

Committees:	Dates:
Corporate Projects Board <i>for decision under urgency</i> Streets & Walkways sub - for decision Operational Property & Projects Sub - for decision	02 November 2022 08 November 2022 23 November 2022
Subject: Climate Action Strategy, Cool Streets and Greening Programme – Phase 4 Unique Project Identifier: <i>PV ID 12267</i>	Gateway 2-3 Project Proposal & Options Appraisal Regular
Report of: Executive Director Environment Report Author: Janet Laban / Gordon Roy	For Decision
<h1>PUBLIC</h1>	

Recommendations

<p>1. Approval track, next steps and requested decisions</p>	<p>Project Description: Cool Streets and Greening is a £6.8M Climate Action Strategy programme to pilot climate resilient streets and open spaces in the Square Mile. Phases 1, 2 and 3 of this programme are underway – see appendix 3 for progress. This report seeks approval to progress the Phase 4 <i>SuDS (Sustainable Urban Drainage) for Climate Resilience</i> workstream with an estimated total cost of £2.4M</p> <p>Funding Source: Climate Action Strategy – On Street Parking Reserve (CAS - OSPR)</p> <p>Next Gateway: Gateway 4 for <i>SuDS for Climate Resilience</i> project.</p> <p>Next Steps: Detailed designs will be drawn up for 10 sites under the <i>SuDS for Climate Resilience</i> workstream. A Gateway 4 report for this workstream will be brought to Members in early 2023. The proposed projects will be fully funded through the Climate Action Strategy Cool Streets and Greening programme (subject to Gateway 5 approval).</p> <p>Requested Decisions:</p> <ol style="list-style-type: none"> 1. That Option 2 to include SuDS measures in strategically located sites is approved, noting the locations of the proposed sites.
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	2. That budget of £185,000 is approved for design and monitoring infrastructure for Phase 4 <i>SuDS for Climate resilience</i> to reach Gateway 4.																				
2. Resource requirements to reach next Gateway	<p><i>For recommended option 2:</i></p> <table border="1" data-bbox="528 392 1390 1400"> <thead> <tr> <th data-bbox="528 392 761 535">Item</th> <th data-bbox="761 392 1007 535">Reason</th> <th data-bbox="1007 392 1198 535">Funds/ Source of Funding</th> <th data-bbox="1198 392 1390 535">Cost (£)</th> </tr> </thead> <tbody> <tr> <td data-bbox="528 535 761 788">Survey & site design SuDS for Climate Resilience Nine sites</td> <td data-bbox="761 535 1007 788">Consultant support and surveys to develop detailed designs</td> <td data-bbox="1007 535 1198 788">CAS funding OSPR</td> <td data-bbox="1198 535 1390 788">£75K</td> </tr> <tr> <td data-bbox="528 788 761 1005">Staff costs</td> <td data-bbox="761 788 1007 1005">Project management and engineering input</td> <td data-bbox="1007 788 1198 1005"></td> <td data-bbox="1198 788 1390 1005">£40K</td> </tr> <tr> <td data-bbox="528 1005 761 1332">Monitoring infrastructure</td> <td data-bbox="761 1005 1007 1332">Installation of smart sensors to monitor effectiveness of SuDS measures (before & after installation)</td> <td data-bbox="1007 1005 1198 1332">CAS funding OSPR</td> <td data-bbox="1198 1005 1390 1332">£70K</td> </tr> <tr> <td data-bbox="528 1332 761 1400">Total</td> <td data-bbox="761 1332 1007 1400"></td> <td data-bbox="1007 1332 1198 1400"></td> <td data-bbox="1198 1332 1390 1400">£185K</td> </tr> </tbody> </table> <p>Costed Risk Provision requested for this Gateway: 0 (as detailed in the Risk Register – Appendix 2)</p>	Item	Reason	Funds/ Source of Funding	Cost (£)	Survey & site design SuDS for Climate Resilience Nine sites	Consultant support and surveys to develop detailed designs	CAS funding OSPR	£75K	Staff costs	Project management and engineering input		£40K	Monitoring infrastructure	Installation of smart sensors to monitor effectiveness of SuDS measures (before & after installation)	CAS funding OSPR	£70K	Total			£185K
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3. Governance arrangements	<ul style="list-style-type: none"> • The service committee for this work is the Streets & Walkways sub-Committee • The Senior Responsible Officer for this work is Gordon Roy, District Surveyor • The work will be overseen by the Climate Action Strategy Square Mile Project Board 																				

Project Summary

<p>4. Context</p>	<p>4.1 The City’s Climate Action Strategy identifies the need to adapt to a changing climate where we will experience hotter drier summers, warmer wetter winters, sea level rise and more frequent extreme weather events.</p> <p>4.2 The climate risks that the City faces include overheating, flooding, water scarcity, biodiversity loss, increases in pests and diseases and disruption to infrastructure food and trade.</p> <p>4.3 The Climate Action Strategy Cool Streets & Greening programme is introducing climate resilience measures into the City’s public realm to avoid future disruption from these climate risks. Phases 1, 2 and 3 of this programme are underway (see update in Appendix 3).</p> <p>4.4 A combined gateway approach is being used in this case since the programme is already approved in principle and it is imperative that we progress quickly with these projects to meet the Climate Action Strategy timetable with project completion by Q4 2024/25.</p> <p>4.5 In October 2020, the Court of Common Council approved an ambitious Climate Action Strategy, a transformative programme for the organisation to reach net-zero carbon emissions, build resilience and champion sustainable growth. The 6-year, £68m funding for this programme was approved by Resource Allocation Sub Committee (RASC) on 7 September 2020, including, under Appendix 2 ‘Action area 2. Resilient Streets and Greening’, a total budget of £6.8m over 4 years. At the start of each financial year, following the completion of a Project Plan for each CAS delivery area, Policy & Resources committee are asked to note overall programme progress to the 6-year Strategy to approve the draw of funds required for the forthcoming financial year.</p>
<p>5. Brief description of project</p>	<p>5.1 This project covers Phase 4 of the Cool Streets & Greening programme and seeks to introduce SuDS for Climate Resilience, strategically across the Square Mile on newly identified sites.</p> <p>5.2 This strategic approach will result in wider climate resilience benefits such as protection from surface water and sewer surcharge flood risk resulting from extreme rainfall events, across the City.</p> <p>5.3 These sites have been prioritised because they:</p> <ul style="list-style-type: none"> • are close to trunk sewers but outside the City’s major surface water flood risk areas. This will maximise the reduction in rainwater run-off into the trunk sewers.

- can contribute through greening elements to the proposed biodiversity corridors that form part of Phase 3.

5.4 Funding for site identification and prioritisation was approved in Feb 2022. From this work, the following indicative sites are proposed:

Site*	Measures
Lambeth Hill (or other north -south steep sloping lanes north of Thames Street)	Terraced attenuation steps.
Bread Street south	Permeable paving with below ground reservoir and soft landscaping
Ludgate Broadway	SuDS tree pits and rain garden
St Martin le Grande	SuDS tree pits & linear rain garden
Godliman Street	Permeable paving / swale
Knightrider Court	Permeable paving / swale
Tooks Court	SuDS tree pits and underplanting
St Andrew Undershaft	Rainwater harvesting and new planting
Houndsditch	Rain garden
Swan Lane (or other north-south lane south of Thames Street)	Permeable paving with below ground reservoir & soft landscaping

*Note: If detailed surveys identify insurmountable constraints at any of these sites alternative sites will be substituted and this will be set out in the Gateway 4 report.

5.5 Development of detailed designs to incorporate SuDS related climate resilience measures at these sites will

	constitute Phase 4 of the Cool Streets & Greening Programme.
<p>6. Consequences if project not approved</p>	<p>6.1 The City's climate is changing. We need to adapt the City's environment to hotter drier summers, warmer wetter winters, sea level rise and more frequent extreme weather events.</p> <p>6.2 The high cost of reacting to rather than preparing for climate change is well recognised¹.</p> <p>6.3 The Climate Resilience Adaptive Pathways study completed for the City Corporation by Buro Happold in 2020 identified the measures (including SuDS) that we need to implement now to ensure that we are ready for the future climate.</p> <p>6.4 If this project is not approved, we will miss the opportunity to prepare for the inevitable change in the climate resulting in increased climate risks, higher insurance costs through lack of preparedness and higher costs of action.</p> <p>6.5 Some actions from the recently adopted statutory Local Flood Risk Management Strategy (LFRMS) could be compromised if we fail to progress this project.</p>
<p>7. SMART project objectives</p>	<p>Vision: The Square Mile and City Corporation assets elsewhere are an exemplar of climate resilience, pre-empting inevitable climate related risks and impacts, providing a model for others to follow.</p> <p>Climate Action Strategy Objectives:</p> <ul style="list-style-type: none"> • The City of London Corporation and its assets are resilient to climate change • The Square Mile's buildings, public spaces and infrastructure are resilient to climate change • People in the Square Mile and beyond benefit from a clean, green and safe environment and job creation <p>These objectives were agreed by Court of Common Council on 8th Oct 2020 as part of the City's Climate Action Strategy (Committee report Appendix 2).</p> <p>The key project objectives for Phase 4 of the Cool Streets & Greening Programme are to:</p> <ol style="list-style-type: none"> 1 Develop detailed designs for incorporating SuDS at ten sites by Q1 2023/24 subject to Gateway 4/5 approval. 2 Develop and implement real time baseline monitoring infrastructure which will be used to evaluate resilience interventions by Q1 2023/24 3 To implement and monitor the effects of SuDS measures in nine sites by Q4 2024/25 making

¹ [Stern Review Report on the Economics of Climate Change](#)

	<p>recommendations for future SuDS interventions in the Square Mile.</p> <p>4 The project level Key Performance Indicator for this project will be: Area of the Square Mile with Sustainable Drainage (SuDS) installed.</p> <p>5 The outcomes indicator for this project will be the number of flood investigations carried out under section 19 of the Flood & Water Management Act. This will demonstrate how resilient the Square Mile is to flood risk.</p>
8. Key benefits	<p>This project will reduce the risks of flooding from the increased and more intense rainfall which we are already experiencing as a result of climate change.</p> <p>The strategically located SuDS schemes will not only reduce surface water flood risk at individual sites but will reduce rainwater run-off into the drainage network and subsequent risk of sewer surcharge flooding elsewhere in the City.</p>
9. Project category	7a. Asset enhancement/improvement (capital)
10. Project priority	A. Essential
11. Notable exclusions	<p>1 Implementation of buildings related resilience measures</p> <p>2 Resilience of privately owned assets and infrastructure</p>

Options Appraisal

12. Overview of options	<p>Option 1 – Redesign of existing projects to include climate resilience measures</p> <p>12.1 To date the Cool Streets and Greening projects have opportunistically targeted interventions in existing projects to speed implementation. A total of 15 sites have been identified in this way and are progressing to implementation and monitoring under Phase 1 and Phase 2.</p> <p>12.2 We could continue to use Climate Action Strategy funding to part fund schemes to incorporate climate resilience measures, however this would prevent us from trailing climate resilience in strategically located sites across the City.</p> <p>12.3 For new schemes such as public realm projects and the City’s major projects, climate resilience measures should be designed in, costed and incorporated as business-as-usual from now onwards.</p> <p>Option 2 – Identify new sites for climate resilience Preferred option</p>
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	<p>12.4 It is beneficial to pilot further measures strategically across the Square Mile providing flood resilience for areas at risk of surface water and sewer surcharge flooding.</p> <p>12.5 Identification of new sites uses data gathered through the Cubic Mile project (in collaboration with the British Geological Survey), and the Phase 3 <i>City Greening and Biodiversity</i> workstream which Members approved at Gateway 2 in May 22.</p> <p>12.6 The engineering designs and lessons learnt through this project will be used as a template for the City to roll out similar measures as part of future projects. The measures will also be used to inform future policy and technical guidance for the City's public realm.</p> <p>Option 3 Do Nothing</p> <p>12.7 This option would make no preparations for changed weather patterns as a result of climate change.</p> <p>12.8 This would mean continuing with a reactive approach responding to disruption from adverse weather and other climatic impacts as it affects the Square Mile.</p> <p>12.9 This option risks higher costs for clean-up and insurance, reputational damage and misses opportunities to prepare for changes in the climate as works are carried out during this decade</p>
<p>13. Risk</p>	<p>Overall project risk: Low The main risk is that surveys identify insurmountable constraints. This could include below ground utilities or above ground infrastructure such as bike parking that cannot be relocated or imminent development around the site which might be constrained by SuDS. In this case mitigation would be to:</p> <ul style="list-style-type: none"> • change the type of SuDS design • substitute alternative sites <p>Further information is available within the Risk Register (Appendix 2) and Options Appraisal.</p>

Resource Implications

<p>14. Total estimated cost</p>	<p>For recommended option 2: Total estimated cost (excluding risk): £2.4M.</p>	
<p>15. Funding strategy</p>	<p>Is funding confirmed: Choose an item.</p>	<p>Who is providing funding: Internal - Funded wholly by City's own resource</p>

	<p>Recommended option</p> <table border="1" data-bbox="533 237 1353 495"> <thead> <tr> <th data-bbox="533 237 1161 293">Funds/Sources of Funding</th> <th data-bbox="1161 237 1353 293">Cost (£)</th> </tr> </thead> <tbody> <tr> <td data-bbox="533 293 1161 383">Climate Action Strategy (On Street Parking Reserve)</td> <td data-bbox="1161 293 1353 383">£2.4M</td> </tr> <tr> <td data-bbox="533 383 1161 439"></td> <td data-bbox="1161 383 1353 439"></td> </tr> <tr> <td data-bbox="533 439 1161 495" style="text-align: right;">Total</td> <td data-bbox="1161 439 1353 495">£2.4M</td> </tr> </tbody> </table> <p>This project is part of the Climate Action Strategy Cool Streets & Greening programme. The programme's funding allocation is £6.8M (OSPR) with the funding having been approved by the Resource Allocation Sub-committee in Sept 2020. The £1.6m drawdown of Climate Action central funding for the 2022/23 (year 2) Cool Streets and Greening schemes was approved by Resource Allocation Sub Committee in May 2022.</p>	Funds/Sources of Funding	Cost (£)	Climate Action Strategy (On Street Parking Reserve)	£2.4M			Total	£2.4M
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<p>16. Procurement strategy/ route to market</p>	<p>Any work to the public highway will be undertaken by the City's highway term contractor. The term contractor has been chosen through a competitive tender process and represents good value for money.</p> <p>Elements of soft landscaping will be undertaken by the City Garden's team.</p> <p>The City's procurement strategy will be adhered to.</p>								

Appendices

Appendix 1	Gateway 1 approval
Appendix 2	Risk Register
Appendix 3	Progress on Cool Streets & Greening project to date

Contact

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Telephone Number	Teams call

Options appraisal table.

Delete option numbers as appropriate

Option Summary	Option 1	Option 2	Option 3
1. Brief description of option	Redesign of existing projects to include climate resilience measures and monitoring programme to evaluate their effectiveness. This will cover years 1 and 2 of the Cool Streets & Greening programme	Identification of new strategically located sites for design, installation and monitoring of climate resilience measures for Phases 3 <i>City Greening & Biodiversity</i> & Phase 4 <i>SuDS for Climate Resilience</i> of the Cool Streets & Greening programme	Do nothing to prepare for climate change impacts
2. Scope and exclusions	Fifteen existing projects have been identified where climate resilience measures can be incorporated in Phases 1 and 2 of the Cool Streets & Greening programme. Work is complete at 6 sites, underway at 2 sites and in design at the remaining sites	Opportunity mapping for suitable new sites, which was approved at Gateway 2, has identified new sites for the <i>City Greening & Biodiversity</i> and <i>SuDS for climate resilience</i> programmes.	This option would take a reactive approach to climate related emergencies such as flooding, heat stress, water shortages etc, responding when they happen.
Project Planning			
3. Programme and key dates	All the proposed sites are due for completion by end 2023	Estimated key dates: Site identification Q3 2022/23 Design Q3&4 2022/23 Implementation 2023/24	React to climate related emergencies when they occur
4. Risk implications	Overall project option risk: Low	Overall project option risk: Low	This option risks the City being unprepared for

Option Summary	Option 1	Option 2	Option 3
			climate impacts leading to emergency incidents and associated reputational damage
5. Stakeholders and consultees	<ul style="list-style-type: none"> Residents and businesses adjacent to proposed sites City Corporation officers: Highways, Transport, Historic Environment, Access City Public Realm 	<ul style="list-style-type: none"> Residents and businesses adjacent to proposed sites City Corporation officers: Highways, Transport, Historic Environment, Access City Public Realm 	None
6. Benefits of option	<ul style="list-style-type: none"> Uses sites where work is already planned minimising disruption and cost Provides monitoring data to inform site selection later in the 5 year programme 	<ul style="list-style-type: none"> Identifies strategic sites based on opportunity mapping Sites suitable for a wider range of SuDS types and other resilience measures are more likely to be identified 	Immediate costs avoided
7. Disbenefits of option	Potential limitation on the types of resilience measures possible on sites where other work is already planned	Potential higher cost per site than option 1. CAS funding will need to pay for all works since these are not sites where other work is already planned.	Risk of emergency leading to high repair costs, disruption to the City and reputational damage, higher insurance premiums
Resource Implications			

Option Summary	Option 1	Option 2	Option 3
8. Total estimated cost	Estimated capital cost for Phase 1 = £815K Phase 2 = £720K There is a high level of confidence in this figure based on estimates from the Public Realm team who have experience in implementing similar schemes elsewhere.	Estimated capital costs: Phase 3 £2.5M Phase 4 £2.4M Costs will depend on the types of resilience measures that are feasible on each site. Other sources of funding will be sought but some measures will need to be fully funded through the CS&G programme	No immediate investment costs. Future emergency and insurance costs unknown
9. Funding strategy	Climate Action Strategy – On Street Parking Reserve	Climate Action Strategy – On Street Parking Reserve	N/A
10. Investment appraisal	None – scheme is fully funded through Climate Action Strategy	None – scheme is fully funded through Climate Action Strategy	N/A
11. Estimated capital value/return	N/A.	N/A	N/A
12. Ongoing revenue implications	Ongoing revenue will be needed for maintenance and evaluation of the resilience measures over the 5-year period of the Cool Streets and Greening programme. An initial estimate of 10% of capital costs has been added (70K) however evaluation of	Maintenance costs are included in the capital costs. Some measures may result in reduced maintenance costs in the longer term Monitoring infrastructure will be included in the project design. Environmental Resilience team staff costs	N/A

Option Summary	Option 1	Option 2	Option 3
	<p>maintenance costs will be part of the evaluation of each project. Some measures may result in reduced maintenance costs in the longer term.</p>	<p>will cover ongoing evaluation of monitoring data</p>	
13. Affordability	<p>The scheme is fully funded through the Climate Action Strategy</p>	<p>The scheme is fully funded through the Climate Action Strategy</p>	N/A
14. Legal implications	<p>Planning permissions will be sought where necessary</p>	<p>Planning permissions and Highways orders will be sought where necessary</p>	N/A
15. Corporate property implications	<p>None</p>	<p>None</p>	N/A
16. Traffic implications	<p>None</p>	<p>To be advised based on the sites identified</p>	N/A
17. Sustainability and energy implications	<p>The Cool Streets & Greening programme is a Climate Action Strategy project which aims to ensure that the City remains resilient to the impacts of climate change (hotter drier summers, warmer wetter winters, more frequent weather extremes and sea level rise) All materials used in the projects will be sustainably sourced</p>	<p>The Cool Streets & Greening programme is a Climate Action Strategy project which aims to ensure that the City remains resilient to the impacts of climate change (hotter drier summers, warmer wetter winters, more frequent weather extremes and sea level rise) All materials used in the projects</p>	<p>This option would conflict with the City's Climate Action Strategy goal of a climate resilient City</p>

Option Summary	Option 1	Option 2	Option 3
	applying circular economy principles wherever possible	will be sustainably sourced applying circular economy principles wherever possible	
18. IS implications	Monitoring data will be made available through the Azure IOT hub	Monitoring data will be made available through the Azure IOT hub	N/A
19. Equality Impact Assessment	Equality Impact Assessment – Test of Relevance will be carried out for all proposed project designs	Equality Impact Assessment – Test of Relevance will be carried out for all proposed project designs	This option could lead to greater danger for vulnerable groups
20. Data Protection Impact Assessment	N/A	N/A	N/A
21. Recommendation	Not recommended	Recommended	Not recommended

Appendix 1 Gateway 1 Approval - attached

Appendix 2 Risk Register- attached

Appendix 3 Cool Streets & Greening Projects update – attached