rests with the local authorities so private sector intervention is not available.

South Gloucestershire Council has sufficient funding to meet the estimated cost of a combined project for the refurbishment of the Southern Bromley Heath Viaduct and improvements to the cycle network, via replacement of the current cycle path over the viaduct with a high standard wider link, following successful bids to the Local Maintenance Challenge Fund and Cycle City Ambition Fund. The available funding will enable the combined project to be undertaken in one go commencing summer 2017 with a programme that involves a duration of 52 weeks of major traffic management and consequent disruption.

The works on the southern viaduct will require all westbound traffic to be diverted onto the northern viaduct. This will result in one lane of vehicular traffic each way, effectively halving the capacity of the route and causing long queues and traffic delay especially at peak times.

During the closure of the southern viaduct pedestrians and cyclists will be diverted onto the northern viaduct as other options would require a significant, between one and two mile, diversion route on narrow roads that have steep inclines.

The impact of these works on the highway network, local communities and businesses will therefore be significant. A traffic modelling exercise shows we can expect:

- A4174 westbound traffic queuing back to the Dramway roundabout at Emersons Green
- A4174 eastbound traffic queuing back to the Coldharbour Lane junction.
- Significant effect on the National Strategic Road Network with queuing back on to the M32 and possibly M4
- Side roads in Bromley Heath, Frenchay and Winterbourne affected.

The Metrobus has a target opening date of autumn 2017. The Bromley Heath Viaduct works and the associated traffic management will be in place post this date. This will have an impact on the on Metrobus operations and reputation. Close liaison is taking

place with the Metrobus team to mitigate the impact of the works on the Metrobus timetable and bus travel times.

## 6.0 Options Appraisal

4 options for delivery of the required works have been investigated. South Gloucestershire Council considered the delivery options at its ECS Committee on 18 January 2017. Link to the committee papers

<https://council.southglos.gov.uk/ielssueDetails.aspx?IId=58936&PlanId=0&Opt=3#AI56027>

Since January 2017 the project team has refined the estimated programme and costs with the delivery chain partners to manage risk and cost down and to increase confidence of deliverability of the final project programme.

The options for delivery investigated are:

1. Do Nothing
2. Phase the works over a number of years
3. Do the works in one go commencing summer 2017
4. Accelerate the works

**Note:** The costs for accelerating the works have been re estimated since the OBC. This is as a result of progress in designing the works and risk management review of the proposed programme with the designers and construction specialists. The details in option 4 below reflect the development and progression of the scheme design and planning.

### Option 1 Do nothing.

Do not proceed with the maintenance or improvement works.

This would result in further deterioration of the Viaduct which would lead to the need to carry out urgent repairs as the condition gets worse. These repairs will require closures of the viaduct in most instances. It is estimated that by the 5<sup>th</sup> year weight and or speed restrictions over the structure will be required.

Advantages:

- The funding allocated can be spent elsewhere to provide other benefits on the highway network.
- Up to 3 years of no maintenance works affecting traffic and communities.

Disadvantages:

- High risk of failure of the viaduct requiring closure at short notice.
- Increase in revenue maintenance liabilities.
- Risk to cyclists and pedestrians remains.
- Impact on Metrobus operations.
- Major maintenance works will be inevitable in as little as 4 years time.

### **Option 2 Phase over a number of years.**

This option would increase cost and overall time of work affecting traffic.

The maintenance works could be carried out over 9 years in 3 month blocks. The viaduct would be closed for each 3 month period.

Advantages:

- Reduced impact on communities in any given year.
- Reduced impact on traffic in any given year.
- Long lead in times to blocks of work which would benefit cost and risk management.

Disadvantages:

- Increase in total cost of around 75%. Due to repeated site set up and take down costs.
- Increased total impact on traffic and communities overall of 225% over doing the works in one go within the current funding. Total works duration of 27months.
- Increased need to manage capital and revenue maintenance on elements of the viaduct until they are refurbished. Need for increased revenue funding at short notice.
- Risk to pedestrians and cyclists remains for approx. 7 years.
- Impact on Metrobus operations.

### **Option 3 Do the works in one go commencing summer 2017.**

Commence the works in June/July 2017 with a duration of 1 year. Completion in May/June 2018. This option is achievable within current funding. DfT have stated that it would not be in contravention of their funding requirements. It would require South Gloucestershire Council to 'ring fence' the funding to the project across financial years.

#### Advantages:

- Achievable within the current funding.
- Shorter total duration of impact on communities and traffic within current funding.
- Gets the works done so benefits of both projects are realised early.
- Risk to cyclist and pedestrians removed.
- Lowest capital and revenue cost option.
- Enable more time to inform communities, traffic and businesses.
- Longer lead in time to commencement allowing better cost risk management preparation.

#### Disadvantages:

- Impact on Metrobus operations.
- Long duration of impact on communities, businesses and traffic.

#### Option 4 Accelerate the works.

The duration of the works could be reduced by increasing the amount of work done in any given week of the works. This will require additional funding to pay for increased contractor and supervision staff resources. The work could be carried out in a number of ways. Each reducing the total duration by different amounts.

Detailed works programming analysis with the contractor and designers has identified 4 deliverable duration acceleration plans.

<b>Sub Option</b>	<b>Programme Duration Reduction</b>	<b>Additional Moneys Required to reduce Programme</b>	<b>Time needed to complete the work.</b>
<b>a</b>	15 weeks (7 day week single shift)	£800,000	37 weeks
<b>b</b>	25 weeks (5 day week double shift)	£1,800,000	30 weeks
<b>c</b>	27 weeks (6 day week double shift)	£2,800,000	25 weeks
<b>d</b>	30 weeks (7 day week double shift)	£3,700,000	22 weeks

Following further work on the design, construction methods and programme to maximise the use of resources and reduce risk in the project a more defined option for reducing the duration of the works has been identified. This option is agreed by the asset managers, designers and contractors to be the best balance between reducing

the programme and managing deliverability, cost and quality risks.

The best achievable programme is:

<b>Sub Option</b>	<b>Programme Duration Reduction</b>	<b>Additional Moneys Required to reduce Programme</b>	<b>Time needed to complete the work.</b>
<b>E</b>	19 weeks (5 day 24 hour working)	£2,800,000	33 weeks

Advantages:

- Reduced impact on communities, businesses and traffic.
- Benefits of both projects realised early.
- Risk to pedestrians and cyclists removed quicker than other options.

Disadvantages:

- Cost of funding the reduction in programme duration.
- Need to find additional funding to achieve.
- Impact on communities, particularly residents in close proximity to the viaduct from noise and light from extended working hours on site.

## **Selected Option**

**Option 4 E is selected as the Optimum option.**

**Option 4E £2.8million investment to accelerate the works and deliver in a 33 week closure duration provides the best result for the local economy and communities whilst managing risk within the project itself.**

Options 4, a to d as presented in the OBC were based on the best information available when the OBC was submitted. Options b,c and d are now unachievable due to the lead in time for a number of specialist elements of the works. Option a is achievable but the cost would likely rise to around £1.5million making it less beneficial in terms of economic return on investment. This is due to design changes within the scheme aimed at reducing risk and cost in the 52 week and proposed 33 week programmes.

## 7.0 State Aid Considerations

<p>1. Is the assistance granted by the state or through state resources?</p> <p><b>NO. The outputs and outcomes of the project will be and remain public infrastructure.</b></p>	<ul style="list-style-type: none"> <li>• “Granted by the State” means by any public or private body controlled by the state (which, in the UK, means national or local Government).</li> <li>• “State resources” is broad: any measure with an impact on the state budget or where the state has significant control are included, for example, tax exemptions, Lottery funding and the EU structural Funds.</li> </ul>
<p>2. Does the assistance give an advantage to one or more undertakings over others?</p> <p><b>NO. It is a public project on public infrastructure</b></p>	<ul style="list-style-type: none"> <li>• An “undertaking” is any organisation engaged in economic activity. <ul style="list-style-type: none"> <li>- This is about activity rather than legal form, so non-profit organisations, charities and public bodies can all be undertakings, depending on the activities they are involved in.</li> <li>- An undertaking can also include operators and ‘middlemen’ if they benefit from the funding.</li> </ul> </li> <li>• “Economic activity” means putting goods or services on a market. It is not necessary to make a profit to be engaged in economic activity: if others in the market offer the same good or service, it is an economic activity. Support to an organisation engaged in a non-economic activity isn’t State aid, e.g. support to individuals through the social security system is not state aid.</li> <li>• An “advantage” can take many forms: not just a grant, loan or tax break, but also use of a state asset for free or at less than market price. Essentially, it is something an undertaking could not get in the normal course of business.</li> </ul>
<p>3. Does the assistance distort or have the potential to distort competition?</p> <p><b>NO. It is a public project on public infrastructure</b></p>	<ul style="list-style-type: none"> <li>• If the assistance strengthens the recipient relative to its competitors then the answer is likely to be “yes”.</li> <li>• The “potential to distort competition” does not have to be substantial or significant: may include relatively small amounts of financial support to firms with modest market share.</li> </ul>

<p>4. Does the assistance affect trade between Member States</p> <p><b>NO. It is a public project on public infrastructure.</b></p>	<p>The interpretation of this is broad: it is enough that a product or service is tradable between Member States, even if the recipient does not itself export to other EU Markets.</p>
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## **8.0 Equality and Diversity Impact Assessment.**

An EIA has been carried out for both the Challenge Fund and Cycle Ambition Fund Projects

<http://www.southglos.gov.uk/documents/SGCMCF-Bid-A4174-Final1.pdf>

<https://travelwest.info/projects/cycle-ambition-fund/archive>

## **9.0 Environmental Sustainability Considerations**

The design of the scheme includes significant use of 'green' materials. The most significant being a composite FRP cycleway deck. The design also includes improvements to the drainage system to capture road dirt and filter rain water before it is discharged to the River Frome. The project will also be carrying out off set planting to replace the loss of vegetation in order to construct the crossover and carry out the works on the viaduct itself.

Repairing and strengthening the Piers uses less concrete than replacing them. This approach also reduces waste.

All waste water produced on site for concrete cleaning and repairs will be captured, filtered and cleaned before being discharged.

By far the greatest environmental benefit of this bid is that if the investment of £2million is provided by the WoE the greenhouse gas emissions from delayed, diverted and disrupted traffic will be reduced by circa 800 tonnes. This will also reduce the longer term effects of pollution on the health of those living in the vicinity of the works.

### **Economic Case**

#### **Programme Level**

The funding requested will be used to reduce the duration of the Bromley Heath Viaduct works. These works are part of the wider A4174 Challenge Fund scheme currently

being carried out by South Gloucestershire Council. The additional funding cannot be found from the existing project budgets as to do this will significantly curtail the benefits as defined in the Challenge Fund bid business case. If the deliverables of the Challenge Fund project are reduced this will alter the BCR and would result in South Gloucestershire council having to fund any shortfall. Funding shortfalls within the challenge fund project to achieve the deliverables as described in the bid is a commitment the council made on accepting the DfT funding.

The Cycle Ambition Fund element of the Bromley Heath Viaduct has no further funding available to contribute to any acceleration of the programme.

The economic case for the Challenge fund is at

<http://www.southglos.gov.uk/transport-and-streets/MCF>

The economic case for cycle Ambition is at

<https://travelwest.info/projects/cycle-ambition-fund/archive>

### **Scheme Level**

The funding supplied by WoE will protect and sustain jobs rather than create new jobs. The funding will sustain or avoid loss of GVA rather than uplift it directly.

The current duration of the project of 1 year of major traffic disruption will have a significant impact on small and medium businesses. The impact on some business could cause them substantial financial difficulty which in turn may result in loss of jobs. It would be very difficult to calculate the number of jobs protected through the investment. It is also difficult to calculate the GVA sustained or uplifted. However using the Hiram Resilience Modelling tool a reduction in cost to the economy of the additional travel time and fuel costs caused by the works has been calculated. A 19 week reduction in programme would save businesses and commuters in the region of £13million.

By providing the additional funding the WoE will enable the creation of a small number of additional jobs within the delivery supply chain. The number of jobs is difficult to calculate and some will be temporary for the duration of the project. The best estimate is 6 new jobs in the construction, 1 in the specialist composite construction of the cycleway deck and 2 on the supply chain management, supervision and design teams in the project.

## **10.1 Value for Money Statement**

<i>Total project cost</i>	<i>9,187,500</i>
<i>Grant sought (EDF)</i>	<i>2,800,000</i>
<i>Net Quantified Benefits</i>	<i>GV loss avoidance £13million</i>
<i>VfM indicator*</i>	<i>GV loss avoidance: Cost 13,000,000:2,800,000 <b>4.64:1</b></i>

*\* Benefit compared to total cost including match funding*

### **Summary table of assumptions**

<i>Criterion of assessment</i>	<i>Assumption</i>
<i>e.g. jobs</i>	<i>Jobs not included in VfM as jobs not created on a permanent basis but loss of some will be avoided</i>
<i>e.g. GVA</i>	<i>GV loss avoidance of £13million used instead of GVA</i>

The value for money of this bid is in the cost avoidance to the economy provided by reducing the duration the major traffic management is in place from 52 weeks to 33 weeks. The transport impact costs have been derived at using the Highways Infrastructure Resilience Assessment Modelling Tool (HIRAM). HIRAM incorporates a calculation of the transport costs of delays due to roads being closed or restricted as a result of weather or maintenance events. The tool uses DfT transport data from WebTag and local traffic flow figures in the calculation.

The model has been used to show the economic benefit of reducing the duration of the works by 4 weeks blocks. The HIRAM tool calculates that for every 4 weeks the major traffic management is in place road users will experience increased costs of £2.8million. This is £700,000 per week of works. The value bought for the £2.8million is an avoidance of local businesses and commuters paying out circa £13 million in extra travel costs which they can then spend in other ways. Due to the nature of this investment there is no GVA or jobs calculator available to provide reliable estimates of numbers of jobs or GVA produced. Rather than add Gross Value this investment will avoid loss of Gross Value from the region.

Jobs created directly by the investment would most likely only be for the duration of the works; estimated 9 jobs for the 33 week duration. These may or may not be sustained beyond the Bromley Heath Viaduct scheme. Again the benefit of the investment is the works will be carried out quicker so business will suffer the impacts of the traffic management for a reduced period of time. This is likely to avoid some SMEs being impacted to the point of having to reduce in size or cease trading; this avoids job losses rather than create them

The Value for Money calculations for the Challenge Fund and the Cycle Ambition Fund are at;

<http://www.southglos.gov.uk/transport-and-streets/MCF>

<https://travelwest.info/projects/cycle-ambition-fund/archive>

## Financial Case

### 11.0 Scheme Cost

The total cost of the accelerated programme is £9.2million. This is £2.8million more than the unaccelerated programme which is £6.4 million.

<b>Works Costs Breakdown 33 week accelerated programme</b>	<b>Cost</b>
Site set up. Site Compound, Welfare, Accommodation works, Noise and Vibration monitoring, Tree and Environmental Protection.	1,530,000
General Temporary Works, Scaffolding Foundations, Scaffolding, Temporary Bridge over River	650000
Contraflow, Temporary Traffic Management, Vehicle Tow Away, TM Manager	920000
Pier Maintenance works and Hinge Strengthening	220000
Abutment Bearing replacement	750000
North Cantilever Parapet & Vehicle Restraint System	350000
South Cantilever Widening	1350000
Structure Drainage System Replacement	80000
Waterproofing & Surfacing	410000
Concrete Repairs to Sub-structure	140000
<b>Total Direct Works Costs.</b>	<b>6,400,000</b>
Supervision	200000
Project Management	100000
Contract Management inc NECC project Manager	90000
Communication and Stakeholder Management	160000
Strategic Traffic Management, Temp orders, signs, enforcement, maintenance	400000
Risk and Contingency @ 25%	1837500
<b>Project Cost</b>	<b>9,187,500</b>
52 week closure costs total	6400000
<b>WoE LEP Investment</b>	<b>2,787,500</b>

The WoE LEP investment is for the additional cost to accelerate the programme. The WoE LEP investment will only be used to cover the costs of acceleration. The costs

associated with the risks of the unaccelerated programme and the wider Challenge Fund and Cycle Ambition Fund programmes will be covered by South Gloucestershire Council.

### **Revenue Elements**

There are no revenue elements to this bid.

### **Capital Elements**

<b>Cost Heading</b>	<b>Total projected eligible expenditure</b>	<b>Amount to be claimed</b>
Construction Acceleration	2,800,000	2,800,000

## **12.0 Spend Profile and Funding Sources**

All funding will be spent in financial year 2017/18

The funding sought is EDF and will be used for Capital.

### **Capital Spend (£000s)**

	<i>Pre 15/16</i>	<i>15/16</i>	<i>16/17</i>	<i>17/18</i>
<i>EDF</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>2,800</i>
<i>South Gloucestershire Council secured funding (inc CF and CAF)</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>6,400</i>

### **Revenue Spend (£000s)**

There are no revenue elements to this bid.

### **Total Spend (£000s)**

	<i>Pre 15/16</i>	<i>15/16</i>	<i>16/17</i>	<i>17,18</i>
<i>EDF</i>				<i>2,800</i>
<i>South Gloucestershire Council</i>				<i>6,400</i>

<i>secured funding (inc CF and CAF)</i>				
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## **Commercial Case**

### **13.0 Procurement**

The project is to be delivered by South Gloucestershire Council StreetCare Division and StreetCare's Strategic Supply Chain Partners. This is an established supply chain experienced in the delivery of simple and complex highways maintenance and improvement projects. Tarmac is the lead supply chain partner. Tarmac will be using their sister company Farrons for the specialist structures work, who will engage with leading structures maintenance specialists and suppliers.

The contract is NEC 3 Option C Target Cost. This has been chosen as it has been proved to offer the best method of contract for Highway Maintenance and Improvement works. It is the contract through which the StreetCare supply chain has been engaged for the last 7 years. The use of Option 3 Target costs enables a beneficial balance of risk and reward across the supply chain and client

There are no OJEU requirements as the supply chain and contract are already in place and these works are within scope and financial limits.

### **14.0 Operation and Financial Viability**

Following completion of the major maintenance and improvement works the Bromley Heath Viaduct will be managed and maintained by South Gloucestershire Council as a highways asset. Day to day maintenance and management costs will be met from the councils Highways Maintenance budget.

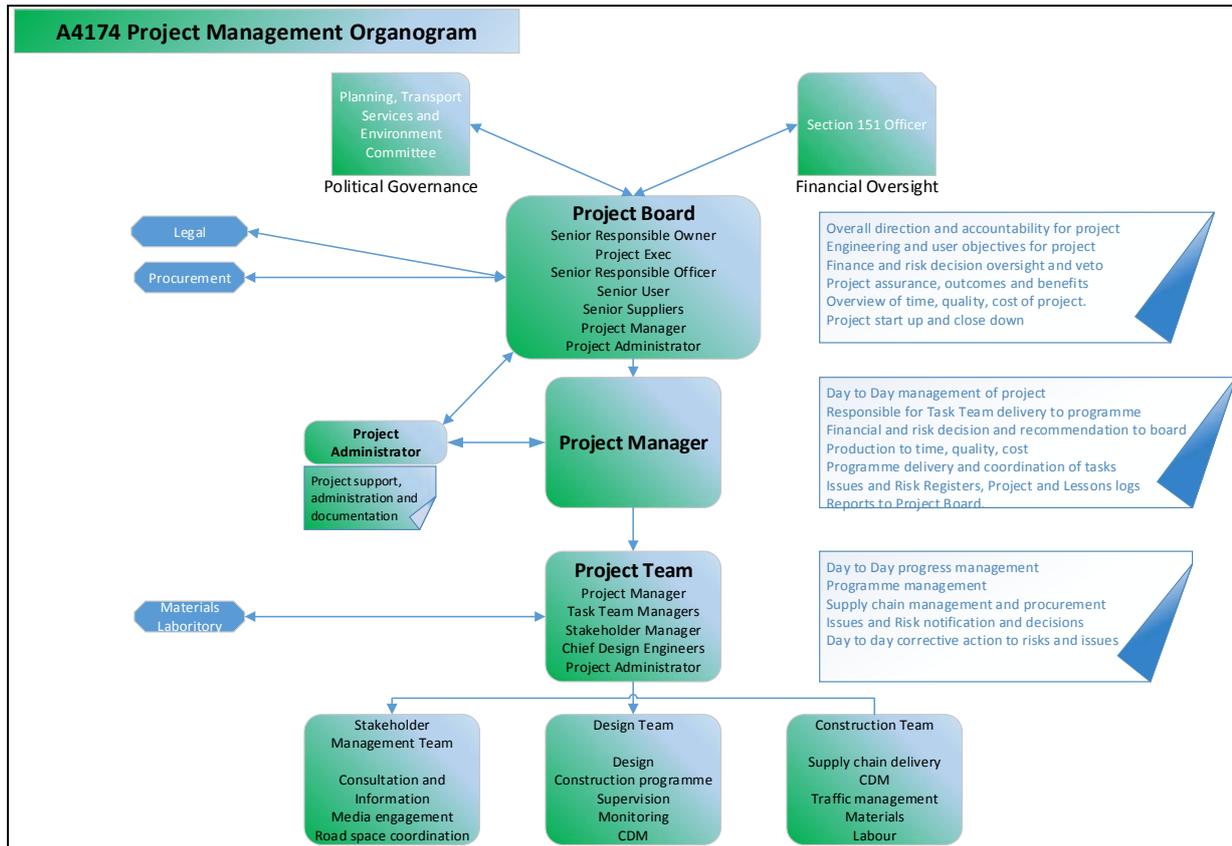
At the end of the project an asset management plan for the Bromley Heath Viaduct will be produced and followed to ensure the structure is maintained in a fit for purpose state for the future. The asset management plan will identify asset element inspection and maintenance regimes. It will include the CDM health and Safety documents.

The design of the works include changes to the structure that will make future maintenance and inspection easier, safer and less disruptive to traffic.

## Management Case

### 15.0 Project Governance and Delivery

The governance for the Bromley Heath Viaduct Project will form part of the overall Challenge fund Project Governance as set out in the A4174 Project Management Organogram.



Investigations, outline design and preliminary programming have been completed by StreetCare Structures Management Team.

MJD Associates are The Challenge Fund Project Managers. MJD Associates are an experienced local government consultants and service provider. MJD Associates have been delivering the role as Programme Manager since the commencement of the Challenge Fund project in 2016.

The Designers are WSP- Parsons Brinkerhoff. Engaged through South Gloucestershire Councils, StreetCare supply chain contracts.

Should the WoE LEP require a seat on the board or project team this will be accommodated. The WoE LEP will be included in the circulation of any relevant BHV project documents throughout delivery.

<http://www.wsp-pb.com/>

Construction programme has been developed by Structures Specialist Farrons and civil engineering construction specialists Tarmac.

<http://www.tarmac.com/>

<https://www.farrans.com/>

WSP- Parsons Brinkerhoff have reviewed and approved the designs, costs and programmes as independent quantity surveyors

WSP – Parsons Brinkerhoff have been appointed the NEC Project Manager.

WSP- Parsons Brinkerhoff have been appointed as Quantity Surveyor.

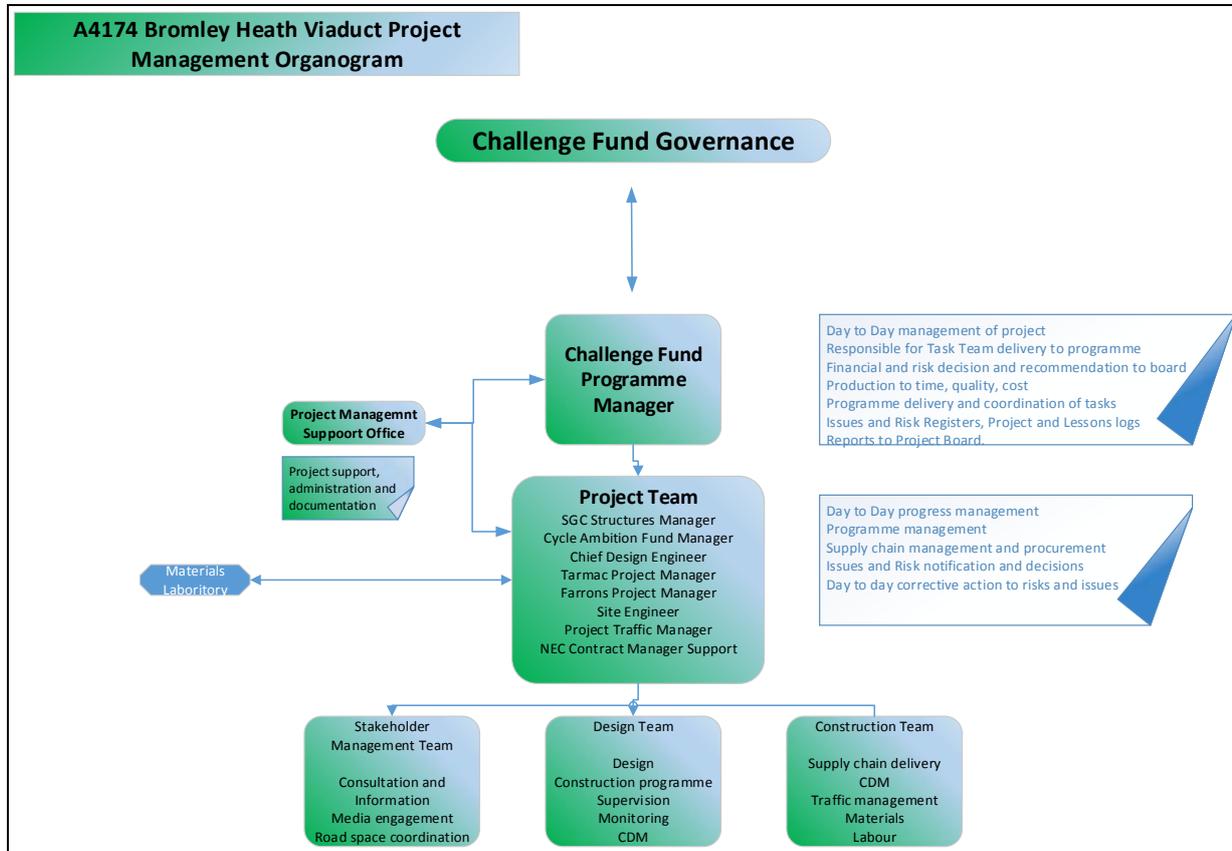
WSP- Parson Brinkerhoff will be providing the Site Supervisor role for the duration of the viaduct works.

South Gloucestershire Council Structures Team will be closely involved in all aspects of delivery management to ensure risk is managed and quality meets requirements.

A Community Engagement Support role has been set up to ensure close working with the community to support communications, organise and promote activities to add social value from the project with community groups, schools and businesses.

## 16.0 Programme Plan

The Bromley Heath Viaduct project management will be led by the Challenge Fund Programme Manager. A specific Bromley Heath Viaduct Project Team will ensure the works are carried out to programme.



## Outline Programme

The proposed programme is at **APPENDIX 1**

The programme has been produced with the supply chain to ensure it is deliverable and includes time float to enable any slippage to be recovered. The programme has been independently reviewed by the Project Team and by WSP- Parsons Brinkerhoff. Whilst available float in the programme is limited this reflects the programme being reduced to its manageable minimum duration.

## 17.0 Land Acquisition, Planning and Other Consents

There are no Land Acquisition, Planning or Other Consents required to progress the project.

## 18.0 Service Diversions

There are no Service Diversion required.

## 19.0 Engagement and Consultation

A full stakeholder management plan is being drafted. **APPENDIX 2**

<http://www.southglos.gov.uk/transport-and-streets/streets/roads-road-works/major-roadworks/bromley-heath-viaduct/>

Stakeholders Engagement with Residents, Businesses and Communities to date;

Date/Time	Meeting	Venue
25/2 - 10am to Noon	Residents Engagement Meeting - BHV Site Compound	
2/3 – 7pm	Downend Community Engagement Forum	Badminton Road Methodist Church
6/3 – 7pm	Winterbourne (including Frenchay) Parish Council	Greenfield Centre, Park Avenue
7/3 – 7:30pm	Winterbourne Community Engagement Forum	Greenfield Centre, Park Avenue
14/3 – 6 to 8pm	South Gloucestershire Cycle Forum	
15/3 – 10:30 to 2:00pm	Suscoms Commuter event	Rolls Royce
<b>15/3 – 6 to 8pm</b>	<b>Residents Engagement Meeting</b>	<b>Hambrook Primary School</b>
16/3 – 7pm	Downend and Bromley Heath Parish Council	Downend Baptist Church
<b>18/3 – 10am to Noon</b>	<b>Residents Engagement Meeting</b>	<b>Bromley Heath Infant school</b>
22/3 -10:30 to 2:30pm	Suscoms Commuter event –Business Engagement	Bristol and Bath Science Park
<b>22/3 – 7 to 9pm</b>	<b>Residents Engagement Meeting</b>	<b>Frenchay Village Hall</b>
<b>25/3 - 10am to Noon</b>	<b>Residents Engagement Meeting</b>	<b>Downend library</b>
28/3 – 9:30 to 12:30pm	Suscoms Members Meeting – Business Engagement	GKN Aerospace
30/3 - 10:30 to 2:00pm	Suscoms Commuter event – Business Engagement	MOD and Abbeywood
4/4 - 10:30 to 2:00pm	Suscoms Commuter event –Business Engagement	GKN
5/4 - 10:30 to 2:00pm	Suscoms Commuter event – Business Engagement	Filton
28/3 and 19/1	Traffic Impact Planning- Highways England Bristol City, BaNES.	SGC Offices

Further Community and Business Engagement is planned for May to inform on the traffic management plans and support business continuity planning for businesses.

Bus operators and Rail providers are being consulted and informed.

Schools will be engaged in June

Social Media information campaign is being planned and will run throughout the project.

On site information signing for traffic will commence now.

The project team are working closely with Metrobus

## 20.0 Risks, Constraints and Dependencies

Risk Register for the Scheme. **APPENDIX 3.** This is the risk register for the Bromley Heath Viaduct scheme. The risk register is a live document and is being continually updated. The next update will be carried out on Thursday 27 April. The project team have identified three key risk points in the works.

### Key Risks in the Works

3 key Go/No-go Risk management points have been identified in the works programme. At these points we would need to assess the risk to cost and time of continuing with the project. The decision will be to continue and manage a known level of additional cost or programme duration or to stop reopen the bridge to traffic and assess a wide range of options to deal with what we have found.

Go/No-go Point	Activity	Risk	Impact	Timing
Preparatory works	Excavation for temporary scaffolding foundations	Ground conditions are not stable so need to install larger foundations	Cost – Medium to High Time – High	11 July 2017
Bearings	Opening of bridge for bearing repairs	Excavation reveals the end of the bridge beams are badly corroded so extensive repairs of the beam ends is required.	Cost – Medium to High Time – Low to High	1 <sup>st</sup> week in August 2017
FRP Cycleway Deck Delivery	Installation of the cycleway deck	Supply Chain failure for delivery and installation of the cycleway deck.	Cost – Low Time - High	Now to February 2018

The financial risk allowance for the project is 25% of the total project cost. Total cost of the 33 week programme is £9.2 million. The financial risk allowance is £2.3 million. This is considered adequate to cover the project risks.

## **21.0 Project Assurance**

Cost review carried out by Quantity Surveyors WSP who are engaged in the project.

Design Review carried out internally by SGC Structures Team.

An NEC Contract Manager is being appointed and a QS will be appointed to the delivery team.

## **22.0 Monitoring and Evaluation**

The monitoring and evaluation of the benefits of the WoE £2.8million investment will be simply monitored through the project cost and programme management.

Programme will be measured against the 33 week planned duration.

Cost will be measured as achieving the 33-week duration within the £2.8 million cost.

A full monitoring and evaluation plan is being produced that will combine the requirements of the Challenge Fund, Cycle Ambition Fund and WoE LEP whilst avoiding duplication of effort and reporting.

### **22.1 Scheme background**

In simple terms the provision of £2.8million from WoE will deliver the Bromley Heath Viaduct works within a 33 week closure programme period.

Key milestones are as detailed in the project programme APPENDIX 1.

### **22.2 Logic Model**

### **22.3 Evaluation design and methodologies**

Complex Evaluation of the WoE investment is not required. The funding applied for will increase the rate at which the Bromley Heath Viaduct works can be completed. Accelerating the works will remove risk to the economy by reducing the impact of the works on businesses, communities and residents.

A revised methodology for evaluation is being developed to reflect the additional funding of the WoE LEP within the project. The revised methodology will combine the requirements of the Challenge Fund, Cycle Ambition Fund and the WoE LEP funding.

### **22.4 Data requirements**

#### **22.4.1 For schemes fully or part-funded via the Local Growth Fund only**

Specific metrics to be defined if the funding is allocated.

#### **22.4.2 Data collection methods**

Specific data collection methods are being developed as part of the monitoring and evaluation plan.

#### **22.4.3 Data collection and establishing the baseline**

The baseline will be established using existing business, financial and traffic data held within the West of England and its constituent authorities.

#### **22.5 Delivery plan**

Delivery plan to be defined if the funding is allocated.

#### **22.6 Resourcing and governance**

All scheme monitoring and evaluation will be funded from within the Bromley Heath Viaduct Project budgets.

The Challenge Fund Programme Manager will plan, organise, quality control and publish any monitoring information.

*Michael Dixon, Programme Manager. 01454 865753.*

[Michael.dixon@southglos.gov.uk](mailto:Michael.dixon@southglos.gov.uk)

#### **22.7 Dissemination**

The evaluation findings will be published via the Challenge Fund and Cycle Ambition Fund projects.

### **Appendices**

- 1. Proposed Programme**
- 2. Draft Stakeholder Management and Engagement Plan**
- 3. Risk Register for the Bromley Heath Viaduct**

# Scheme: Bromley Heath Viaduct

## Full Business Case Monitoring & Evaluation Plan

### 1. Scheme background and context

- Provide a short description of the scheme, including costs, the delivery timeframe and an explanation of the wider delivery context.
- A summary of the key milestones should be provided with expected and actual completion dates. (indicative 250 words)

Bromley Heath Viaduct Major Maintenance and Improvement Project is a highways maintenance and sustainable transport scheme to provide a fit for purpose southern bridge on the A4174.

The A4174 ring road around the northern and eastern fringe of Bristol provides the main commuter and business route to the two Enterprise Areas at Filton and Emersons Green, linking them to the Motorway Network and Bristol. The road serves densely populated communities in the North and East of Bristol. The A4174 is the busiest local road in the West of England carrying up to 52,000 vehicles per day and over 500 cyclist use the bridge each day each way.

The Bromley Heath Viaduct consists of two separate structures. The scheme is to carry out major maintenance and refurbishment of the 60 year old southern structure to enable it to carry traffic for the next 40 years without the need for major disruptive maintenance. The project will also enhance the cycling and walking provision across the structure by replacing the current narrow unprotected path with a new wide protected cycle and footway separated from the vehicular traffic.

The overall scheme cost is £9.1875m of which £1.72 is provided by the DfT Challenge Fund , £4.66m by the Cycle Ambition Fund and £2.8m from the Economic Development Fund (EDF). The EDF funds will accelerate the works and reduce their duration to within a 33 week closure period involving traffic disruption from the previous 52 week period.

Milestone completion dates	Baseline month/year	Actual completion
Commence on site.	June 2017	June 2017
Implement Contraflow Traffic Management.	23 July 2017	23 July 2017
Bridge bearing replacement	October 2017	
Support pier strengthening	October 2017	
North cantilever strengthening	March 2018	
South cantilever widening	March 2018	
Install cycle way deck	12 March 2018	
Install vehicle restraint systems	28 March 2018	
Structural repairs	October 2017	
Carriageway surfacing	March 2018	
Reopen to traffic	31 March 2018	
Construction project closedown report.	May 2018	
Evaluation report yr 1	May 2019	
Maintenance period end.	May 2019	
Evaluation report yr 3	May 2021	

# Scheme: Bromley Heath Viaduct

## 2. Logic Model

- Complete a logic model to reflect the project scope i.e. all the activities covered by the investment. Ensure also that there is a clear progression between the steps in your logic model.
- State assumptions between the investment and the predicted outcomes and impacts.
- For outcomes relating to direct jobs creation, please provide an annual profile of jobs created and clearly state the time period over which net additional jobs and GVA will be created.
- Include the intended impacts relating to the scheme Equalities and Diversity objectives as set out in the action plan (section 8 of the Full Business Case).
- Please define the impact area of the intervention i.e. West of England or other geographical scale.  
(indicative 350 words)

# Scheme: Bromley Heath Viaduct

## Logic Model

Context and Rationale					
Provide a brief description of the strategic and policy context (link to local and national strategy policy). Briefly describe the market failure rationale for the intervention.					
Objectives	Resources/ Input	Activities	Outputs	Direct & Indirect Outcomes	Impact
<p><i>The aims/ objectives of the scheme are: (Ensure that <u>all aims/objectives are SMART</u>)</i></p>	<p><i>In order to achieve the set of activities to fulfil these aims/ objectives we need the following: (Resources should not be limited to money e.g. grant, match funding, in-kind, project team, specialist support, etc. The inputs define the scope of the project being considered in the logic model )</i></p>	<p><i>In order to address the aims and objectives we will accomplish the following activities: (What will the money be used for? e.g. construction, project management, equipment/fit out, etc):</i></p>	<p><i>We expect that, once accomplished these activities will produce the following deliverables: (Provide measurable outputs e.g. length of new road/cycle path, m<sup>2</sup> of space constructed/refurbished, number of businesses supported, learners engaged, etc)</i></p>	<p><i>We expect that if accomplished these outputs will lead to the following <u>change</u> e.g. new products or services, skills, behaviour, new business/contracts, etc: (Ensure that <u>all outcomes are SMART and relevant</u> to the aims/objectives to allow for <u>attribution</u>; distinguish between direct and indirect outcomes)</i></p>	<p><i>We expect that if accomplished these activities will lead to the following changes in service, organisation or community: (quantitative economic impacts e.g. indirect jobs and/or GVA to be <u>cross-referenced</u> with FBC as appropriate)</i></p>
<ul style="list-style-type: none"> <li>Put the southern bridge into a fit for purpose state of maintenance by 2018</li> <li>Reduce the ongoing and future maintenance requirements and costs.</li> <li>Reduce the need in future to restrict traffic across the bridge whilst carrying out maintenance.</li> <li>Remove the risk of having to close or reduce traffic flow over the bridge due to further deterioration.</li> </ul>	<ul style="list-style-type: none"> <li>Invest £1.72 Million to repair the elements of the structure requiring maintenance.                             <ul style="list-style-type: none"> <li>Project team consisting of the NEC contract managers, designers, Traffic management consultants, quantity surveyors</li> <li>Contractors – Tarmac as main contractor surfacing. Farrons as main contractor structures, Forest as traffic management.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Use modern lightweight materials where achievable to reduce deadload of the bridge.</li> <li>Carry out strengthening of the support piers to meet current design standards.</li> <li>Install new bridge bearings with inspection pits.</li> <li>Install redesigned drainage system</li> </ul>	<ul style="list-style-type: none"> <li>Light weight FRP cycleway deck 100m long 2.5 m wide.</li> <li>Lightweight concrete cantilevers on the south and north sides. 100m long.</li> <li>Inspection of bridge bearings enabled without disturbing the road surface.</li> <li>Enable inspection and cleansing of the drainage system to avoid carriageway flooding and damage to the structure.</li> </ul>	<p>Direct.</p> <p>On completion, the viaduct will have sufficient strength to support abnormal loads up to 100tonnes. The structure will be in good condition with no need for planned major maintenance (maintenance that involve peak time closure to traffic or works of more than 1 week continuous duration) for 20 years. The carriageway surfacing will not need replacing for the next 12 to 15 years.</p> <p>Indirect.</p> <p>Significantly reduced, need for minor reactive maintenance of the structure for 15 years. Forecast zero yrs. 0 to 5, very low yrs. 6 to 12 and low yrs. 13 to 20.</p>	<ul style="list-style-type: none"> <li>Improved customer experience using the structure.</li> <li>Reduced resources required to manage the structure.</li> <li>Reduced economic impact of maintenance works on the structure. Est £2.4million. (Based on 4 weeks of closure due to maintenance saved per year.)</li> </ul>
<ul style="list-style-type: none"> <li>Provide a high standard safety compliant cycle and pedestrian way over the structure</li> <li>Remove the risk of pedestrian/cycle, pedestrian/vehicle and cycle/vehicle collision</li> <li>Increased cycle and pedestrian use of the structure</li> </ul>	<ul style="list-style-type: none"> <li>Invest £4.66 Million to replace the narrow cycle/footway with a new one and install parapets and vehicle restraint barriers to current design standards.                             <ul style="list-style-type: none"> <li>Project team consisting of the NEC contract managers, designers, Traffic management consultants, quantity surveyors</li> </ul> </li> <li>Contractors – Tarmac as main contractor surfacing. Farrons as main contractor structures, Forest as traffic management</li> </ul>	<ul style="list-style-type: none"> <li>Replace the southern parapet with a new one.</li> <li>Install a vehicle restraint barrier between the cycle/footway and carriageway.</li> <li>Replace the existing cycle/footway.</li> </ul>	<ul style="list-style-type: none"> <li>Wider (2.5m) 100m long cycle/footway.</li> <li>Replacement 100m long parapet</li> <li>New vehicle restraint barrier 100m long.</li> </ul>	<ul style="list-style-type: none"> <li>Direct.</li> <li>Reduced risk of collision on the cycle way. Est 50% reduction.</li> <li>Reduced risk of a vehicle crossing onto the cycle/footway. Est 80% reduction.</li> <li>Indirect.</li> <li>Increased use of the route by commuters on foot and cycling. Estimate 5%increase in cyclists and walkers over three years</li> </ul>	<ul style="list-style-type: none"> <li>Reduction in traffic flow and hence congestion on and around the ring road as a result of modal shift to cycling and walking.</li> <li>Reduction in accident figures on this section.</li> <li>Reduction in complaints about cycling facilities on the ring road.</li> <li>Increased public satisfaction of cycling and walking provision.</li> </ul>

## Scheme: Bromley Heath Viaduct

<ul style="list-style-type: none"> <li>Accelerate the duration of the Bromley Heath Viaduct works to complete the works within a 33-week duration closure as opposed to a 52-week closure period.</li> <li>Reduce the impact on businesses, commuters and communities.</li> </ul>	<ul style="list-style-type: none"> <li>£2.8million is required to fund acceleration of the works programme. The funding will enable the duration of the closure of the bridge to be reduced by circa 19 weeks from 52 weeks to 33 weeks</li> <li>Project team</li> <li>Contractors</li> </ul>	<ul style="list-style-type: none"> <li>Construction and project management work force manpower and equipment increase to enable, broadly, two shift working over a 5-day week.</li> </ul>	<ul style="list-style-type: none"> <li>Closure duration of 33 weeks within budget.</li> </ul>	<ul style="list-style-type: none"> <li>Bridge open 19 weeks earlier reducing the impact of the works on traffic and local communities.</li> <li>Cycle and pedestrian benefits of the scheme will be realised 19 weeks earlier than previous programme.</li> </ul>	<ul style="list-style-type: none"> <li>The local economy will avoid additional travel costs of £13million.</li> <li>A reduction of 800 tonnes of greenhouse gases will be achieved by less disruption and delay to traffic as a result of the project.</li> </ul>
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# Scheme: Bromley Heath Viaduct

## 3. Evaluation design and methodologies

### Evaluation questions are:

- How has the maintenance regime on the structure differed from that forecast if we had not done the works?
- How many days of traffic disruption have been avoided by doing the works?
- How many additional cyclists have there been during the works
- How many additional cyclists have there been since the works have been completed
- How many additional pedestrians have there been during the works?
- How many additional pedestrians have there been since the works have been completed?
- How many people have permanently changed their travel habits as a result of the works?
- How quickly were the works actually carried out and what was the calculated saving achieved to the economy.
- Have reported accidents involving cyclists and pedestrians reduced since the infrastructure at the viaduct has been improved?
- Has public satisfaction about roads, road condition, cycling and pedestrian facilities increased since the works were completed?
- Have complaints regarding the viaduct (all aspects) reduced since the works took place?

### Evaluation methodology:

- Monitoring of the results of maintenance inspections and number of maintenance interventions to estimate the difference in maintenance requirements as a result of the works to identify the actual maintenance benefit of the CF elements
- Carry out traffic counts before, during and after the works to be able to calculate travel mode changes to identify the actual impacts of the CAF elements.
- Review the project programme actuals against forecast to understand the real reduction in project time and use traffic flow figures along with DfT WebTag data sets to ascertain the actual economic impact of the acceleration.
- Work with Suscom to engage with businesses to sample survey staff about their travel habits before during and after the works.
- Analyse the National Highways and Transportation (NHT) survey and StreetCare Survey results to evaluate how public satisfaction has changed.
- Use customer care centre and Kirona works management data to evaluate changes in complaints.

### Key evaluation stakeholders are:

- Suscom and Suscom members- actual numbers of cycling and walking increases congestion reduction results
- Rolls Royce, Airbus, Avivia, MOD South Glos Council. – Sustained travel changes of staff.
- Cycle Forum – survey members about the works and the facilities
- NHT

Scheme beneficiaries are easy to identify and relatively accessible. The benefits will affect road users who can be accessed through traffic counts and traffic surveys.

## 4. Data requirements

### 4.1 For schemes fully or part-funded via the Local Growth Fund only

# Scheme: Bromley Heath Viaduct

## 4.2 Data collection methods

### Maintenance interventions.

Normal BAU maintenance records. Review maintenance records and compare to expected asset maintenance plan for the viaduct pre and post works.

Review after 3 yrs. the number of day/lane occupancies for maintenance.

### • Traffic counts

Traffic flow figure database for South Gloucestershire for baseline pre-works traffic figures.

Traffic surveys during the works, September/ October 2017.

Traffic Surveys following the works, September/ October 2019 and September / October 2021.

Use and compare to Suscom and other SGC / WoE surveys.

### • Travel Habit Surveys

Partner with sustainable travel roadshows and sample roadshow attendees using set questionnaire. Carry out at 1 and 3 years post works.

### • Road Safety

Authority road safety data already collected as business as usual activities of the authority.

### • Public satisfaction and complaints

Customer call centre and Kirona works management system logs.

NHT Survey and StreetCare Survey responses.

## 4.3 Data collection and establishing the baseline

Base line data collection is through traffic counts and current future asset maintenance forecasts. Road Safety reporting and current NHT and StreeCare Satisfaction survey results and trends.

## 5. Delivery plan

- *Provide a project plan and timeframe for data collection and reporting of monitoring and evaluation findings (i.e. when key activities will take place, including baseline work, interim and final findings).*

*(indicative 250 words)*

Baseline data collection June/July 2017

Baseline data table produced September 2017.

During works data collection September/October 2017

During works data table produced November 2018.

Post works data collection July, September and October 2018, 2019 and 2021

Analysis reports November 2018,2019,2021

# Scheme: Bromley Heath Viaduct

## 6. Resourcing and Governance

- Budget provision is £75k from project budget. Activities paid for will be all data collection and analysis work, staff resource for coordination, collation and report publication and dissemination.
- Quality checking will follow SGC traffic data collection processes.
- All stakeholders will be encouraged to provide their own additional information on travel habits and impact on their business.
- Responsible officer: Jon Munslow, Asset and Infrastructure Group Manager South Gloucestershire Council.  
[Jonathan.munslow@southglos.gov.uk](mailto:Jonathan.munslow@southglos.gov.uk) 01454863910

## 7. Dissemination

- *Provide details of how the findings from the evaluation will be used. What will the evaluation inform and who will be the audience?*
- *Please provide details of how the findings from the evaluation will be communicated to key stakeholders and lessons disseminated.*

*(indicative 250 words)*

The evaluation findings will be published via the Challenge Fund and Cycle Ambition Fund projects. Reports will be provided to the key stakeholders. Reports will include any specific stakeholder analysis as requested by the stakeholders. Findings will influence sustainable transport service delivery. Elected members will be briefed on the findings of the evaluation and monitoring analysis. Reports will be provided to WoE, WoECA and Heads of Transport.

An End of Project Delivery report will be produced within 3 months of project completion highlighting key successes, outputs and confirming planned evaluation activities. A publishable summary will be provided for the LEP website

The year 1 and 3 Evaluation Reports will be published on the LEP website.