

Committees: Planning & Transportation [<i>for decision</i>] Operational Property and Projects Sub [<i>for decision</i>]	Dates: 19 July 2022 20 July 2022
Subject: London Wall Car Park Joints and Waterproofing Unique Project Identifier: 12002	Gateway 3/4: Options Appraisal (Regular)
Report of: Executive Director, Environment Report Author: Mark Bailey	For Decision
<h1>PUBLIC</h1>	

1. Status update	<p>Project Description:</p> <p>To carry out essential waterproofing and repair works to the highway structure, in order to maintain structural integrity, utility and asset value. These comprise:-</p> <ol style="list-style-type: none"> 1) Re-waterproofing the remaining areas of structure that were beyond the scope of the London Wall Place development highway improvement works (s278) in 2017. 2) Replacing structural expansion joints to the structure. 3) Concrete repairs to internal surfaces where existing concrete has spalled and exposed corroding reinforcement. <p>RAG Status: Green (Green at last report to Committee)</p> <p>Risk Status: Low (Low at last report to committee)</p> <p>Total Estimated Cost of Project (excluding risk): £ 1,784,000 (including risk £1,984,000)</p> <p>Change in Total Estimated Cost of Project (excluding risk): Decrease of £ 216,000 on the £2 Million last reported to Committee, although now incorporating a proposed Costed Risk Provision of £200,000 at Gateway 5. Hence, overall total cost (including for risk) is broadly unchanged.</p> <p>Spend to Date: £12,000 (staff costs and fees)</p> <p>Costed Risk Provision Utilised: n/a</p>
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	<p>Slippage: The original expectation was that the project would be completed in 2019, although the project funding was subsequently placed on hold as part of the Corporate Fundamental Review. Following subsequent approval of funding from this review, the project was deferred whilst Section 278 highway improvement works were completed to London Wall Place. Following the completion of these works, the progression of a G3/4 report was further delayed whilst investigations into failures of the newly replaced expansion joints were carried out (see section 4 of report). These investigations are now complete and the revised project programme is based on completion by the end of 2023.</p> <p>Funding: Central funding from the On-Street Parking Reserve was agreed in principle via the 2020/21 capital bids. Release of this funding will be subject to the further approval of the Resource Allocation Sub-Committee.</p>
<p>2. Next steps and requested decisions</p>	<p>Next Gateway: Gateway 5: Authority to Start Work</p> <p>Next Steps:</p> <ul style="list-style-type: none"> • Completion of detailed design by term consultant (Arcadis) • Further investigations for expansion joints and concrete repairs • Procurement of works, either under new highways term contract or by competitive tender. • Coordination with highway authority and TFL to obtain road closures and bus diversions. <p>Requested Decisions:</p> <ol style="list-style-type: none"> 1. That additional budget of £ 129,000 is approved for staff costs, fees and investigations, as Table 1 below, in order to reach the next Gateway; 2. Note the revised project budget of £ 141,000 (excluding risk) up to Gateway 5, including for costs expended prior to Gateway 3/4; 3. Note the total estimated cost of the project at £1,784,000 (excluding risk); 4. That delegated authority is given to Chief Officer to appoint the successful contractor at Gateway 5 and to instruct the Comptroller and City Solicitor to enter into contract, subject to tendered works costs remaining within the £1,600,000 estimate provided by this report (or to instruct under the new highways term contract subject to satisfactory agreement of costs and the same proviso). 5. That a Costed Risk Provision of £25,000 is approved at this stage to cover unforeseen conditions during further

	<p>investigations, to be drawn down via delegation to the Assistant Director Engineering.</p> <p>6. That a total Costed Risk Provision of £200,000 is approved for use following Gateway 5, subject to tender costs remaining within budget, for expenditure against identified sums from the project risk registers against specified risks at the construction stage and to be drawn down to the Assistant Director Engineering.</p> <p>7. That Option 3 is approved (implementation of waterproofing, expansion joint replacement and internal structural concrete repairs)</p>																				
<p>3. Resource requirements to reach next Gateway</p>	<p><u>Table 1: Further funding required to reach Gateway 5, for recommended option 3</u> (i.e. additional to funding approved at Gateway 1/2)</p> <table border="1"> <thead> <tr> <th>Item</th> <th>Reason</th> <th>Funds/ Source of Funding</th> <th>Cost (£)</th> </tr> </thead> <tbody> <tr> <td>Staff costs</td> <td>Project Management</td> <td rowspan="5">City Fund On-Street Parking Reserve</td> <td>14,000</td> </tr> <tr> <td>Consultant fees</td> <td>Detailed design and contract preparation</td> <td>30,000</td> </tr> <tr> <td>Investigations</td> <td>Expansion joints and concrete repairs</td> <td>75,000</td> </tr> <tr> <td>Statutory approvals / consultation</td> <td>Approvals required for road and working space</td> <td>10,000</td> </tr> <tr> <td>Total</td> <td></td> <td>129,000</td> </tr> </tbody> </table> <ul style="list-style-type: none"> All cost estimates are based on recent similar projects and Gateway 6 Outcome Reports. Please refer to Appendix 4 for breakdown of Total Estimated Project Costs <p>Costed Risk Provision requested for this Gateway: £25,000 is required at G3/4, related to unforeseen risks during further investigations. We currently envisage a further £175,000 to be required at G5, related to construction stage risks, making</p>	Item	Reason	Funds/ Source of Funding	Cost (£)	Staff costs	Project Management	City Fund On-Street Parking Reserve	14,000	Consultant fees	Detailed design and contract preparation	30,000	Investigations	Expansion joints and concrete repairs	75,000	Statutory approvals / consultation	Approvals required for road and working space	10,000	Total		129,000
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	<p>£200,00 in total (as section 2 <i>Requested Decisions</i>). However, this will be reviewed at G5 when investigations, design and tender costs are confirmed. All CRP is to be sourced from the same fund as shown in Table 1 above.</p>
<p>4. Overview of project options</p>	<p>Three options were introduced at Gateway 1/2 in 2018, namely:-</p> <ol style="list-style-type: none"> 1) “Do nothing” option, other than monitoring the condition and deterioration of the structure in the two-yearly highway structures inspection programme, carrying out reactive maintenance when necessary. 2) Design and implement re-waterproofing and expansion joint replacement works (but limited to those areas which were not already subject to s278 replacement works in 2017). This would be achieved by full exposure to the deck level in these areas but would exclude any internal structural concrete repairs. 3) As option 2) but including all internal structural concrete repairs within the car park. <p>Subsequent to Gateway 1/2, a significant number of defects and failures have been observed to the expansion joints that were replaced in 2017. Further investigations have determined that sections of rubber “water bars” which formed part of the original 1950’s construction were not subsequently removed when strengthening works to the structure (near the joints) were carried out in the late 1980’s.</p> <p>A combination of percussive works to remove the old joints in 2017 and the presence of the water bars remnants immediately underneath have weakened the structural concrete nosings immediately below the joints. This has led to premature failure of the expansion joints, as they are not securely bonded to a sound substrate.</p> <p>To prevent this from re-occurring, it is now considered necessary to replace all the expansion joints– including those replaced as recently as 2017 – but including additional concrete removal and repair works to remove the old water bar remnants and thus give a sound substrate for the new joints.</p> <p>Inspections and investigations carried out by the term consultant following the last report to committee have confirmed the scope of internal concrete repairs. In combination with a favourable review of project fees and waterproofing estimates based on similar recent projects, the Total Estimated Cost of the Project is now reduced from the £2M estimate at Gateway 1/2 (excluding Costed Risk Provision) at £1,784,000</p> <p>The revised options considered at Gateway 3/4 are therefore presented as:-</p>

	<p>1) “Do nothing” option, other than monitoring the condition and deterioration of the structure in the two-yearly highway structures inspection programme, carrying out reactive maintenance when necessary.</p> <p>2) Design and implement re-waterproofing works to part of the structure (i.e. those areas which were not already subject to s278 replacement works in 2017), in addition to replacement of all expansion joints for the entire extent of the structure (including the defective ones replaced in 2017). This would be achieved by full exposure to the deck level in these areas but would exclude any internal structural concrete repairs.</p> <p>3) As option 2) but including all internal structural concrete repairs within the car park.</p> <p>“Do nothing” (Option 1) is considered to be the least favoured option, as it would not arrest ongoing deterioration of the structure and water ingress of the car park, nor would it best protect against potential 3rd party claims thereof with respect to parked vehicles. It is understood that insurance of the car park is no longer available to cover damage/risks from water leakage. At some point, intervention in all areas will be required and it is likely to be far more expensive to tackle this in a reactive and piecemeal fashion, especially if the condition of the car park is allowed to deteriorate in the interim.</p> <p>Option 2 satisfactorily deals with the immediate problem of water ingress and waterproofing to the car park through the roof deck but fails to tackle internal structural defects in the car park which have already manifested themselves due to past water ingress. These defects will continue to deteriorate following works (albeit it at a slower rate), due to carbonation and chloride contamination of the concrete, especially where spalling and exposed reinforcement are already apparent. Option 2 also fails to tackle water ingress through the perimeter walls where cracking and “honeycombed” concrete have allowed this to occur.</p>
<p>5. Recommended option</p>	<p>It is recommended that Option 3 is implemented, with waterproofing/jointing works running concurrently with concrete repair works to the interior, in order to make best use of contractor resources and increase cost-efficiency of the works required.</p>
<p>6. Risk</p>	<p>A Costed Risk Provision (CRP) of £25,000 is requested at this stage, to cover “unforeseen conditions” during further investigations to buried/hidden structure, to be drawn down via delegated authority to the Assistant Director Engineering</p> <p>A total CRP of £200,000 is requested beyond Gateway 5 related to construction stage risks, to be drawn down via delegated authority to the Assistant Director Engineering (subject to tendered works costs remaining within budget at G5).</p>

	<p>These also relate primarily to unforeseen conditions during construction, due to the buried or otherwise hidden nature of the structure and potential defects. Whilst investigations are proposed prior to Gateway 5 to mitigate these risks, these can only be limited in their scope for reasons of economy, compared with the very large extent of the structure on London Wall.</p> <p>Further information available in the Risk Register (Appendix 2) and Options Appraisal.</p>
7. Procurement approach	<p>The detailed design of the works is to be carried out by consultant Arcadis under their current term contract for Management & Inspection of Highway Structures, using tendered rates for professional services.</p> <p>It is proposed that flexibility is retained to procure the works from either of the two options:-</p> <ul style="list-style-type: none"> a) Using the new term contract for highway works, which comes into force in 2022/23, based on agreed rates and/or agreed costs derived by open book tendering of subcontractor packages, or b) By competitive tender (by open invite) via the Capital e-sourcing portal based on quality and cost submissions. <p>Please also additionally refer to the appended Procurement Form PT4 in Appendix 3</p>

Appendices

Appendix 1	Project Coversheet
Appendix 2	Risk Register (for recommended option)
Appendix 3	PT4 Procurement Form
Appendix 4	Financial Summary (for recommended option)

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Options Appraisal Matrix

Option Summary	Option 1	Option 2	Option 3
1. Brief description of option	“Do nothing” option, other than monitoring the condition and deterioration of the structure in the two-yearly highway structures inspection programme, carrying out reactive maintenance when necessary.	Design and implement re-waterproofing works (those areas which were not already subject to s278 replacement works in 2017) Replacement of all expansion joints for the entire extent of the structure (including the defective ones replaced in 2017) This would be achieved by full exposure to the deck level in these areas, but would exclude any internal structural concrete repairs.	As option 2) but including all internal structural concrete repairs.
2. Scope and exclusions	As described i.e. biennial monitoring and reactive maintenance only.	<ul style="list-style-type: none"> • As described. • Includes the defective expansion joints that were replaced in 2017 • Excludes concrete repairs to interior 	<ul style="list-style-type: none"> • As described. • Includes the defective expansion joints that were replaced in 2017 • Includes concrete repairs to interior
Project Planning			
3. Programme and key dates	Ongoing biennial programme of planned inspections, followed by reactive	Expected duration of works 12 to 16 weeks with an expected	As for option 2, as concrete repair works to interior of car park do not conflict with exterior waterproofing

Option Summary	Option 1	Option 2	Option 3
	maintenance works when necessary	completion date in late-summer 2023	works and utilise different trades. Therefore, expected to run concurrently.
4. Risk implications	<p>Overall project option risk: Medium</p> <ul style="list-style-type: none"> • Risk of structural depreciation in between reactive maintenance cycles, leading to increased long terms maintenance costs • Increased risk of 3rd party claims from damage to parked vehicles from spalling concrete or water ingress with calcareous deposits. It is understood that insurance of the car park is no longer available to cover damage/risks from water leakage • Damage to Roman remains (London Wall) • Associated reputational risks to City 	<p>Overall project option risk: Low</p> <ul style="list-style-type: none"> • Whilst dealing with the primary water ingress issues, this option does not mitigate against ongoing structural deterioration to existing interior defects, especially where reinforcement is exposed and corroding 	<p>Overall project option risk: Low</p> <ul style="list-style-type: none"> • This option, whilst the most expensive, mitigates risks of further structural depreciation, insurance losses and asset value/utility in the most appropriate and cost-efficient manner. <p>Further information available within the Risk Register (Appendix 2).</p>

Option Summary	Option 1	Option 2	Option 3
5. Stakeholders and consultees	<ul style="list-style-type: none"> As options 2 and 3, but on a reactive basis rather than planned works under a capital project 	<ul style="list-style-type: none"> City Surveyors Department Parking Operator Highway Authority Transport for London (inc. buses) Adjacent businesses, especially those affronting London Wall 	
6. Benefits of option	<ul style="list-style-type: none"> Zero initial cost 	<ul style="list-style-type: none"> Tackles all issues arising from external waterproofing and joint defects Minimal disruption to car park interior 	<ul style="list-style-type: none"> Tackles all issues arising from both external and internal defects Maximum cost efficiency by using shared project resources (overheads, closures etc) for interior and exterior works concurrently
7. Disbenefits of option	<ul style="list-style-type: none"> Tackles the important issues in only a reactive manner Leading to increase long-term costs 	<ul style="list-style-type: none"> Doesn't tackle further deterioration of internal defects (or risks associated) Doesn't make best use of large project resources to combine works and increase cost-efficiency 	<ul style="list-style-type: none"> Maximum project cost Increased temporary disruption to car park operation during interior concrete repair works, with potential loss of short term revenue
Resource Implications			
8. Total estimated cost	Total estimated cost (excluding risk): <i>No capital project funding costs</i>	Total estimated cost (excluding risk): £1.684 Million	Total estimated cost (excluding risk): £ 1.784 Million

Option Summary	Option 1	Option 2	Option 3
	Total estimated cost: (including risk): <i>No capital project funding costs.</i>	Total estimated cost: (including risk): £1.884 Million	Total estimated cost: (including risk): £1.984 Million
9. Funding strategy	Biennial inspections and reactive maintenance are funded from City Fund Local Risk	City Fund On-Street Parking Reserve Central funding from the On-Street Parking Reserve was agreed in principle via the 2020/21 capital bids. Release of this funding will be subject to the further approval of the Resource Allocation Sub-Committee.	
10. Investment appraisal	Not applicable		
11. Estimated capital value/return	Not applicable		
12. Ongoing revenue implications	Increased revenue costs are associated with this option, due to addressing defects in a reactive and ad-hoc manner, whilst not addressing the causes of structural degradation in a planned manner. Additionally, increased risk of 3rd party claims from damage to parked vehicles from spalling concrete or water ingress with calcareous deposits. It is understood that insurance of the car park is no	This option reduces revenue costs associated with reactive maintenance to waterproofing and expansion joints but not those associated from internal structural degradation from carbonation and chloride contamination to reinforced concrete	This option reduces revenue costs associated with reactive maintenance to both exterior and interior. Temporary short term revenue implications (unquantified) are expected during concrete repair works, to be mitigated by works phasing in liaison with stakeholders.

Option Summary	Option 1	Option 2	Option 3
	longer available to cover damage/risks from water leakage		
13. Affordability	Not applicable to capital project (no capital funding required)	Adequate Central funding from the On-Street Parking Reserve was agreed in principle via the 2020/21 capital bids. Release of this funding will be subject to the further approval of the Resource Allocation Sub-Committee.	
14. Legal implications	Limited mitigation of potential 3 rd party claims arising from internal concrete defects	Limited mitigation of potential 3 rd party claims arising from internal concrete defects	Most effective option in mitigating 3 rd party claims due to internal concrete defects
15. Corporate property implications	None (no comments received)	None (no comments received)	None (no comments received)
16. Traffic implications	None	<ul style="list-style-type: none"> • Temporary road closures and diversions (including buses) will be required to facilitate waterproofing and expansion joint works on London Wall • Maintaining access to the car park during these closures will also need to be agreed/phased. 	<ul style="list-style-type: none"> • Temporary road closures and diversions (including buses) will be required to facilitate waterproofing and expansion joint works on London Wall • Maintaining partial access to the car park during these closures and during concrete repair works to the car park interior will also need to be agreed/phased.
17. Sustainability and energy implications	None		

<i>Option Summary</i>	<i>Option 1</i>	<i>Option 2</i>	<i>Option 3</i>
18. IS implications	None		
19. Equality Impact Assessment	Not Applicable		
20. Data Protection Impact Assessment	Not Applicable		
21. Recommendation	Not recommended	Not recommended	Recommended