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<p>Committees: RASC – For Decision Policy and Resources Committee – For Decision</p>	<p>Dates: 30 November 2023 21 September 2023</p>
<p>Subject: BEMS Upgrade Programme – Phase 2</p> <p>Unique Project Identifier: PV ID 12331</p>	<p>Gateway 3/4/5: Options Appraisal and Authority to Start Work (Regular)</p>
<p>Report of: City Surveyor</p> <p>Report Author: Brendan Crowley</p>	<p>For Decision</p>

<p>1. Status update</p>	<p>Project Description: This is the second phase of the upgrade of the corporate Building Energy Management System (BEMS). This involves the replacement of critical end-of-life components for core services – heating cooling and ventilation and life-safety systems. The BEMS upgrades of the below sites support the Climate Action Strategy (CAS) by providing the backbone for a Smart Buildings network and will be an essential tool to control and monitor the City’s buildings into the future – allowing us to quantify the effects of the many carbon reduction projects planned as part of the CAS. This is also business resilience project not a direct energy efficiency project. The BEMS on the following sites are to be migrated:</p> <ul style="list-style-type: none"> • The View – Epping Forest • The Temple – Wanstead Park • The Warren - Epping Forest • Harrow Road Pavilion - Wanstead Park • Heathrow Animal Reception Centre (HARC) <p>RAG Status: Amber (Amber at last report to Committee)</p> <p>Risk Status: Medium (Medium at last report to committee)</p> <p>Total Estimated Cost of Project (excluding risk): £200,424</p> <p>Change in Total Estimated Cost of Project (excluding risk): decrease of 16,967 since last report to Committee.</p>
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	<p>Spend to Date: £0 £35k was requested at GW2 but not used however as all design work/spec was done in house, and the contractor carried out the surveys at zero cost.</p> <p>Costed Risk Provision Utilised: £0</p> <p>Slippage: Short delay due to Capital Review. Revised completion date – December 2023</p>
<p>2. Next steps and requested decisions</p>	<p>Next Gateway: Gateway 6: Outcome Report</p> <p>Note: that central funding has been agreed in principle and will therefore require further approval of RASC to draw down the funds.</p> <p>Next Steps:</p> <p>Appoint Consultant & principal Contractor via Minor Works Framework and programme the works on each site with the BEMS Specialist.</p> <p>Requested Decisions:</p> <p><i>Please populate the financial information as structured below. Set out any decisions needed for this paper, if the paper is going to multiple committees note which decisions apply to which committee. Town Clerks Committee Clerks can assist you with committee terms of reference. CRP is not mandatory but can be requested if deemed necessary for projects where the G2 was approved post April 2019.</i></p> <ol style="list-style-type: none"> 1. That additional budget of £200,424 is approved to reach the next Gateway; 2. Note the revised project budget of £200,424 (excluding risk); 3. Note the total estimated cost of the project at £200,424 (excluding risk); 4. That a Costed Risk Provision of £47,486 is approved (to be drawn down via delegation to Chief Officer), as per risk register appendix 2. <p>That Option 2 is approved.</p> <p>Option 2: Migration of BEMS legacy systems to Ecostruxure platform at</p> <ul style="list-style-type: none"> • The View – Epping Forest • The Temple • The Warren - Epping Forest • Harrow Road Pavilion • HARC)
<p>3. Budget</p>	<p>Total cost of the project – £200,424</p> <p>This is slight reduction in previous estimates due to more accurate costings from suppliers.</p> <p>Please see appendix 1 for individual site migration cost breakdown.</p> <p>CRP of £47,486 is requested.</p> <p>Capital expenditure is expected in Q2/3 in financial year 2023/24</p>

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	<p><i>For recommended option 1:</i></p> <table border="1" data-bbox="528 342 1390 853"> <thead> <tr> <th data-bbox="528 342 762 443">Item</th> <th data-bbox="762 342 1007 443">Reason</th> <th data-bbox="1007 342 1230 443">Funds/Source of Funding</th> <th data-bbox="1230 342 1390 443">Cost (£)</th> </tr> </thead> <tbody> <tr> <td data-bbox="528 443 762 658">1</td> <td data-bbox="762 443 1007 658">Legacy BEMS hardware and software is obsolete and prone to failure</td> <td data-bbox="1007 443 1230 658">City Cash Reserves 56%. City Fund Reserves 44%</td> <td data-bbox="1230 443 1390 658">£200,424</td> </tr> <tr> <td data-bbox="528 658 762 853">Total</td> <td data-bbox="762 658 1007 853">From City Fund Reserves From City Cash Reserves</td> <td data-bbox="1007 658 1230 853">£112,237 £88,187</td> <td data-bbox="1230 658 1390 853">£200,424</td> </tr> </tbody> </table> <p>Costed Risk Provision requested for this Gateway: £47,486 (as detailed in the Risk Register – Appendix 2). This funded from the Capital funding agreed in principle at GW2. (Same 56%/44% CC/CF split applies)</p>	Item	Reason	Funds/Source of Funding	Cost (£)	1	Legacy BEMS hardware and software is obsolete and prone to failure	City Cash Reserves 56%. City Fund Reserves 44%	£200,424	Total	From City Fund Reserves From City Cash Reserves	£112,237 £88,187	£200,424
Item	Reason	Funds/Source of Funding	Cost (£)										
1	Legacy BEMS hardware and software is obsolete and prone to failure	City Cash Reserves 56%. City Fund Reserves 44%	£200,424										
Total	From City Fund Reserves From City Cash Reserves	£112,237 £88,187	£200,424										
<p>4. Overview of project options</p>	<p>There are two options:</p> <ol style="list-style-type: none"> 1. Do nothing – leave legacy system in place and risk failure and server impact on business continuity and increased Energy and carbon bills. 2. Migration the BEMS on each site to the latest Schneider platform – EcoStruxure in line with the rest of the City’s operation buildings <p>Note: only one option available as these sites must be compatible with wider City BEMS system therefore they must Ecostruxure.</p>												
<p>5. Recommended option</p>	<p>Option 2 is recommended – this will future proof these sites for business continuity and energy efficient – an essential enabler to support further Climate Action Strategy projects for these sites.</p>												
<p>6. Risk</p>	<p>R1: Presence of asbestos containing material which requires management prior to works being undertaken.</p> <p>R2: Unforeseen Issues with Fire systems.</p> <p>R3: Extra Out of hours working required.</p> <p>R7: Installation is not compliant.</p> <p>R9: Installed assets fail before anticipated life.</p> <p>R12: Delay in providing/recruiting Project Manager to manage the process following GW3/4/5 approval.</p>												

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	Further information available in the Risk Register (Appendix 2) and options appraisal matrix.
7. Procurement approach	<p><i>For recommended option (add procurement reference no.)</i> <i>Refer to the PT4 as needed</i></p> <ol style="list-style-type: none"> 1. Direct award to Sykes & son Ltd. through minor works (MTC) framework to deliver all 5no. sites migration works. 2. Specialist BEMS contractors to install the new system on each site. 3. Direct award to Project Management service to Beveridge Associates (sub £10k contract)
8. Design summary	<p>General design and project executing steps to be carried on all 5no. sites:</p> <ol style="list-style-type: none"> 1. BEMS specialist contractor to carry out site control panel condition survey ahead of migration works. 2. Extend Enterprise Server licensing as needed for the required EcoStruxure controller and take a backup of the Continuum net controllers. 3. Decommission and replace the Net-Controller II and input/output modules with an EcoStruxure AS-P Automation Server and input/output modules. Connect the AS-P to the existing local CoL IT network Ethernet data point. 4. Where an ininet sub-network existing install IP ethernet network to support EcoStruxure RPC IP sub controllers. 5. Strip out the redundant Power/BMS panel, original power and BMS containment and wiring. 6. Replace all existing input devise (sensors/switches) with new parts. 7. At Epping Forest The View install additional space temperature and humidity sensors to improve the control of the space conditions. 8. At HARC strip out all i2 controllers serving redundant animal enclosure heating.
9. Delivery team	<ol style="list-style-type: none"> 1. Project will be managed by the Minor Works Team (City Surveyors). Client-side Project Manager will be Beveridge Associates Ltd. 2. Contract for the works will via the Measured Terms Contract– Sykes & Sons Ltd. 3. BEMS specialist has already been engaged to propose solutions and costs.
10. Success criteria	<ol style="list-style-type: none"> 1. Successful installation and commissioning of new EcoStruxure BEMS hardware and Software. 2. Improved system reliability and future proofing business as usual operation of these key corporation sites and through installation modern building controls. 3. Reduced building energy consumption & carbon emissions due to optimised building control. 4. Enhanced user experience through interactive graphics, trend data presentation and alarm management facilities. 5. Integration of the new BEMS system with 3rd party systems on site, and with the Enterprise server at Guildhall. As well potential for addition to Building Analytics software package being procured via the PSDS. Programme in 2022.

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11. Progress reporting	<i>Progress report will be provided to the senior responsible officer and the City Surveyor on a regular basis. Project Vision will be updated monthly, and issue reports will return to committee as necessary.</i>
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Appendices

Appendix 1	Project Coversheet
Appendix 2	Risk Register
Appendix 3	Additional Info

Contact

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Options Appraisal Matrix

Option Summary	Option 1	Option 2
1. Brief description of option	Do nothing approach.	Migration of BEMS legacy systems to Ecostruxure platform at: <ul style="list-style-type: none"> • The View – Epping Forest • The Temple • The Warren - Epping Forest • Harrow Road Pavilion • HARC
2. Scope and exclusions	No Capital funding investment required with the decision not to install new BEMS platforms.	Full migration of BEMS at the 5no. sites funded by a combination of City Fund and City's Cash.
Project Planning		
3. Programme and key dates	n/a	<ol style="list-style-type: none"> 1. Secure project approval - May 2023 2. Procure PM services May 2023 3. Procure principal contractor services from preferred supplier via

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Option Summary	Option 1	Option 2
		<p>minor works framework - May 2023</p> <p>4. Engage with site stakeholders at 5no. sites to plan the phasing of the works – June 2023</p> <p>5. Place order with Contractor June 2023</p> <p>6. Start on site August 2023*</p> <p>7. Practical completion of works on all 5no. sites Dec '23</p> <p>8. System handover Jan'24.</p> <p>9. Gateway 6 report 6 months after project completion</p> <p>*Schneider Electric are currently quoting 2 - 3 months lead time on some of their equipment.</p>
4. Risk implications	n/a	<i>R1</i> : Presence of asbestos containing material which

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Option Summary	Option 1	Option 2
		<p>requires management prior to works being undertaken.</p> <p>R2: Unforeseen Issues with Fire systems</p> <p>R3: Extra Out of hours working required.</p> <p>R7: Installation is not compliant.</p> <p>R9: Installed assets fail before anticipated life.</p> <p>R12: Delay in providing/recruiting Project Manager to manage the process following GW3/4/5 approval.</p>
<p>5. Stakeholders and consultees</p>	<p>Carbon Action Strategy not supported by not utilising latest Building control technology</p>	<ul style="list-style-type: none"> • Keiron Siddons - HARC • Ross Hayes - HARC • Lee Powell • Nick Clayden • Jess Lees

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Option Summary	Option 1	Option 2
		<ul style="list-style-type: none"> • Andrew Coke • David Clelland – IT • Johnathon Cooper – City Surveyors • Carmel McGowan – City Surveyors • Graeme Low – City Surveyors • Kayleigh Rippe – City Procurement
<p>6. Benefits of option</p>	<p>None</p>	<ol style="list-style-type: none"> 1. Mitigate risk of system failure and impact on business continuity, through removal of all obsolete legacy BEMS hardware and software. 2. Improved system reliability and ensuring business-as-usual for these key corporation sites and through installation of a modern building controls platform. 3. Enhanced user experience through interactive graphics, trend data

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		<p>presentation and alarm management facilities.</p> <p>4. Support for the Carbon Action Strategy through improved plant optimisation and reduction in energy consumption and carbon emissions.</p> <p>5. Integration of the new BEMS system with 3rd party systems on site, and with the Enterprise Server at Guildhall. As well as the new Building Analytics software package being procured via the PSDS programme.</p>
7. Disbenefits of option	<ul style="list-style-type: none"> • No potential energy/carbon savings delivered • Carbon Action Strategy not supported • Increased risk of system failure and impact on business continuity 	<ul style="list-style-type: none"> • Requirement for additional Project Management resource from City Surveyors to oversee project.
Resource Implications	None	

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8. Total estimated cost	0	£200,424.
9. Funding strategy	n/a	1. City's cash = £111,455 2. City fund = £88,968 CRP: 1. City's cash = £25,476 2. City fund = £22,009
10. Investment appraisal	n/a	The Energy Team have carried out assessment of the ROI based on the savings delivered by option 2 (a & b) compared to no associated saving with option 1. This ROI is modest as this is not an energy efficiency project. It is, however, an essential business continuity project to replaced failing equipment.
11. Estimated capital value/return	n/a	The project is estimated to deliver savings of £15,758/ann.

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		in maintenance and energy costs.
12. Ongoing revenue implications	n/a	There is no additional on-going revenue implications for the new equipment as it is like for like replacement of assets already maintained as part of the City Operation and Maintenance Contract. In addition, the project is estimated to deliver savings of £15,758/ann. in maintenance and energy costs.
13. Affordability	n/a	Option is covered under the allocated and approved Capital funding budgets.
14. Legal implications	n/a	n/a
15. Corporate property implications	none	Consultation required with City Surveyors Corporate Property Team to ensure new equipment captured in the asset register for each site, replacing of existing legacy assets.

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Option Summary	Option 1	Option 2
16. Traffic implications	n/a	None
17. Sustainability and energy implications	<ul style="list-style-type: none"> • No potential energy/carbon savings delivered • Carbon Action Strategy not supported 	Project is being developed by the Corporate Energy team to deliver energy and carbon savings in line with the Climate Action Strategy
18. IS implications	n/a	Opportunity Outline submitted to IT PMO for survey to any IT network extension requirements associated with the project. IT have provided network architect support.
19. Equality Impact Assessment	n/a	None
20. Data Protection Impact Assessment	n/a	None
21. Recommendation	Not recommended	Recommended