

Committees: Operational Property & Projects Sub Committee	Dates: 30 May 2022
Subject: Energy Reduction Programme: Tower Hill Coach & Car Park Lighting and Ventilation Upgrades Unique Project Identifier: 12336	Gateway 3/4/5: Options Appraisal and Authority to Start Work (Regular)
Report of: City Surveyor Report Author: Mark Donaldson	For Decision
<h1>PUBLIC</h1>	

1. Status update	<p>Project Description: This project is for the upgrade of the lighting and ventilation systems at Tower Hill Coach and Car Park which aims to reduce energy consumption, costs and carbon emissions. This paper combines two sub-projects within the Energy Reduction Programme which relate to the same site.</p> <p>RAG Status: Amber [the last committee paper was the GW2 issue report, at which the status was Amber]</p> <p>Risk Status: Medium [the last committee paper was the GW2 issue report, at which the status was Medium]</p> <p>Total Estimated Cost of Project (excluding risk): £261,218</p> <p>Change in Total Estimated Cost of Project (excluding risk): £108,993 increase on previous estimate due to the project scope being increased to include the ventilation works. While the total project cost has increased due to the scope increase, the cost of the combined works has decreased by £9,758 (excl. risk) since last reported. The total estimate cost (including risk) is within the previously allocated combined funding, as set out in the Funding Strategy of the Options Appraisal Matrix (see below).</p> <p>Spend to Date: £6,150 for lighting surveys.</p> <p>Costed Risk Provision Utilised: £0 (of which £0 amount has been drawn down since the last report to Committee);</p> <p>Slippage: the project was previously aiming for Gateway 3-5 by January 2022 and works completion by July 2022. This has been delayed to Gateway 3-5 by May 2022 and works completion by March 2023. The delayed and extended timeframe is to allow</p>
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	development of a proposal from our existing energy performance contractor, and to allow an extended installation period required for the increased project scope and to minimise site disruption.
2. Next steps and requested decisions	<p>Next Gateway: Gateway 6: Outcome Report</p> <p>Next Steps:</p> <ul style="list-style-type: none"> • Establish Project Team, to be managed by City Surveyor's Minors Projects Team. • Instruct works contract for Vital Energi. • Detailed design to be undertaken by Vital Energi and approved by CoL. • Vital Energi to raise supply orders. • Commence installation. <p>Requested Decisions:</p> <ol style="list-style-type: none"> 1. That Option 2 is approved for the delivery of the works and the increase in the project scope to encompass both the lighting and ventilation works as these works relate to the same site and their combination will provide a more cost-effective approach and ensure good alignment of the works under a single main contractor; 2. Note the total estimated cost of the project at £261,218 (excluding risk); 3. Approve a budget of £243,093 for the capital works to reach the next Gateway; 4. Approve a budget of £11,975 for the fees, which include project management support and building control, to reach the next Gateway; 5. Approve allocation of £89,750 which is currently available from the Carbon Fund, in accordance with the approved policy approach (see background papers) to deliver reductions in carbon emissions from retrofitting measures in publicly owned operational buildings; 6. Approve a Costed Risk Provision of £38,472 (to be drawn down via delegation to Chief Officer in consultation with the Chamberlain) to be funded wholly from the Carbon Fund; 7. Enter into a new works agreement with Vital Energi to undertake the works as Principal Contractor and Principal Designer, in accordance with the terms of their existing contract with CoL to deliver services under the National Framework Agreement for Energy Performance Contracting; 8. Procure the project management support services required to reach the next gateway.
3. Budget	<p>The following sets out the budget for the recommended option 2.</p> <p>Total estimated cost of the project, including risk: £299,690. The estimated cost of the project excluding risk is £261,218. Spend to date of £6,150 for lighting surveys which was wholly funded through the approved budget at Gateway 2 via City Fund.</p>

The funding arrangement is presented in the Options Appraisal Matrix under option 2. The budget requested for option 2 to reach the next gateway is £255,068 and the breakdown is set out below.

Item	Reason	Funds/ Source of Funding	Cost (£)
Lighting: Main Works	Capital works	City Fund: £143,196 CWP: £29,000 Carbon Fund: £68,206	£141,734
Ventilation: Main Works	Capital works		£101,359
Project Management	Resource required to manage project on behalf of CoL		£9,975
Building Control	Compliance		£2,000
Total			£255,068

Costed Risk Provision requested for this Gateway: £38,472 (as detailed in the Risk Register – Appendix 2) to cover any variations which may be required following detailed design, cost uplift from inflation, additional project management costs and making good, to be funded:

- £22,208 from City Fund
- £16,264 from Carbon Fund

4. Overview of project options

Option 1 (not recommended). Cancel the project. Do not proceed with upgrading the lighting and ventilation. This is not recommended as it will not support the City of London's goals for reducing carbon emissions and energy costs.

Option 2 (recommended): Upgrade the lighting and ventilation. The scope of this option encompasses both the lighting works and ventilation works. Both works have been developed as part of the Energy Reduction Programme (ERP). The lighting works were previously approved as part of 'Phase 1' of the ERP (see background papers). The ventilation works have previously been allocated funding through the Cyclical Works Programme.

No alternative technical options have been identified for the lighting and ventilation to that which is proposed here under option 2.

5. Recommended option

Option 2, for the upgrade of the lighting and ventilation.

This option combines increases the scope of the project to encompass the lighting and ventilation works which have been developed as part of the Energy Reduction Programme. The reason for combining these works is they relate to the same site and their combination will provide a more cost-effective approach and ensure good alignment of the works under a single main contractor.

	<p>These measures will provide significant energy cost and carbon emission savings with a favourable pay-back and can be met within the existing provisionally approved funding. This option provides an estimated saving of c.£52,575 per annum in electricity costs, with a simple payback of 5 years (excl. risk). The option provides an estimated annual saving of 56 tCO₂e, equating to a 44% reduction in the sites carbon emissions, which supports the City of London's energy and carbon reduction goals. This option will also significantly reduce maintenance failures and costs for the site and prolong the life of the lighting and ventilation systems.</p>
6. Risk	<p>Costed Risk Provision Utilised at Last Gateway: £0 Change in Costed Risk: - £90,579 Note, the scope of the project at gateway 2 was different to that for this paper.</p> <p>Service interruption. The works to the lighting will require parts of the car park to be closed. The works to the ventilation will require temporary shut-down of the ventilation systems. This will need careful coordination with the site management and car/coach park users, to time the works when least disruptive.</p> <p>Health and safety: electrical and other related works and the tariff control within the demise require careful management in line with City of London policies.</p> <p>Further information available in the Risk Register (Appendix 2) and options appraisal matrix.</p> <p>Costed Risk Provision requested for this Gateway: £38,472 (as detailed in the Risk Register – Appendix 2) to cover any variations which may be required following detailed design, additional project management costs and making good.</p>
7. Procurement approach	<p>City of London have an existing Call-off-Contract with Vital Energi under GLA's Re:fit framework, for which Vital Energi (the Service Provider) will provide a range of services including High Level Assessments, Investment Grade Proposals and Works Contracts to carry out Energy Efficiency Measures under an Energy Performance Guarantee.</p> <p>Vital Energi have undertaken surveys of Tower Hill Coach and Car Park and issued CoL with an Investment Grade Proposal (IGP) in accordance with their contract. The IGP sets out the firm costs, guaranteed savings and Measurement and Verification (M&V) plan for the works.</p> <p>The project works set out in this paper are to be carried out through entering into a new works agreement with Vital Energi, under the Call-off-Contract. Vital Energi will undertake the design and construction of the works and undertake the duties of Principal Contractor and Principal Designer. Following project completion,</p>

	Vital Energi will undertake a M&V exercise, in accordance with an agreed method and best practice industry standards, to evidence the achieved savings.
8. Design summary	<p>The final design shall be undertaken by Vital Energi as part of their works agreement and issued to CoL for approval. The following summarises the design as set out in Vital Energi's proposal (IPG) which has been informed through on-site surveys with their design team and sub-contractors.</p> <p><u>Lighting</u></p> <p>The scope of the lighting works covers the CoL demise within the ground floor coach park and basement car park, including stair wells, and the car park management facilities (office, mess etc.). The existing fluorescent luminaires will be replaced predominantly point-for-point with new LED luminaire fittings. The proposal includes a number of products all of which have been selected based on their suitability for the specific environment, ability to meet required light levels, quality, energy efficiency, and low maintenance. All come with a 5-year warranty as standard. The design includes for the standard and emergency lighting. To meet compliance with the latest emergency lighting regulations, a few additional light fittings are included for. The system will include new sensors and be controlled through a wireless mesh network, which reduces the cost and disruption of installing new wiring. The controls will increase the lighting on sensor occupancy detection and decrease the lighting after a time of non-detection to save energy. This will be designed to be safe for vehicles and occupants. The emergency lighting system will allow for remote (off-site) self-testing.</p> <p><u>Ventilation</u></p> <p>The scope covers the ventilation serving the car park and coach park areas. The ventilation system currently operates at a fixed maximum speed. The project will install new CO sensors throughout the coach and car park to detect emission levels and vary the speed on the ventilation to ensure emissions are kept below regulated requirements at all times. The sensors will be hard wired to communicate to the BMS (Building Management System). The BMS programme and graphics will be updated to reflect the new control strategy. Inverters (variable speed drives) will be installed to vary the speed of the ventilation fan motors under the control of the BEMS. The existing ductwork will be retained, although the project will include for some repairs where the ductwork is visibly damaged.</p>
9. Delivery team	The project will be led by the Minor Projects Team, City Surveyor's. Project management consultancy support will be procured as a one-off purchase, in accordance with normal procurement rules.
10. Success criteria	<ol style="list-style-type: none"> 1. Completed by 31st March 2023. 2. Completed within budget. 3. Verified energy cost savings of £50,682 per annum.

	4. Verified carbon savings of 56 tCO ₂ e per annum.
11. Progress reporting	Through Project Vision.

Appendices

Appendix 1	Project Coversheet
Appendix 2	Risk Register

Background documents

Energy Reduction Programme – Phase 1 GW2 (issue) Project Proposal
City Corporation's Proposed Approach to Carbon Offsetting

Contact

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Options Appraisal Matrix

Option Summary	Option 1	Option 2
1. Brief description of option	Option 1. Cancel the project. Do not proceed with replacing the car park lighting in the basement mezzanine floor.	Option 2. Proceed with lighting and ventilation works. The scope of this option encompass both the lighting works and ventilation works. Both works have been developed as part of the Energy Reduction Programme (ERP). The lighting works were previously approved as part of 'Phase 1' of the ERP (see background papers). The ventilation works have previously been allocated funding through the Cyclical Works Programme.
2. Scope and exclusions	N/A	Scope: <ul style="list-style-type: none"> • Lighting within the City of London's demise within Tower Hill Coach and Car Park. • Ventilation systems serving City of London's demise within Tower Hill Coach and Car Park.
<i>Project Planning</i>		
3. Programme and key dates	N/A	May-22: GW3-5 approval Jun-22: Instruct works agreement with Vital Energi Jul-22: Contractor mobilisation, supply orders raised Nov-22: Commence installation Mar-23: Complete installation Sep-23: Gateway 6

Option Summary	Option 1	Option 2													
4. Risk implications	Low	Low Further information available within the Risk Register (Appendix 2). Service interruption. The works to the lighting will require parts of the car/coach park to be closed. The ventilation system upgrades will also incur a short downtime to the ventilation system. This will need careful coordination with the site and car park users. Health and safety: electrical and other related works, and traffic within the demise requires careful management in line with City of London policies.													
5. Stakeholders and consultees	N/A	<table><tr><td>1. Corporate Property</td><td>Paul Wilkinson, Peter Collinson, Graeme Low, Andrew Coke, Samantha Williams, Jonathan Cooper, Darren Horrigan, Paul Friend, Mark Donaldson, Peter Dempsey, Terence Short</td></tr><tr><td>2. IT</td><td>N/A</td></tr><tr><td>3. Chamberlains</td><td>John James, Dianne Merrifield</td></tr><tr><td>4. Procurement</td><td>Kayleigh Rippe</td></tr><tr><td>5. Communications</td><td>N/A</td></tr><tr><td>6. Site users/clients</td><td>Ian Hughes, Ken Stone</td></tr></table>		1. Corporate Property	Paul Wilkinson, Peter Collinson, Graeme Low, Andrew Coke, Samantha Williams, Jonathan Cooper, Darren Horrigan, Paul Friend, Mark Donaldson, Peter Dempsey, Terence Short	2. IT	N/A	3. Chamberlains	John James, Dianne Merrifield	4. Procurement	Kayleigh Rippe	5. Communications	N/A	6. Site users/clients	Ian Hughes, Ken Stone
1. Corporate Property	Paul Wilkinson, Peter Collinson, Graeme Low, Andrew Coke, Samantha Williams, Jonathan Cooper, Darren Horrigan, Paul Friend, Mark Donaldson, Peter Dempsey, Terence Short														
2. IT	N/A														
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4. Procurement	Kayleigh Rippe														
5. Communications	N/A														
6. Site users/clients	Ian Hughes, Ken Stone														
6. Benefits of option	No funding required.	Cost savings est. of c.£52,575/yr. These savings are guaranteed under the energy performance contract with Vital Energi. A M&V (Measurement and Verification) exercise will be undertaken 6 months after installation to verify the actual project savings which will be evidenced through the metered electricity consumption. Carbon emission savings est. of c.56 tCO ₂ e/yr. New lighting with lower maintenance failures and associated costs.													

Option Summary	Option 1	Option 2
		New ventilation sensors control which will ensure compliance with regulations in providing good internal air quality while minimising the operating hours of the plant and hence reduce maintenance failures and costs.
7. Disbenefits of option	Higher ongoing energy and maintenance costs	Capital cost. Staff management and resource implications.
<i>Resource Implications</i>		
8. Total estimated cost	N/A	Total estimated cost (excluding risk): £261,218 Highly confident in the cost at this stage. Total estimated cost: (including risk): £299,690
9. Funding strategy	N/A	The total estimated cost (including risk) of £299,690 shall be met through the following funding sources: £180,940 from City Fund . This funding was previously provisionally approved by RASC towards this sub-project as part of the Energy Reduction Programme – Phase 1, as set out in the Gateway 2 issue report approved in November 2021. This funding was allocated on a spend-to-save basis for achieving a 5-year payback. £29,000 from CWP funding (project number (project number R0822CW001L) allocated towards the ventilation works. £89,750 from the of Carbon Fund , in accordance with the ‘City Corporation’s Proposed Approach to Carbon Offsetting’ (see background papers). This level of funding is available and has been provisionally allocated to the Energy Reduction Programme – Phase 2 for the ventilation works on the basis that this site meets the offsetting approach to deliver reductions in carbon emissions from retrofitting measures in publicly owned operational buildings (i.e. excluding

Option Summary	Option 1	Option 2
		“investment properties”) where those measures provide additional carbon emission reductions that would not otherwise be achieved.
10. Investment appraisal	N/A.	<p>A simple payback for the whole project has been estimated of 5 years based on estimated cost savings of c.£52,575/yr. (based on current energy prices).</p> <p>The energy savings are an estimate based on assumptions of the existing system and proposed system. These estimations will be verified post-completion.</p>
11. Estimated capital value/return	N/A	Estimated cost savings of c.£52,575/yr and simple payback of 5 years.
		<p>Moderately confident (+/-15%). The savings estimate will be refined as the project is developed to final design and verified after completion.</p> <p>The energy cost savings are based on existing electricity prices with a 30% uplift to reflect a rough 5-year forecast.</p>
12. Ongoing revenue implications	N/A	There will be a reduction in maintenance costs as the new lighting has a significantly longer life than the existing and the new lighting and ventilation controls will reduce the operating hours of the plant and also reduce future maintenance.
13. Affordability	N/A	The cost for this option can be accommodated within funding allocations already approved in principle, as set out in item 9 above.
14. Legal implications	N/A	None.
15. Corporate property implications	Does not align with the Corporate Property Asset Management Strategy 2020-2025	<ul style="list-style-type: none"> This project aligns with the Corporate Property Asset Management Strategy 2020-2025 in reducing energy costs and carbon emissions.

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		<ul style="list-style-type: none"> • Works require careful planning, consultation and coordination to minimise the disruption and impacts to building services and site users. • Works require coordination with other site works/projects and activities/events. • Security considerations for contractor access to certain areas. • Maintenance contracts and registers need to be updated to account for the changes to the building services and systems. • Good commissioning and hand-over process required to ensure the upgraded lighting is working satisfactorily.
16. Traffic implications	N/A	None.
17. Sustainability and energy implications	Cancelling the project would be a missed opportunity for reducing energy and carbon emissions for this site and does not support the City of London's net zero carbon targets.	This project supports the City of London's net zero carbon targets as set out in the Climate Action Strategy.
18. IS implications	N/A	<p>All normal and emergency lighting can be controlled via an app which will be downloaded onto an Apple mini iPad for ease of use.</p> <p>The new lighting system will require the installation of a gateway and 4G modem.</p>
19. Equality Impact Assessment	N/A	None.
20. Data Protection	N/A	N/A

Option Summary	Option 1	Option 2
Impact Assessment		
21. Recommendation	Not recommended	Recommended