Options Appraisal Matrix

Option Summary	*Option 1 (West Wing Like-for- Like replacement)*	*Option 2 (Centralised Plant)*	*Option 3 (Pause the project and revise the project brief)*	*Option 4 (West Wing Like-for-like replacement & cooling tower refurb)*
1. Brief description of option	• *Replacement of the WW (&EW) chillers and cooling towers to a more modern system.* • *Continue to meet current demands*	• *Consolidation of all chiller equipment and services into one plant centre serving the NW, EW & WW.* • *Location of plant centre TBC.*	• *Stand down the design team to consider the parallel workstreams currently underway* • *Assess the impact of the future masterplan options for the Guildhall.* • *Confirm and update the project brief incorporating the latest information and project requirements to ensure correct solution.* • *Reengage the design team once this is known and proceed through the GW process.*	• *Replacement of WW (&EW) chillers to a more modern system* • *Refurbishment of the existing cooling towers* • *Continue to meet current demands.*
2. Scope and exclusions	• *NW chillers remain in place and continue to serve the NW areas. No*	• *Water-cooled vs Air-cooled TBC following further analysis*	• *Project to re-enter into the capital building cycle with confirmed and consolidated brief.*	• *Review and refurbish the existing cooling towers to meet demands of new*

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	update to these assets.	• *Location of plant centre TBC.*	• *Revisit budgets to confirm allocation depending on confirmed scope.*	*chiller system. No renewal.* • *NW chillers remain in place and continue to serve the NW areas. No update to these assets.*
Project Planning				
3. Programme and key dates	• GW 4 - Nov 21 • GW4C – March 22 GW5 – Sept 22	*Same as option 1*	• *Revise Brief and seek Chief Officer sign off July 21.* • *Capital Bidding Cycle – August 21 – January 22.* • *Following approval, Gateway 2 March 22; Outlined Options - Gateway 3 July 22.*	• *Same as option 1*
4. Risk implications	• *NW chillers are approaching end of life. If they are not upgraded as part of these works then there will be further works in the short/medium-term.*	• *Project budget insufficient* • *Guildhall Masterplan could include the demolition and redevelopment of the Guildhall which would render the project output obsolete.*	• *EW & WW chillers are currently at end of life and are costing c. 30-50k p.a. to maintain. Risk of failure in the coming years could lead to expensive interim solutions or*	• *Risk that the refurbished cooling towers lack efficiency. Risk of not meeting decarbonisation goals* • *Risk of failure of existing chillers*

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	No realisation of efficiencies of scope/scale. • *Guildhall Masterplan could include the demolition and redevelopment of the Guildhall which would render the project output obsolete.*	• *Project programme potentially longer which would put pressure on the EW & WW chillers which are at end of life.*	*failure to meet internal conditions.* • *Programme delays to the chiller replacement project* • *Potential additional design team fees for re-engagement and revisiting previously completed work.*	• *Guildhall Masterplan could include the demolition and redevelopment of the Guildhall which would render the project output obsolete.* • *NW chillers are approaching end of life. If they are not upgraded as part of these works then there will be further works in the short/medium-term. No realisation of efficiencies of scope/scale.*

5. Stakeholders and consultees	• *Chamberlains,*
	• *Corporate Property,*
	• *Town Clerks,*
	• *City Surveyors, including:*
	  ○ *Energy Team;*
	  ○ *PPG;*
	  ○ *FM & R&M*
		• *Same as option 1*	• *Same as option 1 but also including Citigen*	• *Same as option 1*

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	• *Departments occupying or using the Guildhall.*			
6. Benefits of option	• *Project budget approved and acceptable CAPEX of the 2 replacement options (compared to option 2)* • *Able to quickly replace the EW and WW chillers to bring up to standard and meet the requirements of the Guildhall complex.* • *Upgrade to the EW/WW chillers would provide a more efficient water-cooled system* • *No spatial issues as would sit within the same plant areas.*	• *The most energy efficient solution being proposed. Able to upgrade all 'inefficient' assets to modern standard. This would meet the Citys decarbonisation aspirations.* • *Reduced OPEX outlay as all systems would be upgraded.* • *Futureproofing the cooling requirements of the Guildhall complex, bringing the systems up to standard and securing a c. 20 year life.* • *New system would not be reliant on the soon to be redundant refrigerant*	• *Will allow the City to completely review and confirm requirements and project brief in the context of wider workstreams and aspirations.* • *No redundant expenditure pursuing an upgrade to the existing systems in the event they become obsolete.*	• *Project budget approved and lowest CAPEX of the 3 replacement options.* • *Able to quickly replace the EW and WW chillers to bring up to standard and meet the requirements of the Guildhall complex.* • *Upgrade to the EW/WW chillers would provide a more efficient water-cooled system* • *No spatial issues as would sit within the same plant areas.* • *Further reduction in cost compared to option 1.*

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7. Disbenefits of option	• *Does not address the NW chillers which are approaching end of life. Both in terms of efficiency and ongoing OPEX to keep the NW chillers running.* • *Will not realise the maximum efficiencies and decarbonisation targets.* • *NW chillers would be reliant on the soon to be redundant refrigerant. Would likely see an uplift in ongoing regular maintenance.*	• *Project budget will need to be reviewed and potentially increased to meet requirements. Most CAPEX outlay.* • *Spatial requirements are most intensive to accommodate the full footprint of the plant centre.*	• *Significant delay to programme* • *Potential for faults with EW & WW chiller systems if not addressed.* • *Abortive design team fees.*	• *Does not address the NW chillers which are approaching end of life. Both in terms of efficiency and ongoing OPEX to keep the NW chillers running.* • *Will not realise the maximum efficiencies and decarbonisation targets.* • *NW chillers would be reliant on the soon to be redundant refrigerant. Would likely see an uplift in ongoing regular maintenance.* • *Does not address cooling towers which are out of date. Only refurbishment.*
Resource Implications	***Option 1 (West Wing Like-for- Like replacement)***	***Option 2 (Centralised Plant)***	***Option 3 (Pause the project and revise the project brief)***	***Option 4 (West Wing Like-for-like replacement & cooling tower refurb)***

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8. Total estimated cost	*Total estimated cost is £3,918,000 (excluding £428,000 of CRP)*	***Option 2a** (Air cooled) Total estimated cost £3,538,000 (excluding £895,000 of CRP)* ***Option 2b** (water cooled) £6,780,000 (excluding £895,000 of CRP)*	*Unknown at this stage and once brief has been revised and approved then initial costing can be put forward.*	*To be determined (TBD) once condition of cooling towers have been established.*
9. Funding strategy	*To be determined (TBD)* *The current funding source of the approved 3m is split across three funds:* *1. City Fund £1.860m;* *2. City Cash £0.990m,* *3. BHE £0.150m)*	*To be determined (TBD)*	*To be determined (TBD)*	*To be determined (TBD)*
10. Investment appraisal	*To be determined (TBD)*	*To be determined (TBD)*	*To be determined (TBD)*	*To be determined (TBD)*
11. Estimated capital value/return	*N/A at this point*	*N/A at this point*	*N/A at this point*	*N/A at this point*
12. Ongoing revenue implications	*To be determined (TBD)*	*To be determined (TBD)*	*To be determined (TBD)*	*To be determined (TBD)*

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13. Affordability	*This option is overbudget by £1,532,380*	*This option is overbudget between £1,274,672 (Option 1) or £4,516,380 (Option 2)*	*N/A*	*This option is overbudget by £101,380*
14. Legal implications	*None*	None	None	None
15. Corporate property implications	*Consolidated site chiller options would consider early replacement of other site chiller plant.* *Chiller plant locations will need to be considered against site plans.*	*Consolidated site chiller options would consider early replacement of other site chiller plant.* *Chiller plant locations will need to be considered against site plans.*	*To be determined (TBD)*	*Cooling tower would need to be replaced as a separate project.*
16. Traffic implications	*Plant installation is likely to require a partial short-term road closure of either Basinghall Street and/or Aldermanbury.*	*Plant installation is likely to require a partial short-term road closure of either Basinghall Street and/or Aldermanbury.*	*To be determined (TBD)*	*Plant installation is likely to require a partial short-term road closure of either Basinghall Street and/or Aldermanbury.*
17. Sustainability and energy implications	*New water-cooled chillers to serve the WW & EW would be more energy efficient than the existing chillers, but relatively inefficient air-cooled chillers serving the NW would be retained.*	*A centralised water-cooled chiller solution is would be the most efficient option overall, but a centralised air-cooled chiller solution would also perform well as a result of replacing the existing inefficient NW chillers.*	*To be determined (TBD)*	*As with Option 1, new water-cooled chillers to serve the WW & EW would be more energy efficient than the existing chillers, but relatively inefficient air-cooled chillers serving the NW would be retained. In comparison to*

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				Option 1 there would be some embodied energy savings as a result of refurbishing rather than replacing the cooling towers.
18. IS implications	*None.*	*Same as option 1*	*None.*	*None.*
19. Equality Impact Assessment	*An equality impact assessment will not be undertaken.*	An equality impact assessment will not be undertaken.	An equality impact assessment will not be undertaken.	An equality impact assessment will not be undertaken.
20. Data Protection Impact Assessment	*The risk to personal data is less than high or non-applicable and a data protection impact assessment will not be undertaken.*	The risk to personal data is less than high or non-applicable and a data protection impact assessment will not be undertaken.	The risk to personal data is less than high or non-applicable and a data protection impact assessment will not be undertaken.	The risk to personal data is less than high or non-applicable and a data protection impact assessment will not be undertaken.
21. Recommendation	*Not recommended*	*Recommended*	*Not recommended*	*Not recommended*