

<b>Committees:</b> Corporate Projects Board <i>[for information]</i> Corporate Asset Sub-Committee <i>[for decision]</i> Resource Allocation Sub Committee - <i>Chamberlains Report [for decision]</i> Projects Sub <i>[for decision]</i>	<b>Dates:</b> 09 June 2021 Delegated Authority 13 July 2021 23 June 2021
<b>Subject:</b> Guildhall Chilling Plant Replacement & Steam Humidification Plant Replacement  <b>Unique Project Identifier:</b> 12214 & 12213	<b>Gateway 2 Issues Report</b>  <b>Complex</b>
<b>Report of:</b> City Surveyor  <b>Report Author:</b> Edwin Birch	<b>For Decision</b>  <p style="text-align: right;"><b>CS 207/21</b></p>
<h1 style="margin: 0;">PUBLIC</h1>	

<b>1. Status update</b>	<p><b>Project Description:</b> Guildhall Chiller Plant Replacement &amp; Steam Humidification Plant Replacement which were considered separately but have been combined for delivery.</p> <p>Please note these works are funded under two separate projects:</p> <ol style="list-style-type: none"> <li>1) 12214 - West Wing Chiller replacement - Replace the West Wing chillers and consider options to consolidate chiller plant across the Guildhall site to provide a resilient, more efficient long-term solution.</li> <li>2) 12213 - Humidification Plant replacement - Provide a long-term solution to meet the humidification needs of the Guildhall Complex in the most cost-effective and environmentally beneficial way</li> </ol> <p><b>RAG Status:</b> Red (Green at last report to Committee Gateway 2). Projects have gone Red as design and delivery options have been costed and are above the approved budget.</p> <p><b>Risk Status:</b> Medium (Medium at last report to committee)</p> <p><b>Total Estimated Cost of Project (excluding risk):</b></p>
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- 1) West Wing Chiller replacement £2,571,800 (excluding Costed Risk) Total including risk £2,999,800
- 2) Humidification Plant replacement £1,011,500 (excluding Costed Risk) Total including risk £1,200,000

Both Projects combined £3,583,300 (excluding Costed Risk)  
Total including risk £4,199,800

**Change in Total Estimated Cost of Project (if recommended option in this paper is approved) increase of £1,433,200 (including risk):** *Following the completion of the Outline Options study , all options to progress the works are over the allocated budget: However, if Members are in agreement with the proposed reallocation of funding, the recommended option, option 2a, can be delivered as follows-*

**Option 2a - West Wing Chiller replacement** - Close the current Humidification Project due to essential areas being de-risked by the overlapping PSDS project which is installing localised Humidification. In conjunction, agree the funding reallocation from both the Humidification Project (£1.2m) and the Phase 1 Energy Reduction projects for the Guildhall (£233k) to allow the Chilling Plant replacement to move forward to GW3

**Total Estimated Cost of option;** £3,538,000 (excluding Costed Risk) Total including risk £4,433,000 (against a budget of £2,999,800)

#### **VFM**

Each of the options considered by the MEP Engineers have been scored against several different performance criteria to determine which is the preferred option based on the proposed criteria.

Whilst there are a number of qualifications and caveats involved, the highest scoring option is the centralised chiller solution (Option 2a) with an overall score of 85% as opposed to 70% of a like-for-like replacement, and as such, based on the analysis presented in the '*Guildhall - Cooling Plant Replacement Option Study report*' (Appendix 4), and in accordance with the scope and context of works set out in the brief, the Project Team's recommendation is on is that this option should be taken forward.

Furthermore, the cost difference between a like-for-like replacement £4,346,000 (including risk) and a centralised solution £4,433,000 (including risk) has been estimated at just £87,000.

**Spend to Date on both projects:** £40,496.31

**Costed Risk Provision Utilised:** £0

	<p><b>Slippage:</b> +16 weeks (Progress report submitted in April (CS 026/21) which details the initial 12 weeks delay. A further 4 weeks has been added for the consideration of this issues report)</p>																
<p><b>2. Requested decisions</b></p>	<p><b>Next Gateway:</b> Gateway 3 - Outline Options Appraisal (Complex) Gateway 3 - Outline Options Appraisal (Complex)</p> <p>As both the Chilling and Humidification Plant replacement projects completed their outline options stage (GW3), given the works required it has been confirmed that the approved funding is insufficient. The City Surveyor has developed funding options with the Chamberlain which considers other work streams and enables the Chiller works to proceed.</p> <p><b>Requested Decisions (approving the revised new budget):</b></p> <p><b><u>Corporate Asset Sub &amp; Projects Sub Committee</u></b></p> <p>1) As the essential areas of the Guildhall complex are being addressed through the government grant funded PSDS project. Agree that the Humidification Plant replacement project is closed;</p> <p>2) Agree the reallocation of the Energy Reduction Programme – Phase 1 funds (£233,000) to fund the chiller plant replacement project, as these works are now being undertaken through the PSDS Project</p> <p><b><u>Resource Allocation &amp; Corporate Asset Sub-Committee</u></b></p> <p>3) As the essential areas will be addressed via the PSDS Project, as recommended by the Chamberlain agree the reallocation of the Humidification plant replacement funds (£1.2m) to support the chiller plant replacement project</p>																
<p><b>3. Budget (1)</b></p>	<p><b><i>The below budget (both projects combined) was approved at Gateway 2 and £226k was approved for Fees, Staff Costs and Surveys. In order to reach GW3 with an approved funding Strategy, the following budget is required to reach GW3:</i></b></p> <p><b>12214 - West Wing Chiller replacement</b></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>Fees</td> <td>Consultant team</td> <td>City Fund</td> <td>£85,000</td> </tr> <tr> <td>Staff costs</td> <td>Client-side project management</td> <td>City Fund</td> <td>£6,000</td> </tr> <tr> <td>Surveys</td> <td>Specialist Surveys to aid</td> <td>City Fund</td> <td>£20,000</td> </tr> </tbody> </table>	Item	Reason	Funds/ Source of Funding	Cost (£)	Fees	Consultant team	City Fund	£85,000	Staff costs	Client-side project management	City Fund	£6,000	Surveys	Specialist Surveys to aid	City Fund	£20,000
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Fees	Consultant team	City Fund	£85,000														
Staff costs	Client-side project management	City Fund	£6,000														
Surveys	Specialist Surveys to aid	City Fund	£20,000														

	design development			
	<b>Total</b>			<b><u>£111,000</u></b>
	<b>Costed Risk Provision previously agreed Gateway 2 and with no change to reach Gateway 3: £55,200</b> (as detailed in the Risk Register – Appendix 3 & 4)			
<b>4. Issue description</b>	<p>As both the Chilling and Humidification Plant replacement projects completed their outline options stage (GW3), it was clear that all options under consideration were above the approved funding strategy. The original Chilling Plant works were costed at £4.3m, against a total funding request of £3m approved in principle via the 2020/21 annual capital bid process. The direction from PSC at G2 was that savings should be made to deliver the project within the allocated funding. Even if a like-for-like system is approved this would still be over budget.</p> <p>The original works were costed at £4.3m, however budget of £3m was allocated with the view cost savings could be made to deliver the project within the allocated budget. Even if a like-for-like system is approved this would still be over budget.</p>			
<b>5. Options</b>	<p>There are several options below for members to consider, however the City Surveyor recommends option 2a as it will fulfil the Chilling plant replacement brief and more by offering a centralised option, that covers the whole of the Guildhall complex. Options 2-4 are not recommended as problems with old plant would not be addressed and every increasing maintenance cost would continue as well as the plant being energy inefficient.</p> <p><b>Funding for Options</b> The options available require reallocation of funding as outlined below:</p> <p><b><i>Humidification Plant replacement project is closed as the essential areas of the Guildhall Building are being addressed through government grant funded PSDS project:</i></b></p> <p>In January 2021 the City Surveyor’s Energy Team applied to the Public Sector Decarbonisation Scheme (PSDS), a government grant scheme by the Department for Business, Energy &amp; Industrial Strategy (BEIS) , for funding to deliver several capital projects and were awarded £9.45m. Due to this grant funding, the Energy Team are delivering a separate project that will upgrade humidification to essential areas within the Guildhall complex. For the remaining areas (initially classed as unessential) which are deemed low risk, the proposal is to close the current Humidification project, revise the brief and present the revised</p>			

funding strategy at the next Annual Bidding Cycle, as a new project.

***Reallocation of the approved humidification plant replacement funds (£1.2m) to support the chiller plant replacement project:***

The humidification plant replacement project funding of £1.2m was approved in March 2020. The scope included the steam plant which serves the whole of the Guildhall complex. As the essential areas are now covered by the PSDS project (as per Point 1), this allows the opportunity to reallocate funds to support the chilling project, as all options are above the approved the £3m project budget (Appendix 2).

***Reallocation of £233,000 of the Energy Reduction Programme – Phase 1 funds which were approved in principle to support the chiller plant replacement project:***

Even with the reallocation of the £1.2m Humidification Plant replacement funds requested in point 2, there is a funding shortfall to proceed with the recommended option (2a - centralised plant replacement option).

The recommended option for a centralised plant replacement is anticipated to provide significantly greater savings to energy costs and carbon emissions. This is primarily due to the scope of the centralised option includes replacement of the North Wing chillers, in addition to the West Wing chillers and this option removes the high maintenance costs associated with the West Wing cooling towers.

Funding was approved in principle for two projects for the Guildhall (EC Fans and sub-metering) to be delivered as part of the 'Energy Reduction Programme – Phase 1' project (approved at GW2 in Apr-20) based on a spend-to-save business case aiming for a 5-year payback. These two projects are now being funded through a government grant and delivered as part of the PSDS Project. The Energy Team who manage both the Phase 1 Project and PSDS Project intend to present a G2 Progress report at Jun-21 CASC and PSC confirming these changes and the reduction in funding requirement for the Phase 1 project.

The combined savings between energy costs, maintenance and electricity capacity are estimated at £92k per year. The 'Energy Reduction Programme – Phase 1' funding has been approved in principle based on a spend-to-save 5-year target.

Furthermore, the additional carbon savings in association with this centralised option have been estimated to be about 78 tCO<sub>2</sub>e/year.

Therefore, it is requested that £233,000 of the funding originally approved in principle for the Phase 1 project is reallocated to the Chiller Replacement Project. The Energy Team estimate the centralised chiller plant replacement option could provide energy cost and maintenance savings of £92k per year and therefore deliver a simple payback of 2.5 years (based on the £233k contributing funds enabling this option).

**Options:**

Note: The current funding source approved for West Wing Chiller replacement is £2,999,800 and for Humidification Plant replacement is £1,200,000

**Option 1** (West Wing Like-for- Like replacement)

Total estimated cost is £4,346,000 (including risk)

This requires additional funding of £1,346,200

Funding strategy, close the current Humidification Project reallocation of funding from both the Humidification Project (£1.2m) and the Phase 1 Energy Reduction projects for the Guildhall (£146k)

**Option 2** (Centralised Plant)

**Option 2a** (Air cooled) - Total estimated cost £4,433,000 (including risk)

This requires additional funding of £1,433,200

Funding strategy, close the current Humidification Project reallocation of funding from both the Humidification Project (£1.2m) and the Phase 1 Energy Reduction projects for the Guildhall (£233k)

**Option 2b** (water cooled) Total estimated £7,675,000 (including risk)

This requires additional funding of £4,675,200

Funding strategy - source not available

**Option 3** (Pause the project and revise the project brief)

Total estimated cost would be confirmed once brief has been revised and approved, likely to be circa £4,346,000 (including risk)

This requires additional funding of £1,346,200

Funding strategy, close the current Humidification Project reallocation of funding from both the Humidification Project (£1.2m) and the Phase 1 Energy Reduction projects for the Guildhall (£146k)

**Option 4** (West Wing Like-for-like replacement & cooling tower refurb)

Total estimated cost would be confirmed once condition of cooling towers has been established, works will still be in excess of the budget at circa £3,101,180  
This requires additional funding of at least £101,380  
Funding strategy, reallocation Phase 1 Energy Reduction projects for the Guildhall (£146k)

**Option 5** - Suspend the Chilling Project and submit a new funding.

Funding strategy request additional funding at the annual bidding cycle for the shortfall.

**Option 6** - Stop the project and allow the Guildhall Masterplan Strategy to address the required works in due course.

Funding strategy, Guildhall Masterplan.

One of the additional workstreams this project has been asked to consider is the Guildhall Masterplan.

The City Surveyor continues to review the Guildhall masterplan for the future of the North and West Wings, which remain under considerable strain with regards to the building fabric and services as a result of increased use and age.

Condition surveys and feasibility studies for the Guildhall Chilling and Humidification plant replacement project will be reviewed in the context of any wholesale building development, and if the Guildhall masterplan strategy is not approved, then these projects will be prioritised accordingly.

Due to the Guildhall Masterplan being at such an early stage in the feasibility studies process, with no approved funding and an aim to put a bid forward in an estimated 18 months' time, it is not possible to put forward temporary solutions that might assist the Guildhall Masterplan over this period.

To provide some context, if the Masterplan were to proceed the approximate programme could be something like:

- Q4 2021 – Commence Detailed Feasibility
- Q4 2023 – Obtain Planning Permission
- Q1 2024 – Commence Demolition of NW & WW (there is the possibility that the NW could be used as decant space if feasible resulting in a demolition date say starting 2 years later)
- Q1 2025 – Commence Construction of NW & WW
- Q1 2028 – Complete Construction of NW & WW

If Members decide to choose this option, the likely consequences are:

- a. Increasing risk of poor performance, failure and extended down-time of chiller plant resulting in

	<p>significant risk of exceeding comfortable conditions within offices (East and West Wings) and public spaces (Business Library, City Centre).</p> <p>b. Continued high maintenance cost and risk of cost increases and down-time due to increased component failures from ageing plant.</p> <p>c. After January 2022 the chillers will be reliant on recycled refrigerant which will increase operational costs and could affect performance.</p> <p>d. Increased energy consumption, costs and carbon emissions.</p> <p><b>Option 2a is Recommended</b> - Close the current Humidification Project due to essential areas being de-risked by the overlapping PSDS project which is installing localised Humidification. The remaining areas will be considered in a separate, new project.</p> <p>In conjunction, agree the funding reallocation from both the Humidification Project (£1.2m) and the Phase 1 Energy Reduction projects for the Guildhall (£233k) to allow the Chilling Plant replacement to move forward to GW3.</p> <p>The centralised system (Air cooled instead of the current water cooled) would incorporate both sets of Chiller on the West and North wing roofs. The energy and sustainability savings with this recommended option are significant and include:</p> <ul style="list-style-type: none"> <li>• &gt;£44K Annual Energy Consumption Savings</li> <li>• &gt;£30K Annual maintenance Savings</li> <li>• &gt;19K savings from reduced electrical capacity requirements</li> </ul> <p>It should be noted that if funding is not reallocated, then the Humidification Project can continue and address the remaining areas (unessential) of the Guildhall complex.</p>
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## Appendices

**Note:** Appendix 2 & 3 (which are in draft format and not fully complete) have been included for information purposes only, to show what options were being considered by the project team, before it was realised that the approved funding strategies were not enough.

<b>Appendix 1</b>	Project Coversheet
<b>Appendix 2</b>	Chilling Plant Options Matrix
<b>Appendix 3</b>	Humidification Plant Options Matrix



<b>Appendix 4</b>	Guildhall - Cooling Plant Replacement Option Study report'
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