

Funding for Local Transport: Safer Roads Fund



Department
for Transport

Application Form

The level of information provided should be proportionate to the size and complexity of the scheme proposed. As a guide, we would suggest around 10 to 15 pages including annexes would be appropriate.

A separate application form should be completed for each scheme.

Applicant Information

Local authority name(s)*: Gloucestershire County Council.

****If the bid is a joint proposal, please enter the names of all participating local authorities and specify the lead authority. The lead authority should be the authority with the longest part of the eligible road section.***

Bid Manager Name and position: Scott Tompkins - Lead Commissioner Highways Authority

Contact telephone number: 01452 328525

Email address: scott.tompkins@gloucestershire.gov.uk

Postal address: Gloucestershire County Council, Shire Hall, Gloucester, GL1 2TG

When authorities submit a bid for funding to the Department for Transport, as part of the Government's commitment to greater openness in the public sector under the Freedom of Information Act 2000 and the Environmental Information Regulations 2004, they must also publish a version excluding any commercially sensitive information on their own website within two working days of submitting the final bid to the Department for Transport. The Department for Transport reserves the right to deem the business case as non-compliant if this is not adhered to.

Please specify the web link where this bid will be published:

www.gloucestershire.gov.uk/roads-parking-and-rights-of-way/major-projects/

SECTION A - Scheme description and funding profile

A1. Scheme name: A4173 DfT Safer Roads Fund

A2. Headline description:

Please enter a brief description of the proposed scheme (in no more than 100 words)

The A4173 Safety Improvement Scheme focuses on improving the safety of the corridor, and making the route safer for all users. There have been 36 collisions recorded in the last 5 year period, of which; 1 was fatal, 11 of these were serious and 24 slight collisions. The proposed scheme aims to reduce these figures by implementing various safety measures along the corridor of the A4173, and promoting consistency of route. Please refer to Appendix 1 for the scheme drawings.

A3. Geographical area:

Please provide a short description of area covered by the bid (in no more than 50 words)

Please append a map showing the location (and route) of the proposed scheme, existing transport infrastructure and other points of particular interest to the bid e.g. development sites, areas of existing employment, constraints etc.

The A4173 is situated in the County of Gloucestershire. The A4173 corridor runs from the A46 which is located just north of the town of Stroud to the A38 around 2 miles south-east of Gloucester city centre. The corridor travels through Pitchcombe, Brookthorpe, Edge and Tuffley.

Length of eligible road section: 11KM

OS Grid Reference:

Start: SO 8321114855.

End: SO 8472806224.

Postcode:

Start: GL4 0DA

End: GL6 7WA

Please refer to Appendix 2 showing the location and route of the proposed scheme, and existing infrastructure.

A4. Equality Analysis

Has any Equality Analysis been undertaken in line with the Equality Duty?

To date, no specific analysis has been carried out with regard to the protected characteristics; however, the detailed design of the final scheme will be undertaken in accordance with relevant guidance in relation to equalities and safety. The Equality Act 2010, states that service providers have a continuing duty to consider impacts on groups with protected characteristics and therefore monitoring of users once the scheme is operational will be required to ensure that equality issues pertaining to age, disability, sex and ethnicity, are being considered and evolved after opening. Additionally any information on incidents/accidents or in the area around the scheme will be analysed according to the characteristics of the victim if the information is available.

SECTION B – The Business Case

B1. The Scheme – Summary/History (Maximum 200 words)

Please outline what the scheme is trying to achieve

The A4173 has previously been identified by the Road Safety Foundation as “one of England’s 50 most dangerous local ‘A’ road sections where the risk of collisions causing death and serious injury is highest”. This scheme aims to target these and make the route safer for all users along the route.

Collision data conveys a total of 36 reported collisions in the past 5 Years, one of which was fatal and 11 of which were classified as serious, and 24 slight traffic collisions. (Collision data is included in Appendix 3).

The collision data allows us to identify where these cluster sites are located along the A4173 and also highlights areas of significant importance i.e. schools and significantly affected junctions.

This scheme will aim to improve the safety of this route by implementing a range of safety measures identified by our road safety engineers.

B2. The Strategic Case (Maximum 350 words)

This section should set out the rationale for making the investment and evidence of the existing safety problems.

Supporting evidence may be provided in annexes – if clearly referenced in the strategic case. This may be used to assist in judging the strategic case arguments but is unlikely to be reviewed in detail or assessed in its own right. So you should not rely on material included only in annexes being assessed.

What and where are the current road safety problems to be addressed by your scheme?

What road safety options have been considered and why do the proposed ones provide the best solution, particularly in terms of meeting the objective of reducing fatal and serious injury collisions?

What is the impact and the expected road safety benefits / outcomes of the scheme? If possible, provide information on the likely KSI reductions as a result of the scheme.

The Department for Transport highlighted the A4173 as an area of concern due to the amount of collisions along the route.

In order to target these we have split these up into key sections in order to make the route consistent and highlight specific areas of concern such as St Peters High School which currently has 1,642 pupils, and is situated directly adjacent to the corridor and junctions where a significant amount of collisions have been recorded.

The road safety issues along the A4173 vary and are a mix of collision types within the urban and rural sections. The proposed schemes along the route fall into four types:

- 1) Surface treatment on the A4173 and the section of the A46.
- 2) Pedestrians and cyclists provisions.
- 3) Route study signage/road markings.
- 4) Signalisation of the A4173/A46 Junction.

We will look to upgrade the materials used on this route from the existing provision to high texture asphalt which is a negative texture material. This has the benefit of not only increasing skidding resistance, but also of being quieter than the existing surface. By providing a uniform surface throughout, this will also remove undulation and other ride defects that in can either cause collisions, or exacerbate loss of control of a vehicle.

The proposed measures will provide

- 1) A safer running surface for all users;
- 2) Pedestrians and cyclists with increased safety within the urban section of the A4173;
- 3) Give motorised users a more consistent approach to the potential hazards travelling along the route, and reduce inappropriate speed;
- 4) Control vehicle movements at a problematic junction.

Please refer to Appendix 4 for more detailed information.

B3. The Financial Case – Project Costs

Before preparing a scheme proposal for submission, bid promoters should ensure they understand the financial implications of developing the scheme (including any implications for future resource spend and ongoing costs relating to maintaining and operating the asset), and the need to secure and underwrite any necessary funding outside the Department for Transport's maximum contribution.

Please complete the following tables. Figures should be entered in £000s (i.e. £10,000 = 10).

Table A: Funding profile (Nominal terms)

£000s	2017-18	2018-19	2019-20	2020-21	Total
<i>DfT Funding Sought</i>	1800	360			
<i>LA Contribution</i>	200	40			
<i>Other Third Party Funding</i>	N/A	N/A			

Notes:

(1) Department for Transport funding will not be provided beyond 2020/21 financial year.

B4. The Financial Case – Local Contribution / Third Party Funding

Please provide information on the following points (where applicable):

- a) ***The non-DfT contribution may include funding from organisations other than the scheme promoter. Please provide details of all non-DfT funding contributions to the scheme costs. This should include evidence to show how any third party contributions are being secured, the level of commitment and when they will become available.***

Local Contribution – Gloucestershire County Council will make a contribution to the value within Table A above, from our existing transport capital allocation.

Please refer to Appendix 5 for our scheme cost breakdown

Third Party Funding - N/A

B5. The Financial Case – Affordability and Financial Risk (maximum 300 words)

This section should provide a narrative setting out how you will mitigate any financial risks associated with the scheme.

Please provide evidence on the following points (where applicable):

- What risk allowance has been applied to the project cost?***
- How will cost overruns be dealt with?***
- What are the main risks to project delivery timescales and what impact this will have on cost?***

We will manage any financial risk on the project through our risk register and critical path identified on the programme. We utilise an early warning and gate way process in managing our projects with our term contractor Amey, who in turn use an Integrated Management System which provides a Quality Assured process regarding Design, Environmental and Delivery, (ISO 140001 and ISO 9001).

The proposed measures are within the scope of the work we currently undertake across our highway network, and therefore we are experienced in the risk management of such works.

Risks identified are:

- Carriageway surface treatment-Presence of tar, raising ironwork
- Environmental issues-The scale of any mitigation works needed and effect on programme.
- Major statutory undertakers works - effect on road space and Programme.
- Adverse weather
- Consultation process with respect to the A4173/A46 Junction and Road Hump Regulations in respect to a raised zebra feature leading to delays to the Programme.

We will mitigate by the following:

- An allowance within the costs for the removal of tar within the patching elements, and adjusting the ironwork along the route.
- We will undertake an Environmental Scoping Report on the proposed route / work area. This will advise on any further surveys needed and suitable timescales for this, and inform of any mitigation works, so our Design Team can inform on the detailed design accordingly. As we propose a 1-2 year programme of delivery, we will have the flexibility to plan and manage this aspect, and thus minimise risk and overspend.
- Our Street Works Team are responsible for the allocation of road space on our network, so can advise on any proposed works. Our Design Team will make contact early on in the Programme with all the statutory undertakers and establish any planned / potential work that could be undertaken to reduce risk / overspend.
- We have allowed a contingency item of 10% within the works cost, and would be able to manage any overspend via our existing Transport Capital allocation.
- Using a 'self-delivery' strategy, we will have the flexibility and control to implement the works at appropriate times in the year. Whilst weather conditions can be problematic, we can plan / programme the surfacing element for a summer window, and implement the remaining works accordingly.
- The consultation element of the A4173 / A46 junction and raised zebra crossing on the A4173 will offer the opportunity for further public comment, and feedback. In some cases, the scheme design may be revised.

B6. The Economic Case – Value for Money

If available, promoters should provide an estimate of the Benefit Cost Ratio (BCR) of the scheme (particularly for schemes costing more than £100,000)

Where a BCR is provided please provide separate reporting in the form of an Annex to the bid to enable scrutiny of the data and assumptions used in deriving that BCR.

Where a BCR is not available / appropriate other values of value for money should be demonstrated. These should be commensurate with the value of the scheme.

The Value for Money appraisal has been primarily based on the calculation of the benefits and costs derived from the implementation of the safety measures, in order to provide a robust estimate of the Benefit Cost Ratio (BCR) of the scheme. Despite not being assessed quantitatively, the other impacts have not been neglected and have been evaluated qualitatively when deemed relevant. The appraisal period considered for the scheme has been 30 years. In compliance with the guidance note (Funding for Local Transport: Safer Roads Fund), this document includes the annexes reporting the specifications (assumptions and other details) regarding the calculation of the BCR.

The Economic case has been primarily based on the collisions savings due to the implementation of the safety measures. However, the other impacts have not been neglected and qualitative assessments have been undertaken when deemed necessary.

For details of the BCR and Value for Money calculation, please refer to Appendix 6.

This scheme has created a BCR of 2.0 and it would be considered as high value for money.

B7. The Commercial Case (Maximum 300 words)

This section should set out the procurement strategy that will be used to select a contractor and set out the timescales involved in the procurement process to show that delivery can proceed quickly.

What is the preferred procurement route for the scheme? For example, if it is proposed to use existing framework agreements or contracts, the contract must be appropriate in terms of scale and scope.

****It is the promoting authority's responsibility to decide whether or not their scheme proposal is lawful; and the extent of any new legal powers that need to be sought. Scheme promoters should ensure that any project complies with the Public Contracts Regulations as well as European Union State Aid rules, and should be prepared to provide the Department for Transport with confirmation of this, if required. An assurance that a strategy is in place that is legally compliant is likely to achieve the best value for money outcome is required from your Section 151 Officer below.***

Following appraisal of the type of measures to be implemented to address both the collision issues and proactively reduce risks identified on the A4173, we will adopt a self-delivery procurement strategy using our existing term contract with Amey (and their supply chain).

The works identified comprise of:

- Surface treatment with high PSV;
- High friction material at specific sections along the route;
- Improved and / or additional warning signs;
- High visibility chevron signs;
- Vehicle activated signs;
- Street lighting improvements;
- Signalised junction;
- Vegetation removal / visibility improvements.

These types of works are designed and constructed on our network regularly as part of our existing term contracts, and therefore are both deliverable and appropriate within the scope of this project bid.

As the collision history effectively results in the scheme being a lengthy route study type of treatment, it will require flexibility in approach and delivery, as the route length is approximately 11km long.

This approach will allow us to phase the works to minimise disruption on the network, and also allow us to break down the overall delivery into efficient packages of work, either in terms of area or the type of work ie vegetation removal in advance of the signage works. This will allow the identification of some immediate deliverables in Year 1 such as the signage elements and removal of vegetation, and sufficient time within the overall programme to deliver the more involved elements in Year 2 such as the signalised junction proposed for the A4173/A46 identified within our bid submission.

With respect to the signalised junction works, the signal equipment would be delivered through our existing signal maintenance contract with telent, which would include the supply, installation and commissioning of the equipment, with Amey undertaking the associated civils works, again as currently undertaken under our term contract.

The identified street lighting works would be designed and installed by Skanska, our term contract street lighting contractor.

B8. Management Case – Delivery (Maximum 300 words)

Deliverability is one of the essential criteria and, as such, any bid should set out if any statutory procedures are needed before it can be delivered.

- a) An outline project plan (typically in Gantt chart form) with milestones should be included as an annex, covering the period from submission of the bid to scheme completion. The definition of the key milestones should be clear and explained. The critical path should be identifiable and any contingency periods, key dependencies (internal or external) should be explained. Successful schemes will be subject to quarterly monitoring to assess progress against milestones and to track spend.***

Has a project plan been appended to your bid?

- b) A statement of intent to deliver the scheme within this programme from a senior political representative and/or senior local authority official.***

The deliverability of the proposed works will be maximised by using our well established contractual arrangements with both Amey and their supply chain, ensuring early contractor involvement, thus avoiding any procurement issues and possible delays.

With respect to Statutory Procedures, the modifications to the existing zebra crossing will require consultation under The Highways (Road Humps) Regulations 1999, the design of which would commence in 2017/18 and a consultation process following afterwards in early 2018/19. Given the current issue of failure to stop on the crossing, and the resulting collisions, it is envisaged that there would be local support for the measure. Adopting a 2 year programme will allow sufficient time for the consultation in respect to the design and implementation.

As mentioned in Section B5, our design team would ensure the early production of the Environmental scoping report for the overall scheme, thus establishing if there were any further environmental surveys needed and when, and/or any mitigation works. The programme could then, if required, be amended to suit, and the smaller work elements be brought forward to maintain progress.

With respect to the signalisation of the A4173 / A46 junction we would consult with the local community on both the signalisation element and the additional lighting requirements, again given the safety concerns over this junction, we anticipate a high level of support for the proposals.

'As Senior Responsible Owner for the A4173 Safer Road Fund Bid scheme, I hereby submit this request for funding to the DfT on behalf of Gloucestershire County Council and confirm that I have the necessary authority to do so. I confirm that Gloucestershire County Council has all the statutory powers necessary to construct the scheme'

Scott Tompkins, Lead Commissioner, Highways.

Please refer to Appendix 7.

B9. Management Case – Governance (maximum 300 words)

Please name who is responsible for delivering the scheme, the roles (Project Manager, SRO etc.) and set out the responsibilities of those involved and how key decisions are/will be made. An organogram may be useful here. This may be attached as an Annex.

Scott Tompkins, Lead Commissioner – Highways, will be the Senior Responsible Officer and will prepare any Cabinet Reports needed as part of the scheme delivery.

The scheme will be governed and managed by a Project Board, in line with all our existing Major Projects and they will typically meet on a monthly basis to review progress and make any key decisions.

Richard Lloyd and Tony Cahill (GCC and Amey Project Managers respectively) will manage all aspects of the delivery with support from the various specialist teams in Gloucester and will cover the following aspects:

- Managing the required resources for completion of each of the work elements, ensuring a suitable resource level, and expertise.
- Obtaining required inputs from relevant GCC departments to enable the successful delivery of the scheme;
- Ensuring the programme is monitored and updated, and the project team work to the key milestones;
- Ensuring the risk register is monitored and updated, and the project team work to ensuring risks are mitigated wherever possible;
- Reporting on the progress to monthly project board meetings;
- Ensure correct approvals / task orders are in place to undertake the work activity, and comply with relevant contract procedures;
- Monitoring and reporting of project expenditure, forecast spend and scheme estimates;
- Attending monthly project board meetings to monitor progress and agree key project decisions;
- Holding other project meetings to coordinate and monitor the delivery of the project design, and enable rapid progress/resolution of specific project issues;
- Ensure the correct quality and review procedures are in place to ensure project deliverables are appropriately checked and challenged.

Please refer to Appendix 8 for our Organogram.

B10. Management Case – Risk Management

Risk management is an important control for all projects but this should be commensurate with cost. For projects where the costs exceed £100,000, a risk register covering the top 5 (maximum) specific risks to this scheme should be attached as an annex.

Please ensure that in the risk register cost that you have not included any risks associated with ongoing operational costs and have used the P50 value.

Has a risk register been appended to your bid?

Please refer to Appendix 9 for our Risk Register, we confirm our P50 value has been calculated at £141,000.00

SECTION C – Monitoring, Evaluation and Benefits Realisation

C1. Benefits Realisation (maximum 250 words)

Please provide details on the profile of benefits, and of baseline benefits and benefit ownership and explain how your scheme design will lead to the outputs/outcomes. This could be achieved by logic maps, text descriptions, etc. Information should focus on road safety benefits.

This should be proportionate to the cost of the proposed scheme.

The main focus of the A4173 safety improvement scheme is to reduce the amount of collisions which occur along the corridor. This will be continuously monitored to ensure all future collisions and the causes are recorded, there has been a total of 36 collisions recorded from 2012-16 one of which was classified 'fatal' and 11 of these as 'serious' collisions and 24 'slight'. The proposed scheme will aim to reduce this number significantly and will be assessed over the next 3 years.

The scheme also aims to increase safety for pedestrians and cyclists and reduce severance for these users; this is of particular importance around the school area which is situated adjacent to the corridor. Improvements around this area will increase safety for these users and allow them to use the crossings with confidence. The scheme therefore will be assessed by its effect on collision numbers and the qualitative assessment of the scheme.

All of the above will also help encourage pedestrian and cyclist numbers on the route by reducing severance for these users and increasing confidence in the route with a consistent and uniform route. This could be of significance with a large school located adjacent to the route which will be the main source of sustainable travel users.

C2. Monitoring and Evaluation (maximum 250 words)

Evaluation is an essential part of scheme development and should be considered and built into the planning of a scheme from the earliest stages. Periodic monitoring and evaluating the outcomes and impacts of schemes, in addition to evaluation findings towards the end, is also important to show if a scheme has been successful.

Where possible, bidders should describe any baseline info (or other counterfactual) they will use for the evaluation.

Please set out how you plan to measure and report on the road safety benefits identified in Section C1, alongside any other outcomes and impacts of the scheme. Scheme promoters are expected to contribute to platforms for sharing and disseminating the lessons learned, as directed by the Department for Transport.

The scheme would aim to reduce collision rates by 30% (This figure identified by the Road Safety Partnership) for Gloucestershire County Council Road Safety projects.

The continued Evaluation and desired outcomes of the scheme are identified in the table below.

Ref	Benefit (Desired Output / Outcome)	Benefit Indicator	Target	Type	Specific Data Requirements	Owner
Desired Outputs						
1	Implementation of Highway safety scheme.	Reduction of traffic collisions.	Reduced Collisions	Qn	Collision Data	GCC
Desired Outcomes						
2	Reduction of traffic collisions along the A4173 corridor.	Reduction/low number of collisions.	30% Reduction in collisions over 3 years	Qn	Collision Data	GCC
3	Improve safety for pedestrians and cyclists.	Reduction/low number of Pedestrian and cyclist related collisions.	Decrease over 3 years	Qn	Collision Data/Qualitative	GCC
4	Increase pedestrian and cycle numbers along the A4173.	Pedestrian and cycle survey.	Increase over 3 years	Qn	Survey	GCC

SECTION D: Declarations

D1. Senior Responsible Owner Declaration

As Senior Responsible Owner for A4173 Safer Roads Fund I hereby submit this request for approval to DfT on behalf of Gloucestershire County Council and confirm that I have the necessary authority to do so.

I confirm that Gloucestershire County Council will have all the necessary powers in place to ensure the planned timescales in the application can be realised.

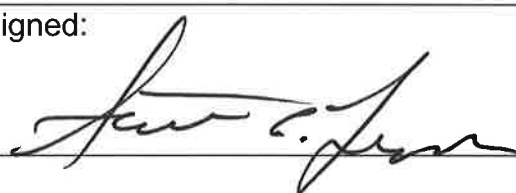
Name:

Scott Tompkins

Signed:

Position:

Lead Commissioner Highway



D2. Section 151 Officer Declaration

As Section 151 Officer for Gloucestershire County Council I declare that the scheme cost estimates quoted in this bid are accurate to the best of my knowledge and that Gloucestershire County Council

- has allocated sufficient budget to deliver this scheme on the basis of its proposed funding contribution
- will allocate sufficient staff and other necessary resources to deliver this scheme on time and on budget
- accepts responsibility for meeting any costs over and above the DfT contribution requested, including potential cost overruns and the underwriting of any funding contributions expected from third parties
- accepts responsibility for meeting any ongoing revenue requirements in relation to the scheme
- accepts that no further increase in DfT funding will be considered beyond the maximum contribution requested
- has the necessary governance / assurance arrangements in place
- has identified a procurement strategy that is legally compliant and is likely to achieve the best value for money outcome
- Will ensure that a robust and effective stakeholder and communications plan is put in place.

Name:

PAUL BLACKER

Signed:

**Submission of bids:**

An electronic copy only of the bid including any supporting material should be submitted to:

saferroadsfund@dft.gsi.gov.uk

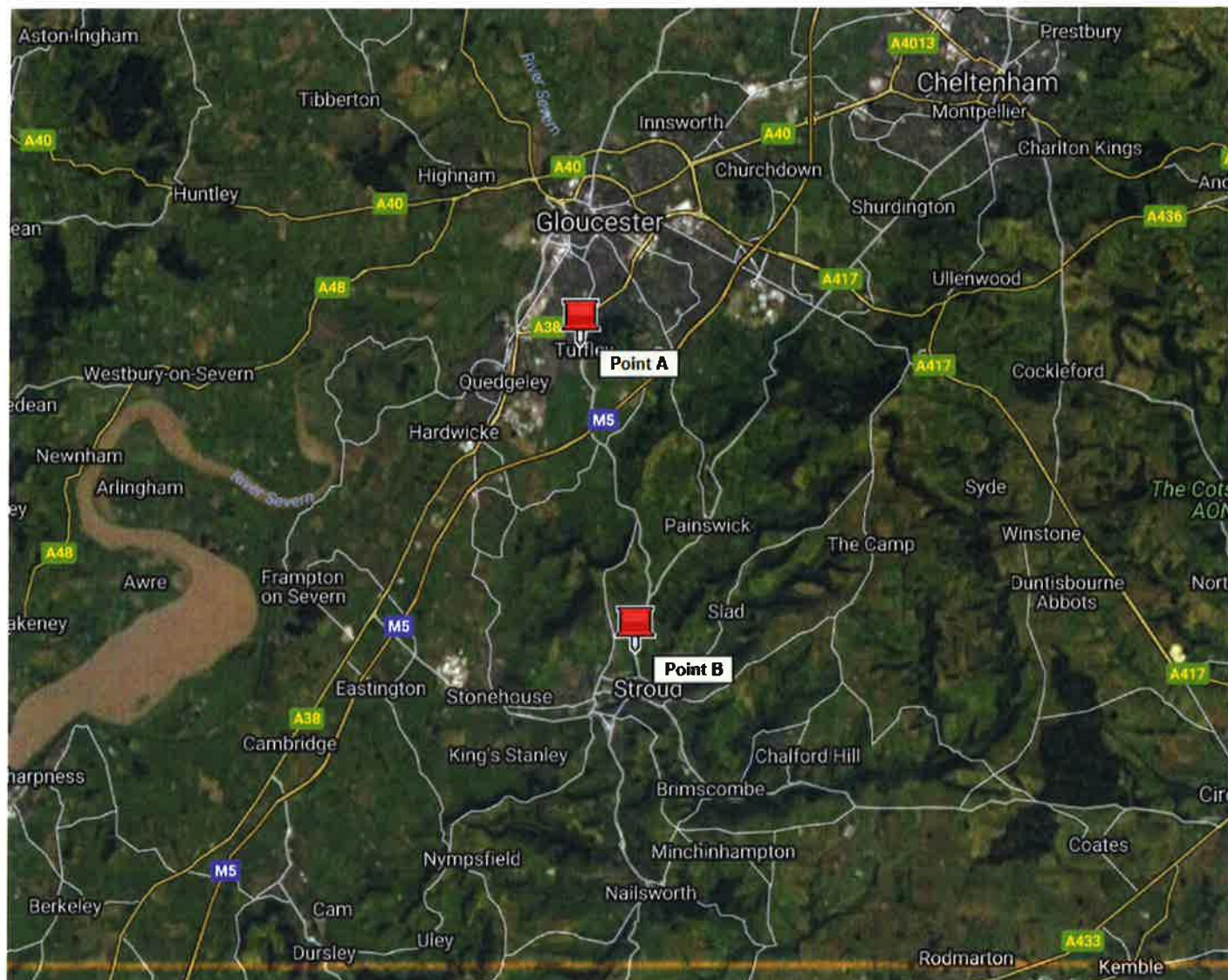
Annexes to be included:

- Appendix 1 - Proposed Scheme Improvements Drawings
- Appendix 2 - Location Plan
- Appendix 3 - Collision Data Report
- Appendix 4 - Strategic Case-Detailed Response
- Appendix 5 - The Finance Case-Project Costs
- Appendix 6 - Economic Case-BCR
- Appendix 7 - Management Delivery -Programme
- Appendix 8 - Management Governance-Organogram
- Appendix 9 - Management-Risk Register

Appendix 1

- Drawing No. 43047579/P/001
- Drawing No. 43047579/P/002
- Drawing No. 43047579/P/003
- Drawing No. 43047579/P/004
- Drawing No. 43047579/P/005
- Drawing No. 43047579/P/006
- Drawing No. 43047579/P/007

Appendix 2



Scheme Location

**For further details of the route, please refer to the drawings in Appendix 1.

Appendix 3

Collision Data Reports

Appendix 4

THE STRATEGIC CASE – Detailed Response

The Road Safety issues along the A4173 are a mix of collision types within the urban and rural sections. The proposed works fall into four types:

- Surface treatment to the A4173 and a section of the A46.
- Improvements to help pedestrians and cyclists.
- Route study signage / road markings.
- Signalisation of the A4173/A46 Junction.

We will look to upgrade the materials used on this route from the existing provision to high texture asphalt which is a negative texture material. This has the benefit of not only increasing skidding resistance, but also of being quieter than the existing surface. By providing a uniform surface throughout, this will also remove undulation and other ride defects that in can either cause collisions, or exacerbate loss of control of a vehicle.

In the urban section, within the Gloucester City boundary there are pedestrian and vehicle collisions. Failure to give way to pedestrians on an existing zebra crossing has resulted in a 'serious' and 'slight' collision and given the close proximity to a school we propose the following works:

- Alter the crossing to a raised vertical feature.
- Replace the equipment with LED Zeebrite units.
- High friction material on the approaches.
- Existing pelican crossing upgraded to LED units.
- General improvements to the footways, signage and pedestrian guardrails.

Whilst there are a number of 'vehicle only' collisions in this urban area, upon analysis they are due to inappropriate / unreasonable behaviour and deemed not treatable with engineering measures.

For the remainder of the route, we propose a Route Treatment approach.

Brockthorpe Village, 30mph limit:

- 4no.'slight' collisions centred on the 2 mini roundabouts within the village.
- Vehicle speeds and a lack of deflection at the mini roundabouts results in motorised users treating them as 'T' junctions and not giving way to vehicles from the right.

Measures proposed:

- Revised/ additional road markings, and doming the central islands.
- Review of the existing street lighting as 3 out of the 4 collisions occurred in darkness.

Rural sections with a 40/50 mph limit:

- Highway geometry and topography causes issues, along with inconsistent signage reflected in the number of 'serious' collisions. These are 'loss of control', typically downhill and in wet conditions.

Measures proposed:

- High visibility chevrons, warning signs and enhanced road markings. Speed limit terminal points will also be enhanced, alongside the removal of vegetation to improve visibility.
- Prior to the Pitchcombe junction (A4173 / A46), a 'serious' collision at a layby will be addressed by closing the layby, as there is a car park opposite, and improving the forward visibility going north, by removing vegetation and possible earthworks as the layby sits on the inside of a left hand bend, making exiting the layby particularly dangerous. The Cotswold Way Trail currently directs walkers across the A4173 at this point, so we will investigate the possibility of diverting the route approximately 50m north to provide a safer crossing point, along with additional warning signs.

A4136 / A46 Pitchcombe Junction:

- Is problematic to motorised users due to both the topography of the site (1 uphill approach, 1 downhill approach, 1 at grade approach) and the current layout.
- Forward visibility is restricted due to overgrown vegetation.
- Whilst only 'slight' collisions have been recorded at the junction, their severity could have been higher, the junction is well known to local users as an issue.
- The current lane markings can be confusing to motorised users, leading to 'panic' manoeuvres and drivers pulling out into the path of oncoming vehicles.

Measures proposed:

- Signalise the junction and positively control driver movements.
- Install 3 vehicle activated signs (one on each approach).

The approaches on the A46 to the junction have been reviewed. The collision data is similar to that on the A4173, and therefore a similar route study approach of measures is proposed. To the north and south of the junction on the A46, more 'loss of control' collisions occur, even though the severity of some collisions were 'slight', their causation factors were identical to 'serious' collisions are therefore we believe are worthy of treating. In the southern section there was a 'fatal'.

Measures Proposed:

- High visibility chevrons, warning signs, vegetation removal and high friction material.
- Enhanced gateway treatments.

The proposed measures will provide:

- A safer running surface for all users.
- Pedestrians and cyclists with increased safety within the urban section of the A4173.
- Give motorised users a more consistent approach to the potential hazards travelling along the route, and reduce inappropriate speed.
- Control vehicle movements at a problematic junction.

We would aim to see a reduction in collisions of approximately one third, based on schemes implemented previously within the County and the experience from the Gloucestershire Road Safety Partnership.

Appendix 5

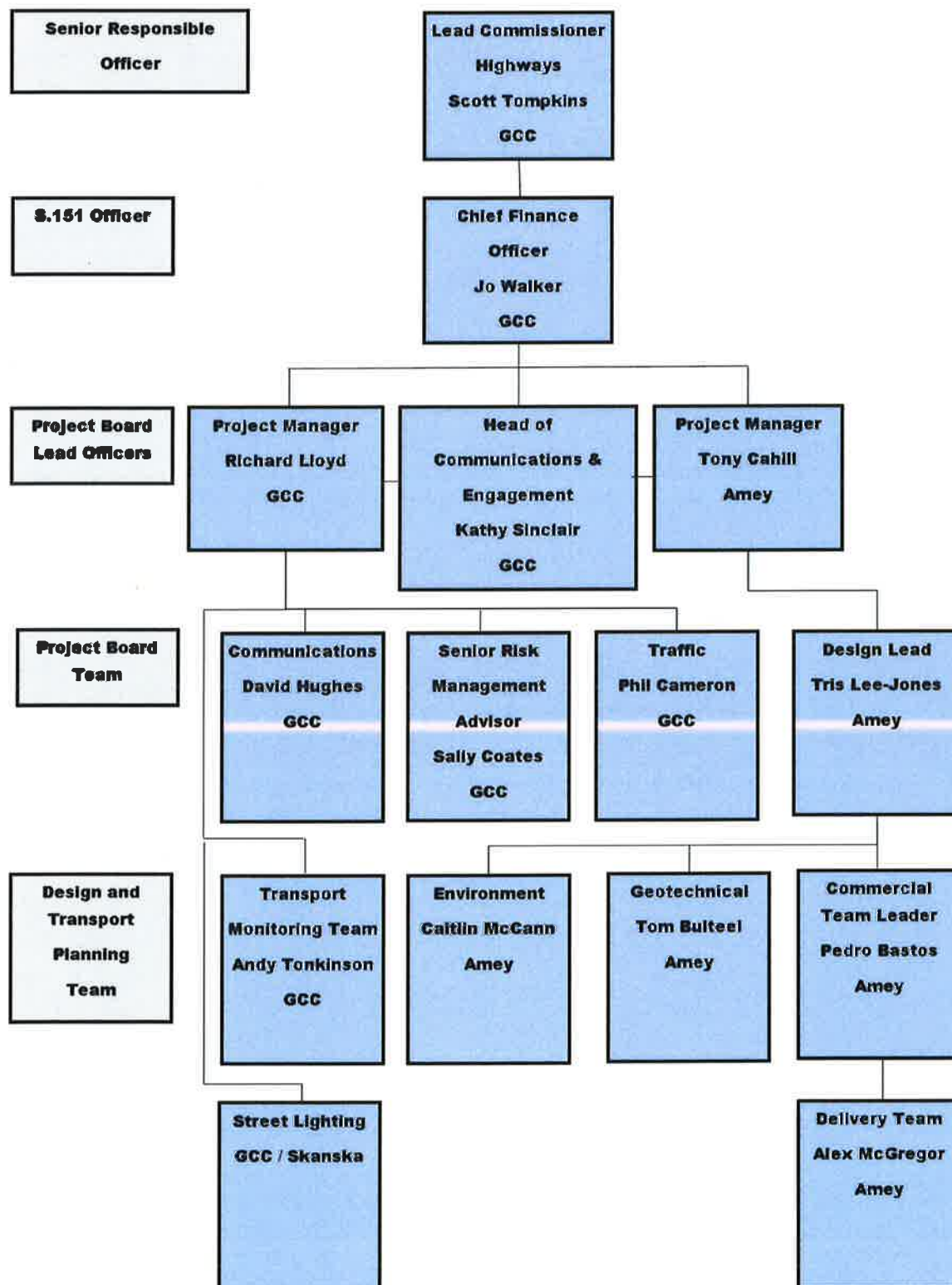
Project Costs Spreadsheet

Appendix 6

Economic Case-BCR

Appendix 7

Delivery Programme



Appendix 9

Risk Register