

Committees:	Dates:
Police Authority Board <i>for information</i> Digital Services Committee <i>for decision</i> City Bridge Foundation Board <i>for decision</i> Finance Committee <i>for decision</i> Projects and Procurement Sub Committee <i>for information</i> Court of Common Council <i>for decision</i>	06 March 2024 18 March 2024 20 March 2024 9 April 2024 15 April 2024 25 April 2024
Subject: Future Network Programme Unique Project Identifier: 12423	Gateway 1-4 Project Proposal & Options Appraisal Complex
Report of: Chamberlain Report Author: Sam Collins	For Information
PUBLIC	

Recommendations

<p>1. Approval track, next steps and requested decisions</p>	<p>Project Description: To provide a modern and resilient network for the City of London Corporation (COL) and City of London Police (COLP).</p> <p>Next Gateway: Gateway 5</p> <p>Next Steps: Following approval, the Future Network Programme will progress with the procurement of a new Network Support Provider to deliver the implementation and support of the future network.</p> <p>Funding Source: City Fund / City Estate / City Bridge Foundation / City of London Police</p> <p>Requested Decisions:</p> <ol style="list-style-type: none"> 1. That budget of £535K is approved to reach Gateway 5. 2. Note the total estimated cost of the project at £9.24m, with an estimated Costed Risk Provision of £2.93m. 3. That Option 3 – to replace the existing network with a Secure Access Service Edge (SASE) solution in line with the approved Future Network Strategy is approved. 4. Endorse and approve that future approvals for City Bridge Foundation Funding in respect of the project are
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	<p>delegated to the Managing Director of CBF, in consultation with the Chair and Deputy Chair, who will take account of the decisions taken by the lead decision-making committee and representations from the Member Steering Group</p>																				
<p>2. Resource requirements to reach next Gateway</p>	<p><i>For recommended option 3:</i></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>Programme Resource</td> <td>To support the specification and preparation in advance of the procurement</td> <td>City Fund / City Estate/CBF</td> <td>£410k</td> </tr> <tr> <td>External Procurement Support</td> <td>To manage the procurement of the new Network Support Provider</td> <td>City Fund / City Estate/CBF</td> <td>£90k</td> </tr> <tr> <td>Network Coverage Surveys</td> <td>To support the specification preparation</td> <td>City Fund / City Estate/CBF</td> <td>£35k</td> </tr> <tr> <td>Total</td> <td></td> <td></td> <td>£535k</td> </tr> </tbody> </table> <p>Costed Risk Provision requested for this Gateway: N/A (an estimated Costed Risk Provision has been included in the Risk Register but will not be requested until Gateway 5 – Appendix 2).</p> <p>The overall programme costs will be established following the procurement of the new Network Support Provider.</p>	Item	Reason	Funds/ Source of Funding	Cost (£)	Programme Resource	To support the specification and preparation in advance of the procurement	City Fund / City Estate/CBF	£410k	External Procurement Support	To manage the procurement of the new Network Support Provider	City Fund / City Estate/CBF	£90k	Network Coverage Surveys	To support the specification preparation	City Fund / City Estate/CBF	£35k	Total			£535k
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<p>3. Governance arrangements</p>	<ul style="list-style-type: none"> • Service Committee: Digital Services Committee • SRO: Chris Rawding, DITS Assistant Director Cloud & Infrastructure • Project Manager, Wayne Fitzgerald • Governance: Future Network Programme Board 																				

This paper is for Gateways 1-4. This is due to the programme delivery being timebound, as the contract for the incumbent managed service provider expires in January 2025, with no further extension allowed.

Project Summary

4. Context

5. The current City of London Corporation and City of London Police network was implemented in 2017 based on a traditional Local Area Network (LAN) and Wide Area Network (WAN) approach using Multiprotocol Labelling Switch (MPLS) technology. Whilst this technology is still supported, the Network hardware is ageing, and the requirements of the organisation have evolved to a point where there is no longer a cohesive approach to networking across the organisation.
6. The current network approach has limited flexibility and is dependent on multiple external suppliers, which has led to even more complexity and a disjointed and inefficient service. The current infrastructure of copper or fibre cabling is also ageing and has limitations in supporting the current workforce and ways of working.
7. The Future Police Estates Programme (FPEP) and Markets Consolidation Programme (MCP) require a resilient and robust network provision, to support the delivery of modern, future-proofed facilities.
8. The Future Network Strategy was approved at Digital Services Committee on 17 January 2024. It proposes to adopt the following key design principles:
 - The use of standardised technology to enable a modern and holistic approach to networking and security.
 - Combined network and security in a cloud-based architecture, simplifying the network and reducing complexity and operational costs.
 - Fast and secure access for remote and on-premise users.
 - Ability to respond to an organisation's growth and the evolving nature of work by being adaptable and scalable.
 - Support any user, from anywhere, using any device, via any connection, to any application.

5. Brief description of project

6. The Future Network Programme will deliver a modern and resilient network to the City of London Corporation and City of London Police, in line with the approved Future Network Strategy.
7. The programme will include the replacement and upgrade of the network hardware across all 120 existing COL, and 12 COLP buildings, and 110 CCTV sites delivered through the Secure City Programme. This will include the upgrade of existing Wireless Access Points to the latest technology (Wi-Fi 7) supported by extensive surveys to support the installation of new Wireless Access Points to provide improved Wi-Fi coverage in line with the Wi-Fi-first approach.
8. The Future Network approach will adopt Secure Access Service Edge (SASE), combining network and security services into a unified cloud-based architecture. This is intended to reduce complexity and operational costs, as well as being highly scalable and adaptable. It replaces the traditional hub and spoke model with a reliance on Guildhall, with a more agile, user centric approach, optimising performance and ensuring fast, secure access for remote and on-premise users. SASE adopts a zero-trust security model which verifies the identity and security posture of every user and device, providing a granular, context-based access control.
9. The proposal is also to adopt a Wi-Fi-first approach, giving greater flexibility in the use of office accommodation and a significant reduction in the use of network hardware and structured cabling, as a fixed network connection will no longer be required to every desk and terminal. This has benefits in terms of reduced network hardware, reduced installation costs for new buildings and a reduction in energy consumption.
10. A further key element of the programme is to deliver a tiered approach to providing network connectivity across all COL, COLP and CCTV sites depending on the needs of each site. As such, a key site such as Guildhall will have high bandwidth connectivity with multiple internet connections for resilience and redundancy. This compares to a smaller satellite site which may access services over a single raw internet link, with security and access being controlled by the new cloud-based network and security infrastructure.
11. The new networking approach will also support the implementation of a modern, resilient network to the new buildings proposed through FPEP and MCP.

	<p>12. To deliver the new network, the programme will go to market to procure a new Network Support Provider to implement and support the new network.</p>
<p>6. Consequences if project not approved</p>	<p>7. The existing COL and COLP network was implemented in 2017 and some network hardware is now approaching end of life.</p> <p>8. The demands on the network have increased significantly since it was originally implemented, with new uses such as the extensive use of video conferencing and mobile devices. As such, it is no longer able to meet the demands of the organisation and without investment the ability to provide these services, and functionality will diminish.</p> <p>9. The Future Network Programme is also a key dependency for the Future Police Estates Programme and the Markets Consolidation Programme, as a modern, future proofed network will be required to support the delivery of the new sites.</p> <p>10. The existing Network Support Contract with ROC Technologies is due to expire in January 2025 with no further extensions. As such, there is a risk that the existing network will become unsupported.</p>
<p>7. SMART project objectives</p>	<p>The key project objectives include:</p> <ul style="list-style-type: none"> • The successful replacement of the existing network hardware across 120 COL buildings, 12 COLP buildings, 110 CCTV sites. • Move to a Wi-Fi-first network approach supported by the installation of new Wireless Access Points to provide improved coverage and connectivity. • The implementation of a new cloud-based network and security architecture. • A modern, resilient network approach to support the delivery of new buildings through FPEP and MCP • The procurement of a new Network Support Provider to support the delivery of the Future Network Strategy

<p>8. Key benefits</p>	<p>9. The Future Network Programme will deliver a modern, resilient network for all 120 existing COL buildings, 12 existing COLP buildings, 110 CCTV sites and new buildings being delivered through FPEP and MCP.</p> <p>10. The new network has been designed to support the increasing connectivity demands of new and emerging technology such as Video Conferencing, the use of mobile devices and the 4k cameras delivered through the Secure City Programme. This approach enables the Corporation to respond to growth and the evolving nature of work by being adaptable and scalable.</p> <p>11. The Future Network Strategy proposes a Wi-Fi-first approach which will reduce the network hardware and structured cabling required across the organisation. This will lead to a significant cost avoidance in the delivery of new buildings and energy savings by at least 30% for the networking equipment.</p> <p>12. This approach will also enable a more agile building estate, allowing for greater flexibility in the use of office accommodation, removing the reliance upon cabled connectivity and allowing devices to connect seamlessly throughout COL and COLP buildings, including break out spaces and meeting rooms.</p> <p>13. The tiered approach, with the level of connectivity provided based on need, will allow for more cost-effective occupancy, and quicker decommission of smaller sites – removing the reliance on complex and expensive MPLS connectivity and moving towards greater secure access to services over raw internet.</p> <p>14. The new network will enhance user experience and organisational collaboration by providing fast and reliable connectivity from Corporation premises, and from home, with enhanced performance and less downtime.</p>
<p>9. Project category</p>	<p>5. Other priority developments</p>
<p>10. Project priority</p>	<p>A. Essential</p>
<p>11. Notable exclusions</p>	<p>The programme will define and support the networking approach for the new buildings being delivered through the FPEP and MCP Programmes, however the purchase and</p>

	<p>installation of network hardware for those programmes will not be funded through the Future Network Programme.</p> <p>The Barbican Centre, GSMD and Schools are not included within the Future Network Programme, however provision is being made in the network support procurement to allow these areas to move onto the unified networking approach in the future, subject to additional funding.</p>
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Options Appraisal

<p>12. Overview of options</p>	<ol style="list-style-type: none"> 1. Option One would be to retain the existing the MPLS based network, continue to support the hardware, and replace it when it fails. This would fail to address the complexity and limitations of the existing network and would lead to inevitable disruption to connectivity when hardware fails. The existing network technology would be installed to all new buildings. 2. Option Two would be to retain the existing MPLS based network and refresh the hardware based on the same technology before it becomes end of life. This would mean that the network remains supported but will not result in performance improvements or other associated benefits. 3. Option Three is to progress with the replacement of the existing network in line with the approved Future Network Strategy. This is likely to lead to improved performance, and the Wi-Fi-first approach will reduce hardware needs, decrease energy usage, and allow much greater flexibility in building use across the organisation.
<p>13. Risk</p>	<p>Overall project risk: Medium</p> <p>The most significant risks relate to uncertainty around costs and time. Until the procurement process is completed all hardware, circuit and managed service costs are estimated.</p> <p>It is possible that an interim solution for managing the existing network beyond January 2025 will be required. Options for how this could be achieved are being developed, but these have not yet been costed.</p> <p>COL operates certain IT systems such as the Managed Print Service, Building Management Systems and Telephony (COLP) which add complexity to the current network, some of which should be moved to modern solutions that integrate seamlessly with the future network. If the works required to update these systems is not delivered in time the future</p>

	<p>network will require additional complexity within its design which will add time and, ultimately, cost.</p> <p>Costed Risk Provision (CRP) has been estimated, but will not be required until Gateway 5, at which point the CRP will be finalised, based on further information gathered throughout the procurement phase.</p> <p>NB – inflation has not been factored into the costs. With current forecasts (3.65% falling to 2% in the coming years*) it is not deemed materially significant. *Statista Further information available within the Risk Register (Appendix 2) and Options Appraisal Table below.</p>
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Resource Implications

14. Total estimated cost	<p>For recommended option 3.</p> <p>Total estimated cost (excluding risk): £9.24m</p> <p>Total estimated cost (including risk): £12.17m</p>	
15. Funding strategy	<p>Is funding confirmed:</p> <p>No funding confirmed</p>	<p>Who is providing funding:</p> <p>Internal - Funded wholly by City's own resource</p>

This was part of the new bids process for 24/25, an indicative amount of £8.3m was approved, with the acknowledgment that amount would change as more detailed work was undertaken, including the CBF split.

They have determined the CBF portion of the £9.24m would be £271k excluding risk and £418k including the risk.

Using that CBF apportionment with remaining costs split 60% to City Fund and 40% to City Estate as per the recharge model used for the bids.

Funds/Sources of Funding	Cost (£)
City Fund	£311k
City Estate	£208k
City Bridge Foundation	£16k
Total	£535k

Estimated Total costs

Funds/Sources of Funding	Cost Excluding Risk (£)	Cost Including Risk
City Estate	£3,532k	£4,648k
City Fund	£5,300k	£6,972k
City Bridge Foundation	£403k	£550k
Total	£9.24m	£12.17m

Work is ongoing on the City Estate/ City Fund split using the buildings to apportion the cost, the COLP element is currently estimated to be £3,772k including risk.

N.B. The network costs for the new buildings delivered through the Future Police Estates Programme and Markets Consolidation Programme will be met within the existing programme budgets.

The Future Network Programme will only cover the costs associated with the replacement of the existing network to existing COL and COLP buildings and existing CCTV sites.

The estimated cost breakdown across COL, COLP, CBF and CCTV sites is as follows;

	Hardware	Resource	CRP	Total

	COL	£1,489k	£3,742k	£1,642k	£6,873k
	COLP	£824k	£2,039k	£909k	£3,772k
	CBF	£133k	£271k	£147k	£551k
	CCTV	£213k	£526k	£235k	£974k
	Total	£2,659k	£6,578k	£2,933k	£12,170k

Appendices

Appendix 1	Project Briefing
Appendix 2	Risk Register
Appendix 3	PT4 Procurement Form
Appendix 4	Future Network Strategy

Contact

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Options appraisal table.

	<i>Option 1</i>	<i>Option 2</i>	<i>Option 3</i>
1. Brief description	Option One would be to retain the existing the MPLS based network, continue to support the hardware, and replace it when it fails. This would fail to address the complexity and limitations of the existing network and would lead to inevitable disruption to connectivity when hardware fails. The existing network technology would be installed to all new buildings.	Option Two would be to retain the existing MPLS based network and refresh the hardware based on the same technology before it becomes end of life. This would mean that the network remains supported but will not result in performance improvements or other associated benefits.	Option Three is to progress with the replacement of the existing network in line with the approved Future Network Strategy. This is likely to lead to improved performance, and the Wi-Fi-first approach will reduce hardware needs, decrease energy usage, and allow much greater flexibility in building use across the organisation.
2. Scope and exclusions	<ul style="list-style-type: none"> • The replacement of existing network hardware across 120 COL Buildings, 12 COLP buildings, 110 CCTV sites. • Hardware to be replaced upon failure. • Existing network approach to be retained in terms of reliance upon wired and wireless connectivity. • The procurement of a new Network Support Provider to be progressed based on 	<ul style="list-style-type: none"> • The replacement of existing network hardware across 120 COL Buildings, 12 COLP buildings, 110 CCTV sites. • Hardware to be replaced prior to becoming end of life. • Existing network approach to be retained in terms of reliance upon wired and wireless connectivity. • The procurement of a new Network Support Provider to be progressed based on 	<ul style="list-style-type: none"> • The successful replacement of the existing network hardware across 120 COL Buildings, 12 COLP buildings, 110 CCTV sites. • Move to a Wi-Fi-first network approach supported by the installation of new Wireless Access Points to provide improved coverage and connectivity. • The implementation of a new cloud-based networking and security architecture.

	Option 1	Option 2	Option 3
	support and maintenance for existing network approach.	support and maintenance for existing network approach.	<ul style="list-style-type: none"> • A modern, resilient network approach to support the delivery of new buildings through FPEP and MCP. • The procurement of a new Network Support Provider to support the delivery of the Future Network Strategy.
Project Planning			
3. Programme and key dates	N/A – hardware to existing buildings would be replaced on failure.	<p>April 2024 – Procurement for Network Support Provider</p> <p>July 2024 – Procurement Award</p> <p>August 2024 – Commence Network Implementation</p> <p>December 2025 – Estimated Programme Completion</p>	<p>April 2024 – Procurement for Network Support Provider</p> <p>July 2024 – Procurement Award</p> <p>August 2024 – Commence Network Implementation</p> <p>December 2025 – Estimated Programme Completion</p>
4. Risk implications	<p>Overall project option risk: High</p> <ul style="list-style-type: none"> • Failure to replace network components before they become end of life could result 	<p>Overall project option risk: Medium</p> <ul style="list-style-type: none"> • Ongoing complexity of network is unlikely to provide performance improvements. • Staying with the current network approach may not be 	<p>Overall project option risk: Medium</p> <ul style="list-style-type: none"> • Widescale replacement of network hardware may result in disruption to services during implementation.

	<i>Option 1</i>	<i>Option 2</i>	<i>Option 3</i>
	<p>in network failures and service outages.</p> <ul style="list-style-type: none"> • Will not meet current and future demands on the network. 	<p>sufficient to meet the increasing connectivity demands.</p> <ul style="list-style-type: none"> • Reductions in hardware and associated cost savings / energy consumption reductions may not be realised. 	<ul style="list-style-type: none"> • A Wi-Fi first approach is unlikely to be successful without rigorous surveying and assessment of coverage. • A cloud-based network and security architecture would require upskilling of in-house staff to maximise benefits. <p>Further information available within the Risk Register (Appendix 2).</p>
5. Benefits	<ul style="list-style-type: none"> • Extend life of existing hardware, (though would need to be replaced upon failure). • Delay capital outlay. 	<ul style="list-style-type: none"> • Extend life of existing hardware. • Delay capital outlay. 	<ul style="list-style-type: none"> • Deliver a modern, resilient network for all 120 existing COL buildings, 12 existing COLP buildings, 110+ CCTV sites and new buildings being delivered through FPEP and MCP. • Support the increasing connectivity demands of new and emerging technology such as Video Conferencing, the use of mobile devices and the 4k cameras delivered through the Secure City Programme. • Enable the Corporation to respond to growth and the evolving nature of work by

	<i>Option 1</i>	<i>Option 2</i>	<i>Option 3</i>
			<p>delivering adaptable and scalable solutions.</p> <ul style="list-style-type: none"> • A Wi-Fi-first approach which will reduce the network hardware and structured cabling required across the organisation. This will lead to a significant cost avoidance in the delivery of new buildings and an estimated energy saving by at least 30% for the network. • Greater flexibility in the use of office accommodation, removing the reliance upon cabled connectivity and allowing devices to connect seamlessly throughout COL and COLP buildings, including break out spaces and meeting rooms. • The tiered approach, with the level of connectivity provided based on need, will allow for more cost-effective occupancy, and quicker decommission of smaller sites – removing the reliance on complex and expensive MPLS connectivity

	<i>Option 1</i>	<i>Option 2</i>	<i>Option 3</i>
			<p>and moving towards greater secure access to services over raw internet.</p> <ul style="list-style-type: none"> Enhance user experience and organisational collaboration by providing fast and reliable connectivity from Corporation premises, and from home, with enhanced performance and less down time.
6. Disbenefits	<ul style="list-style-type: none"> Significant risk of network outages and service disruption. Continuation of existing complex network and increased support costs. Piecemeal replacement would not result in overall performance gains or improved network capacity. Unlikely to support increased demands on network connectivity such as video conferencing and mobile devices. 	<ul style="list-style-type: none"> Continuation of existing complex network and increased support costs. Piecemeal replacement would not result in overall performance gains or improved network capacity. Unlikely to support increased demands on network connectivity such as video conferencing and mobile devices. 	<ul style="list-style-type: none"> Increased programme complexity in introducing a new technology approach. Some equipment will be replaced prior to becoming end of life (though has resale value). Will require a new service delivery model to support new network model.
7. Stakeholders and consultees	<ol style="list-style-type: none"> Chamberlains City of London Police 	<ol style="list-style-type: none"> Chamberlains City of London Police City Bridge Foundation 	<ol style="list-style-type: none"> Chamberlains City of London Police City Bridge Foundation

	Option 1	Option 2	Option 3
	3. City Bridge Foundation 4. City Procurement 5. Site Contacts (various departments) 6. DSC / PAB	4. City Procurement 5. Site Contacts (various departments) 6. DSC / PAB	4. City Procurement 5. Site Contacts (various departments) 6. DSC / PAB
Resource Implications			
7. Total estimated cost	<p>Total estimated cost (excluding risk):</p> <p>This option is uncosted as there is no project at the start of this option. There would inevitably be significant costs during the lifecycle of this option as hardware fails and remediation becomes necessary, and equipment becomes end-of-life and unsupportable.</p> <p>Total estimated cost: NA.</p>	<p>Total estimated cost (excluding risk): £10.12M</p> <p>There is confidence in this figure as it is based on the previous costs to deliver the current network (Network Transformation Programme - 2017).</p> <p>Total estimated cost: (including risk): £13.05m</p>	<p>Total estimated cost (excluding risk): £9.24m</p> <p>Given the procurement process has not yet been undertaken there is limited confidence in this figure. CRP has been applied to cover this uncertainty, and future papers will clarify the figures as costs are better understood.</p> <p>Total estimated cost: (including risk): £12.17m</p>
8. Funding strategy	Capital Programme City Bridge Foundation.	Capital Programme City Bridge Foundation.	Capital Programme City Bridge Foundation.
9. Estimated capital value/return	N/A	N/A	N/A

	<i>Option 1</i>	<i>Option 2</i>	<i>Option 3</i>
10. Ongoing revenue implications	Costs for the new Network Support Provider will be met from existing DITS revenue budgets on the assumption that these fall within existing budget envelope	As opposite	As opposite
11. Investment appraisal	N/A	N/A	N/A
12. Affordability	3 sentences maximum	3 sentences maximum	3 sentences maximum
13. Procurement strategy/Route to Market	The Procurement Strategy is covered in the accompanying Procurement Options Report	The Procurement Strategy is covered in the accompanying Procurement Options Report	The Procurement Strategy is covered in the accompanying Procurement Options Report
14. Legal implications	Comptroller and City Solicitors will be engaged in the contract award for the new Network Support Provider	As opposite	As opposite
15. Corporate property implications	none	none	none
16. Traffic implications	none	none	none
17. Sustainability and energy implications	This will retain the existing network approach and therefore	This will retain the existing network approach and therefore	The new network approach towards Wi-Fi first and cloud-based infrastructure will lead to a

	<i>Option 1</i>	<i>Option 2</i>	<i>Option 3</i>
	will not lead to a reduction in hardware or cabling.	will not lead to a reduction in hardware or cabling.	significant reduction in network hardware and structured cabling. This has been quantified as at least a 30% reduction in BTU (British Thermal Units) for networking equipment and in the order of £340 per desk for structured cabling in future office fit outs.
18. IT implications	A modern, resilient, and fit for purpose network is fundamental to the delivery of effective services and supports the use of new and emerging technology such as video conferencing and the use of mobile devices	As opposite	As opposite
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
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
21. Recommendation	Not recommended	Not recommended	Recommended