

<b>Committees:</b>		<b>Dates:</b>
<ul style="list-style-type: none"> <li>• CWP Peer Review Group</li> <li>• Corporate Projects Board</li> <li>• Corporate Asset Sub Committee</li> <li>• Planning &amp; Transportation Committee</li> <li>• Projects Sub Committee</li> </ul>		26 July 2018 21 August 2018 05 September 2018 11 September 2018 12 September 2018
<b>Subject:</b> West Smithfield and Charterhouse Street (Thameslink) Bridges Remedial Works	<b>Gateway 1-4 Project Proposal &amp; Options Appraisals</b> Regular	<b>Public</b>
<b>Report of:</b> Director of the Built Environment <b>Report Author:</b> Mark Bailey		<b>For Decision</b>

This project relates to essential structural maintenance and repairs at two highway structures over the Thameslink railway near Smithfield Market.

The report does not follow the standard Gateway format, in that it combines stages 1 to 4 in a single report. As works to the bridges are identified in the committee-approved Cyclical Works Programme (CWP) at less than £250,000, the project would not normally be brought to committee in its own right, although it is considered as already having satisfied the requirements of Gateways 1 and 2 under approval of the CWP.

However, the estimated project budget now exceeds £250,000 and this report seeks approval to combine funding from the Cyclical Works Programme (CWP), the Additional Works Programme (AWP) and the Additional Capital Funds for City Fund Properties Programme.

### **Recommendations**

It is recommended that:-

- a) Option 2 from the Options Appraisal Table is approved (i.e. full programme of works identified to both bridges)
- b) The project budget of £684,000 is approved (inclusive of £100,000 risk allowance)
- c) Currently approved Cyclical Works Programme (CWP) funding of £230,000 is transferred to this project and managed under the Gateway project procedures
- d) Additional funding of £323,000 from the Additional Capital Funds for City Fund Properties Programme (as approved by RASC 18<sup>th</sup> January 2018) is allocated to the project & managed under the Gateway project procedures
- e) Additional funding of £131,000 from savings in the 2016/17 Additional Works Programme (AWP) is allocated to the project and managed under the Gateway project procedures

<p><b>1. Approval track and next Gateway</b></p>	<p><b>Approval track:</b> 2. Regular  <b>Next Gateway:</b> Gateway 5 – Authority to Start Work</p>																																											
<p><b>2. Resource requirements to reach next Gateway</b></p>	<p><u>Table 1: Resource requirements to reach Gateway 5</u></p> <table border="1" data-bbox="528 443 1390 1727"> <thead> <tr> <th data-bbox="528 443 762 584">Item</th> <th data-bbox="762 443 1007 584">Reason</th> <th data-bbox="1007 443 1219 584">Funds/ Source of Funding</th> <th data-bbox="1219 443 1390 584">Cost (£)</th> </tr> </thead> <tbody> <tr> <td data-bbox="528 584 762 824">Staff costs</td> <td data-bbox="762 584 1007 824">Project Management and coordination</td> <td data-bbox="1007 584 1219 824">Not requested as part of project (taken from local risk)</td> <td data-bbox="1219 584 1390 824">27,000 <i>but excluded for CWP projects</i></td> </tr> <tr> <td colspan="3" data-bbox="528 824 1219 880"><b>Staff Costs total (not requested)</b></td> <td data-bbox="1219 824 1390 880"><b>27,000</b></td> </tr> <tr> <td data-bbox="528 931 762 1021">Consultant fees <i>(note)</i></td> <td data-bbox="762 931 1007 1021">Design and detailing</td> <td data-bbox="1007 931 1219 1021">CWP</td> <td data-bbox="1219 931 1390 1021">20,000</td> </tr> <tr> <td data-bbox="528 1021 762 1111">Consultant fees <i>(note)</i></td> <td data-bbox="762 1021 1007 1111">CDM Principal Designer</td> <td data-bbox="1007 1021 1219 1111">CWP</td> <td data-bbox="1219 1021 1390 1111">5,000</td> </tr> <tr> <td data-bbox="528 1111 762 1274">Consultant fees <i>(note)</i></td> <td data-bbox="762 1111 1007 1274">Quantity Surveyor &amp; Network Rail Planner</td> <td data-bbox="1007 1111 1219 1274">CWP</td> <td data-bbox="1219 1111 1390 1274">18,000</td> </tr> <tr> <td data-bbox="528 1274 762 1402">Investigations</td> <td data-bbox="762 1274 1007 1402">To inform design and mitigate risks</td> <td data-bbox="1007 1274 1219 1402">CWP</td> <td data-bbox="1219 1274 1390 1402">40,000</td> </tr> <tr> <td data-bbox="528 1402 762 1529">Network Rail Management Costs</td> <td data-bbox="762 1402 1007 1529">Project Management</td> <td data-bbox="1007 1402 1219 1529">CWP</td> <td data-bbox="1219 1402 1390 1529">27,000</td> </tr> <tr> <td data-bbox="528 1529 762 1657">Network Rail</td> <td data-bbox="762 1529 1007 1657">Advance access booking</td> <td data-bbox="1007 1529 1219 1657">CWP</td> <td data-bbox="1219 1529 1390 1657">120,000</td> </tr> <tr> <td colspan="3" data-bbox="528 1657 1219 1727"><b>Project Costs Total (requested)</b></td> <td data-bbox="1219 1657 1390 1727"><b>230,000</b></td> </tr> </tbody> </table> <p data-bbox="528 1765 1445 1839">As detailed more fully in Appendix 1, consultant fee estimates are based on a combination of:-</p> <ul style="list-style-type: none"> <li data-bbox="576 1854 1445 1928">a) tendered term contract % of estimated works value, pro-rata to GW5, where appropriate and/or</li> <li data-bbox="576 1944 1445 2018">b) experience on similar benchmarked projects, based on tendered hourly rates</li> </ul>				Item	Reason	Funds/ Source of Funding	Cost (£)	Staff costs	Project Management and coordination	Not requested as part of project (taken from local risk)	27,000 <i>but excluded for CWP projects</i>	<b>Staff Costs total (not requested)</b>			<b>27,000</b>	Consultant fees <i>(note)</i>	Design and detailing	CWP	20,000	Consultant fees <i>(note)</i>	CDM Principal Designer	CWP	5,000	Consultant fees <i>(note)</i>	Quantity Surveyor & Network Rail Planner	CWP	18,000	Investigations	To inform design and mitigate risks	CWP	40,000	Network Rail Management Costs	Project Management	CWP	27,000	Network Rail	Advance access booking	CWP	120,000	<b>Project Costs Total (requested)</b>			<b>230,000</b>
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<p><b>3. Next steps</b></p>	<p>3.1. Term consultant to complete detailed scheduling of works required, with specifications and details, following scheduled Principal Inspections of structures in Sept/Oct 2018</p> <p>3.2. Agree &amp; place purchase order for “piggy-back” possession dates with Network Rail (i.e. utilising possessions already arranged by other 3<sup>rd</sup> parties)</p> <p>3.3. Prepare works tender documents</p> <p>3.4. Obtain tenders for works and submit GW5 report (provisionally April 2019)</p> <p>3.5. Continued coordination and discussions with the Museum of London relocation team on combining works contracts and possessions, to consider the City of London Corporations’ assets over the railway in their totality under a single project, to share commons costs and risks. To be reported back to committee as this develops further</p>
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### **Project Summary**

<p><b>4. Context</b></p>	<p>4.1. The City of London is responsible as a local authority for the maintenance of the highway bridges that carry Charterhouse Street and West Smithfield over the Network Rail Thameslink tracks, either side of Smithfield General Market.</p> <p>4.2. Both of these old structures are in fair condition, when judged against standard highway inspection criteria, but with some critical components reported as in very poor condition and requiring significant maintenance works</p> <p>4.3. The potential for spalling or otherwise loose concrete or brickwork to fall on the live railway exposes the City of London to significant risks. A full package of remedial works is therefore recommended to mitigate these risks</p> <p>4.4. West Smithfield Bridge is comprised of two spans and is formed by precast concrete decking units spanning between riveted wrought iron plate girders, which have been encased in concrete. Significant spalling of the concrete encasement to the girders has been reported, as well as significant spalling and loss of section for various precast concrete decking slabs.</p> <p>4.5. Charterhouse Street Bridge is comprised of a single span and is formed by masonry “jack” arches which span between riveted wrought iron plate girders. The exposed bottom flanges of these girders have also been encased in concrete. Significant spalling of this encasement has also been reported, with the wrought iron girders exposed</p>
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	<p>in certain areas. Various defects are also reported in the masonry jack-arches, including loss of pointing in many areas.</p> <p>4.6. Both bridges support Overhead Line Equipment (OLE) – to provide high voltage overhead electrical power to trains - in closer proximity to the bridge soffits than would normally occur on new railway bridges. It is uncertain whether the proximity of the OLE and high voltage field applied close to the structures has accelerated the rate of corrosion of the steel girders and deck reinforcement in the years since they were installed, although there is no scope for increasing clearance within the constraints of the existing structure and headroom.</p> <p>4.7. The defects to both bridges are a matter of record, as reported by the routine cycle of two-yearly structural inspections by the term consultant for the inspection and management of highway structures.</p> <p>4.8. It is considered to be in the City’s interests to instigate repairs at the earliest opportunity to all high/medium defects and implement any works needed to arrest or reduce degradation of the structures.</p> <p>4.9. This includes provision of new waterproofing membranes to both bridges, to mitigate water ingress issues which have the potential to cause further defects to the structure</p>
<p><b>5. Brief description of project</b></p>	<p>5.1. The project involves major structural maintenance, repairs and waterproofing to both highway bridges over Network Rail (Thameslink) lines, carried out during rail possessions.</p> <p>5.2. These works were identified in the Forward Maintenance Plans that form part of the management of the Cyclical Works Programme (CWP), with £230,000 of funds successfully bid for the 2017/18 financial year (to be spent by the end of 2019/20 FY).</p> <p>5.3. As the two bridges are very close to one another and will make use of common access arrangements for very similar works, it is proposed to run the works as a single project for economy and efficiency</p> <p>5.4. However, recent discoveries have lead us to review the risk profile for the project and it is now apparent that the project cannot be contained within either the £230,000 CWP budget alone, nor the £250,000 Gateway approvals threshold for a Routine Revenue project. Hence the project is submitted to committee for further approval under the Gateway process.</p>

<p><b>6. Consequences if project not approved</b></p>	<p>6.1. The condition and value of the asset will continue to depreciate, leading to increased costs of mitigating defects at a later date</p> <p>6.2. Risks of degrading materials spalling and falling on to a live railway will not be mitigated in the immediate term, increasing the City's risks with respect to public safety</p> <p>6.3. This could potentially lead to enforcement action by the Rail Inspectorate of the Health and Safety Executive</p>
<p><b>7. SMART Objectives</b></p>	<p>7.1. Agree access to the railway with Network Rail and conduct a series of remedial works to (at least) all the high and medium priority defects recorded from bridge inspections, within 2 years of this report</p>
<p><b>8. Success criteria</b></p>	<p>8.1. Completion of the scheduled series of works, within 2 years of this report and within the allocated project budget, as verified by structural inspections during/after construction to ensure that the City's risks have been adequately mitigated</p>
<p><b>9. Key Benefits</b></p>	<p>9.1. Reduction of the City's risks with respect to public liability and potential enforcement action by the Rail Inspectorate of the Health and Safety Executive</p> <p>9.2. Improving the value and condition of the highway asset, such that further major maintenance would not be expected for some (estimated) 15 to 20 years</p>
<p><b>10. Notable exclusions</b></p>	<p>10.1 Works to adjacent market structures over the railway owned by the City privately (and in similar condition) are not included in this City Fund project.</p> <p>10.2 However, discussions at officer level are currently taking place with the Museum of London relocation team on the feasibility of combining works contracts and possessions in order to consider the City of London Corporation's assets over the railway in their totality, in order to share common costs and risks.</p> <p>10.3 This is to be further reported to committee as this develops, although – given the severity of defects/risks and the timescales to secure access to the rail network - it is considered prudent to maintain the progress of this project on a standalone basis at present, pending agreement and approval.</p>
<p><b>11. Governance arrangements</b></p>	<p><b>Spending Committee:</b> Corporate Asset Sub Committee</p> <p><b>Senior Responsible Officer:</b> Paul Monaghan</p> <p><b>Project Board:</b> No</p>

## Prioritisation

<b>12. Link to Strategic Aims</b>	3. To provide valued services, such as education, employment, culture and leisure, to London and the nation.
<b>13. Links to existing strategies, programmes and projects</b>	13.1 The project is consistent with the City of London highway authority's general obligations to maintain the public highway
<b>14. Project category</b>	1. Health and safety
<b>15. Project priority</b>	A. Essential

## Options Appraisal

<b>16. Overview of options</b>	<p>16.1. Four options have been considered:--</p> <ol style="list-style-type: none"><li>1) "Do nothing"</li><li>2) Full programme of repairs and waterproofing to both bridges, including footway strengthening to West Smithfield Bridge</li><li>3) Repairs to the bridge soffits of both bridges only (excluding waterproofing and footway strengthening)</li><li>4) Repairs to the soffit of the more critical West Smithfield bridge only</li></ol> <p>16.2. Of the two bridges, West Smithfield Bridge represents the greatest risk to the City, as a result of spalling concrete of greater mass and thus potentially greater consequences if separating from the concrete and falling to track level. The defects to Charterhouse Street Bridge relate to less massive beam encasement and masonry defects</p> <p>16.3. If budgets for the works are limited, consideration could be given to carrying out repair works to West Smithfield only, to reduce the greatest risks in the short term. However, deferring the works to Charterhouse Street Bridge would not make the most economic use of the access agreements with Network Rail and there is a clear logic for running works to the underside of both bridges (from trackside) at the same time</p> <p>16.4. The waterproofing works are proposed to protect the structure and reduce the likelihood of future defects and degradation of the structure occurring in the longer term</p> <p>16.5. These works are not essential to mitigate immediate risks (which are addressed by works to the underside of the bridges) and could be deferred to a later date.</p> <p>16.6. However, we have been advised by the term consultant</p>
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	<p>that there is a strong technical argument for implementing the waterproofing works as soon as possible and in parallel with the soffit repairs.</p> <p>16.7. Our recommendation is thus to carry out the full schedule of repairs to both bridges, including waterproofing (i.e. Option 2)</p>
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## **Project Planning**

<p><b>17. Programme and key dates</b></p>	<p><b>Overall programme:</b></p> <p>17.1. Completion of works by the end of the 2019/2020 financial year</p> <p>17.2. Initial studies by our term consultant suggested that 10no. 8 hours shifts would be necessary to carry out the works to the bridge soffits, with two teams working on each bridge within each shift. However, this is based on assumptions on the severity and extent of defects that have been observed from track level General Inspections. These assumptions will be refined following “touching distance” Principal Inspections that are due for the 2018/19 financial year and which are being organised at the time of drafting this report.</p> <p>17.3. Network Rail have also commented that only 4 to 5-hour shifts are possible on this section of the network. However, they are also advising on longer opportunities (up to 26 hours), as they become evident. Current estimates are based on carrying out works during 4no. 26-hour possessions, spread over a number of months as opportunities arise with possessions booked by others.</p> <p>17.4. However, this programme does not allow for measures to temporarily lower and protect Overhead Line Equipment (OLE) as part of the works, which is costly and will reduce effective working time within 26-hour possessions by up to 10 hours. This element is considered as a risk element.</p> <p><b>Key dates:</b></p> <p>17.5. Works dates will be wholly dependent on the availability of rail possessions to access the bridge soffits and the potential to utilise local possessions on the rail network arranged and funded by other 3<sup>rd</sup> parties, to reduce costs to the City. Discussions are ongoing with Network Rail on these matters. However, we are currently targeting Q1 in the 2019/20 financial year for a Gateway 5 submission, to give us maximum flexibility for implementing the works by the end of that financial year, within rail possessions that become available</p>
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	<p><b>Other works dates to coordinate:</b></p> <p>17.6. Consideration is being given to utilising rail possessions for both this project and a separate capital project for strengthening the City's pipe subway structures that span over the Thameslink railway at Snow Hill and Holborn Viaduct nearby</p> <p>17.7. In addition, shared rail possessions are being discussed and coordinated with the Museum of London development team, with a view to considering the City of London Corporations' assets over the railway in their totality, in order to share common costs and risks</p>
<p><b>18. Risk implications</b></p>	<p><b>Overall project risk: Amber</b></p> <p>18.1. Recent discoveries have led us to review the risk profile for the project and it is now apparent that the project cannot be contained within either the £230,000 CWP budget alone, nor the £250,000 Gateway approvals threshold for a Routine Revenue project.</p> <p>18.2. A project risk register is included in Appendix 2 and the City's risks have been identified as Medium (or Amber), with the highest risks (High/Red) to be borne by the Contractor under contract. Risks include the following (with owner indicated in parentheses):-</p> <ol style="list-style-type: none"> <li>1) Increased Network Rail possession costs (City). We are managing this risk by regular liaison with Network Rail and a review of future possessions already booked</li> <li>2) Considerable programme constraints with completing the works within fixed possession hours, adding to project costs (City)</li> <li>3) The risk of additional costs and delays (or an increased number of possessions to complete the works) arising from a need to lower Overhead Line Equipment (OLE) during the works. We are considering working solutions to carry out the bridge repairs which mitigate this risk (City).</li> <li>4) The risks of failing to fully reinstate OLE within allocated possessions, leading to run-over of possessions and compensation costs from Network Rail and rail operating companies. These costs could easily run into millions and would therefore need to be insured by the Contractor under the project (Contractor)</li> <li>5) Risk of unforeseen conditions on further exposure (City) – as advance inspections/investigations of the structures are constrained by available possession hours, which usually precludes 100% coverage for</li> </ol>

	<p>detailed close-up examination</p> <p>6) Discovery that West Smithfield deck is covered by granite setts embedded in strong concrete, with nominal asphalt surfacing thickness above. We cannot reliably waterproof over these setts and they will need to be removed carefully down to a suitable substrate (by hand tools only, so as not to exacerbate existing defects), which will increase costs significantly (City)</p> <p>7) Discovery that Charterhouse Street bridge also needs waterproofing (not allowed for in the CWP budget) and is also covered by granite setts, which will also require the same special working measures (City)</p> <p>8) Discovery, following a review of historical records, that the footway service trenches to West Smithfield Bridge may need strengthening (not allowed for in budget). This is currently being investigated (City)</p> <p>9) Costs of further investigations needed that are outside the scope of our routine inspections (City)</p>
<p><b>19. Stakeholders and consultees</b></p>	<p>19.1 Network Rail</p> <p>19.2 Markets and Consumer Protection</p> <p>19.3 Corporate Property (City Surveyor)</p> <p>19.4 Museum of London Development Team</p>

**Resource Implications**

<p><b>20. Total estimated cost</b></p>	<p><b>Likely cost range:</b></p> <p>2. £250k to £5m</p> <p>Within this range, the estimated project cost for the recommended option (2) is as indicated in Table 2</p>
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**Table 2: Project Budget Estimate (Option 2)**

	<b>Cost (£)</b>
Construction (Option 2)	342,000
Fees	55,000
Site Investigations	40,000
Network Rail management costs	27,000
Staff costs	exc
Network Rail track access costs (prov.)	120,000
<b>Sub Total</b>	<b>584,000</b>
Project Risk Allowance	100,000
<b>Total (inc. risk)</b>	<b>684,000</b>

Please refer to Appendix 1 for a more detailed breakdown of works costs and fees

**21. Funding strategy**

Choose 1:  
All funding fully guaranteed

Choose 1:  
Internal - Funded wholly by City's own resource

21.1. Currently £230,000 of funding is allocated to the project from within the CWP.

21.2. Approximately £44,000 of this funding has already been committed to cover the costs of initial structural consultancy fees, preliminary investigations and Network Rail project management costs (which must be paid up-front), as Table 3 below.

Table 3: Committed Costs

<b>Description</b>	<b>Commitment (£)</b>
Initial Consultant Fees	10,000
Network Rail Basic Asset Protection Agreement (BAPA)	26,750
Site investigations	7,635
<b>Total</b>	<b>44,385</b>

21.3. However, it must be emphasised that these committed Network Rail costs (the "BAPA") do not include for the costs of securing access to the network during rail possessions. This introduces a significant risk to the project budget at this stage.

- 21.4. Preliminary estimates of “piggy backing” onto 4no. 26-hour future possessions secured by others are included in the Options costs. Specific possessions booked by the City just for these works would be restrictively expensive and would require a booking process of potentially 96 weeks. Final costs will be confirmed by Network Rail nearer the time, once the number of parties utilising the possessions are confirmed. An allowance of £120,000 is currently included from early discussions with Network Rail
- 21.5. In March 2017 the Court of Common Council approved the Finance Committee City Fund 2017/18 Budget Report and Medium Term Financial Strategy.
- 21.6. The approval granted that City Fund investment opportunities are included, subject to further reports, on the additional provision of £2m in 2017/18 and £4m pa thereafter to fund the investment in tackling the 'bow wave' for City Fund properties and in particular focus on some substantial refurbishment works at specific properties e.g. Central Criminal Court.
- 21.7. Following RASC Away Day in June 2017, Members had given a steer that any ‘windfall’ surpluses from business rates in 2017/18 should be applied to ‘one off items’ such as revenue contribution to large capital schemes and catch up on the ‘bow wave’ maintenance programme.
- 21.8. It is proposed that £323,000 is funded from this source (Additional Capital Funds for City Fund Properties Programme), as approved by RASC on 18<sup>th</sup> January 2018, to supplement currently approved CWP Funds for the project, as table 4
- 21.9. It is proposed that the remaining £131,000 (to make up the estimated project shortfall), it is funded from savings in 2016/2017 Additional Works Programme, as also indicated in table 4 below

Table 4: Funding Sources

<b>Funds/Sources of Funding</b>	<b>Cost (£)</b>
Current CWP Funds	230,000
Additional Capital Funds for City Fund Properties Programme (including for £100,000 risk allowance)	323,000
2016/17 Additional Works Programme savings	131,000
<b>Total</b>	<b>684,000</b>

<p><b>22. On-going revenue implications</b></p>	<p>22.1. Reduction in reactive and cyclical maintenance costs</p> <p>22.2. Remediating the reported bridge defects as early as possible will reduce the potential increased costs of carrying out repairs in the future (if allowing them to deteriorate further).</p>
<p><b>23. Investment appraisal</b></p>	<p>n/a</p>
<p><b>24. Procurement strategy/Route to Market</b></p>	<p>24.1. Following consultation with City Procurement, works are to be procured by open tender of fully detailed proposals, making use of rail possession access the City have agreed and provisionally booked in advance with Network Rail</p> <p>24.2. Consideration had been given to separately procuring waterproofing works to the topside of both bridges (&amp; strengthening works to the footways of West Smithfield), using the term highways contractor</p> <p>24.3. However, this option has now been discounted due to the discovery of the granite setts above the bridge decks. Their removal would most safely be carried out during coordinated rail possessions to reduce the risks of percussive vibration causing defective materials to the bridge soffit falling to trackside during operational hours.</p>
<p><b>25. Legal implications</b></p>	<p>25.1 The works are designed to address defects which present considerable liability risks to the City from degraded materials falling on the live railway</p> <p>25.2 In addition to public liability, the City risks enforcement action from the Rail Inspectorate of the Health and Safety Executive if the current situation is allowed to prevail or deteriorate further</p>
<p><b>26. Corporate property implications</b></p>	<p>26.1 None – the bridges are highway structures and do not form part of Corporate Property</p>
<p><b>27. Traffic implications</b></p>	<p>27.1. The waterproofing works to both bridges and the strengthening of the footways to West Smithfield Bridge will impact temporarily on the public highway</p> <p>27.2. If possible, these work elements will be expedited with partial closures only, so that one footway and at least one traffic lane will remain open at all times, controlled by appropriate traffic management, in consultation with the markets</p>
<p><b>28. Sustainability and energy implications</b></p>	<p>n/a</p>

<b>29. IS implications</b>	n/a
<b>30. Equality Impact Assessment</b>	n/a

**Options Appraisal Matrix**

See attached

**Appendices**

<b><u>Appendix 1</u></b>	Cost breakdown
<b><u>Appendix 2</u></b>	Risk register

**Contact**

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## Options Appraisal Matrix

	<i>Option 1</i>	<i>Option 2</i>	<i>Option 3</i>	<i>Option 4</i>
<b>1. Brief description</b>	Do nothing	Full programme of repair works to both bridges, including waterproofing of both bridges and strengthening of footways to West Smithfield Bridge	Repairs to both bridge soffits only	Repairs to West Smithfield Bridge soffit only
<b>2. Scope and exclusions</b>		<ul style="list-style-type: none"> <li>• Concrete/masonry repairs to both bridge soffits, including wrought iron beam protection</li> <li>• Ancillary steel repairs to Charterhouse Street Bridge (tie beams)</li> <li>• Strengthening of footways to West Smithfield Bridge</li> <li>• Waterproofing of both bridges</li> </ul>	<ul style="list-style-type: none"> <li>• Concrete/masonry repairs to both bridge soffits, including wrought iron beam protection</li> <li>• Ancillary steel repairs to Charterhouse Street Bridge (tie beams)</li> <li>• <b><u>Excludes</u></b> waterproofing and strengthening</li> </ul>	<ul style="list-style-type: none"> <li>• Concrete/masonry repairs to both bridge soffits, including wrought iron beam protection</li> <li>• <b><u>Excludes</u></b> works on Charterhouse Street Bridge</li> <li>• <b><u>Excludes</u></b> waterproofing and strengthening</li> </ul>
<b><i>Project Planning</i></b>				
<b>3. Programme and key dates</b>		Complete works by end of 2019/20 financial year, subject to rail possessions	Complete works by end of 2019/20 financial year, subject to rail possessions	Complete works by end of 2019/20 financial year, subject to rail possessions

<p><b>4. Risk implications</b></p>	<ul style="list-style-type: none"> <li>Highest risk option in terms of the City's public liability and reputation i.e. does not address any defects, nor reduce the City's risks therein</li> </ul>	<ul style="list-style-type: none"> <li>Lowest risk option in terms of the City's longer term public liability and reputation</li> <li>Mitigates all defined risks from current defects</li> <li>Risks in relation to rail possession costs and protection of Overhead Line Equipment are common to options 2 to 4</li> </ul>	<ul style="list-style-type: none"> <li>Mitigates immediate risks over the railway</li> <li>Does not mitigate risk of further degradation of structure from water ingress</li> <li>Does not mitigate risks to under-strength structures to West Smithfield footway from accidental wheel loading</li> <li>Risks in relation to rail possession costs and protection of Overhead Line Equipment are common to options 2 to 4</li> </ul>	<ul style="list-style-type: none"> <li>Mitigates only the highest immediate risks over the railway</li> <li>Does not mitigate risks with respect to Charterhouse Street Bridge</li> <li>Does not mitigate risk of further degradation of structure from water ingress</li> <li>Does not mitigate risks to under-strength structures to West Smithfield footway from accidental wheel loading</li> <li>Risks in relation to rail possession costs and protection of Overhead Line Equipment are common to options 2 to 4</li> </ul>
<p><b>5. Benefits and disbenefits</b></p>	<p><u>Benefits</u></p> <ul style="list-style-type: none"> <li>Zero cost option in short term</li> </ul>	<p><u>Benefits</u></p> <ul style="list-style-type: none"> <li>Addresses and mitigates all identified significant defects</li> </ul>	<p><u>Benefits</u></p> <ul style="list-style-type: none"> <li>Addresses all immediate risks of degraded materials falling to track level from both bridges</li> </ul>	<p><u>Benefits</u></p> <ul style="list-style-type: none"> <li>Addresses only the highest risks of degraded materials falling to track level from (worse condition)</li> </ul>

	<u>Disbenefits</u> <ul style="list-style-type: none"> <li>Does not mitigate any risks in short or longer term</li> </ul>	<u>Disbenefits</u> <ul style="list-style-type: none"> <li>Highest cost option but makes best use of the high 3<sup>rd</sup> party costs (particularly Network Rail) common to options 2 to 4</li> </ul>	<ul style="list-style-type: none"> <li>Medium cost option</li> </ul> <u>Disbenefits</u> <ul style="list-style-type: none"> <li>However, does not address waterproofing issues and risks of further deterioration in longer term</li> </ul>	West Smithfield Bridge <ul style="list-style-type: none"> <li>Lowest cost option, other than “do nothing” option 1</li> <li>However, makes least best use of the high 3<sup>rd</sup> party costs (particularly Network Rail) common to options 2 to 4</li> </ul> <u>Disbenefits</u> <ul style="list-style-type: none"> <li>Does not address any defects to Charterhouse Street Bridge</li> <li>Does not address waterproofing issues and risks of further deterioration in longer term</li> </ul>
<b>6. Stakeholders and consultees</b>	<ul style="list-style-type: none"> <li>N/A (“Do nothing” option)</li> </ul>	<ul style="list-style-type: none"> <li>Network Rail</li> <li>Smithfield Markets</li> <li>Local businesses/residents</li> <li>Museum of London relocation project team</li> </ul>	<ul style="list-style-type: none"> <li>Network Rail</li> <li>Smithfield Markets</li> <li>Local businesses/residents</li> <li>Museum of London relocation project team</li> </ul>	<ul style="list-style-type: none"> <li>Network Rail</li> <li>Smithfield Markets</li> <li>Local businesses/residents</li> <li>Museum of London relocation project team</li> </ul>

<b>Resource Implications</b>				
<b>7. Total Estimated cost</b>	<ul style="list-style-type: none"> <li>• Zero cost</li> </ul>	<ul style="list-style-type: none"> <li>• £684,000 (inclusive of £100,000 risk allowance)</li> </ul>	<ul style="list-style-type: none"> <li>• £495,000 (inclusive of £100,000 risk allowance)</li> </ul>	<ul style="list-style-type: none"> <li>• £389,000 (inclusive of £100,000 risk allowance)</li> </ul>
<b>8. Funding strategy</b>	<ul style="list-style-type: none"> <li>• N/A (“Do nothing” option)</li> </ul>	<ul style="list-style-type: none"> <li>• Currently approved CWP funds, supplemented by the Additional Capital Funds for City Fund Properties Programme</li> <li>•</li> </ul>		
<b>9. Estimated capital value/return</b>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>
<b>10. Ongoing revenue implications</b>	<ul style="list-style-type: none"> <li>• Risk of increased future maintenance costs when defects are finally addressed, if allowed to degrade further</li> </ul>	<ul style="list-style-type: none"> <li>• Most effective option for reducing future revenue costs of reactive maintenance</li> </ul>	<ul style="list-style-type: none"> <li>• Reduces future revenue costs of reactive maintenance for bridges but not as effectively (as not protected from future water ingress)</li> </ul>	<ul style="list-style-type: none"> <li>• Reduces future revenue costs of reactive maintenance for one bridge only and not as effectively as option 2 (as not protected from future water ingress)</li> <li>•</li> </ul>
<b>11. Investment appraisal</b>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>
<b>12. Affordability</b>	<ul style="list-style-type: none"> <li>• N/A (“Do nothing” option)</li> </ul>	<ul style="list-style-type: none"> <li>• Most expensive option but most effective use of high 3<sup>rd</sup> party costs that are common to options 2 to 4</li> </ul>	<ul style="list-style-type: none"> <li>• Medium cost option</li> </ul>	<ul style="list-style-type: none"> <li>• Lowest cost option but least effective use of high 3<sup>rd</sup> party costs that are common to options 2 to 4</li> </ul>

<b>13. Legal implications</b>	<ul style="list-style-type: none"> <li>• Highest risk option</li> </ul>	<ul style="list-style-type: none"> <li>• Lowest risk option, as far as the City's legal liabilities are concerned</li> </ul>	<ul style="list-style-type: none"> <li>• Mitigates the immediate risks</li> </ul>	<ul style="list-style-type: none"> <li>• Mitigates the highest risks only (for one bridge only)</li> </ul>
<b>14. Corporate property implications</b>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>
<b>15.</b>				
<b>16. Traffic implications</b>	<ul style="list-style-type: none"> <li>• N/A ("Do nothing" option)</li> </ul>	<ul style="list-style-type: none"> <li>• Waterproofing works will disrupt carriageways, but mitigated by phasing</li> </ul>	<ul style="list-style-type: none"> <li>• None – all works at track level only</li> </ul>	<ul style="list-style-type: none"> <li>• None – all works at track level only</li> </ul>
<b>17. Sustainability and energy implications</b>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>
<b>18. IS implications</b>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>
<b>19. Equality Impact Assessment</b>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>
<b>20. Recommendation</b>	Not recommended	<b>Recommended</b>	Not recommended	Not recommended
<b>21. Next Gateway</b>	Choose an item.	Gateway 5 - Authority to Start Work	Choose an item.	Choose an item.

**22. Resource requirements to reach next Gateway**

Item	Reason	Funds/ Source of Funding	Cost (£)
Staff costs	Project Management and coordination with Network Rail	<i>(excluded from CWP projects)</i>	exc
Consultant fees <i>(note)</i>	Design and detailing	CWP	20,000
Consultant fees <i>(note)</i>	CDM Principal Designer	CWP	5,000
Consultant fees <i>(note)</i>	Quantity Surveyor / Network Rail Planner	CWP	18,000
Investigations	To inform design and mitigate risks	CWP	40,000
Network Rail Management Costs	Project Management	CWP	27,000
Network Rail	Advance access booking	CWP	120,000
<b>Total</b>			<b>230,000</b>

As detailed more fully in Appendix 1, consultant fee estimates are based on a combination of:-

- a) tendered term contract % of estimated works value, pro-rata to GW5, where appropriate, or
- b) past experience on similar benchmarked projects