

<b>Committees:</b> Corporate Projects Board - for decision Projects Sub - for decision Streets & Walkways Sub Committee – for decision Planning & Transportation Committee- for information Open Spaces and City Gardens Committee – for information	<b>Dates:</b> 31 March 2021 14 April 2021 29 April 2021 12 May 2021 27 April 2021
<b>Subject:</b> Climate Action Strategy - Cool Streets and Greening Programme  <b>Unique Project Identifier:</b> PV ID 12267	<b>Gateway 1&amp; 2:</b> <b>Project Proposal</b> Regular
<b>Report of:</b> Director of the Built Environment <b>Report Author:</b> Janet Laban	<b>For Decision</b>
<h1>PUBLIC</h1>	

## Recommendations

<b>1. Next steps and requested decisions</b>	<p><b>Project Description:</b> Cool Streets and Greening is a Climate Action Strategy programme to develop climate resilient streets and open spaces in the Square Mile.</p> <p>This project aligns with the City’s Corporate Plan and Responsible Business Strategy and contributes to the City Corporation’s preparation for the UN climate conference COP26. It will assist in implementation of climate measures in the emerging City Plan 2036 and Transport Strategy whilst supporting the City’s aspiration to develop culture and commerce in parallel in the coming decades.</p> <p><b>Funding Source:</b> Members agreed funding for this work through the Climate Action Strategy in Oct 2021. The specific funding source for this work is the Department of the Built Environment On-Street Parking Revenue (DBE - OSPR)</p> <p><b>Next Gateway:</b> Gateway 3/4 - Options Appraisal (Regular)</p> <p>Once suitable pilot sites have been identified and prioritised a Gateway 3 / 4 report will seek approval for implementation of resilience measures on specific sites later in year 1.</p> <p>In subsequent years, the implementation of resilience measures will be at sites where other works are planned. Full Gateway approvals will be sought for each site with suitable climate resilience measures being incorporated within the normal project approval process.</p>
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**Next Steps:**

**Year 1 (2021/22)** of the Cool Streets and Greening project will involve:

Set up Climate Resilience Steering Group Terms of Reference

- Programme development & governance
- Opportunity mapping and data gap analysis
- Data collection & analysis protocols
- Develop criteria for funding of resilience measures

Steering Group Review - programme

- Draft technical resilience measures guidance
- Site identification and prioritisation
- Baseline heat, flood and Urban Greening Factor monitoring

Steering Group review – sites, measures & data - subject to Gateway 3/4 approvals for pilot sites

- Plan implementation of heat and flooding resilience measures on 4-7 pilot sites
- Model impacts for 4-7 sites
- Implement climate resilience measures on 4-7 pilot sites
- Monitor impacts

Steering Group review – implementation and impacts

**Years 2,3 & 4 2022 to 2025-** Further resilience measures will be implemented in a minimum of 20 sites based on the evaluation at the pilot sites.

**Requested Decisions:**

1. That budget of **£320K** is approved for
  - Programme framework development (4-year programme)
  - Climate resilience measures catalogue
  - Installation of smart sensors and data protocols for monitoring
  - Opportunity mapping and gap analysis for climate resilience solutions
  - Identification and prioritisation of sites.

This is a capitalised resource against the proceeding capital works.

2. Note the total estimated cost of the Cool Streets and Greening project at **£1.7M** for Year 1. The remaining funds will be for installation of resilience measures in priority sites and will be subject to Gateway 3,4 & 5 approvals
3. Note that the likely cost range for the Cool Streets & Greening 4-year programme will be an estimated £1.7M per annum over 4 years – Total £6.8M

2. Resource requirements to reach next Gateway	Item	Reason	Funds/ Source of Funding	Costs £
	Framework development	Consultant support in designing programme	Climate Action Strategy (CAS) funding DBE - On Street Parking Reserve (OSPR)	50K
	Resilience measures catalogue	Consultant support in development of technical catalogue of resilience measures	CAS funding DBE OSPR	10K
	Smart sensors and monitoring	Installation of smart sensors for flood and heat monitoring including ongoing maintenance	CAS funding DBE-OSPR	85K
	Data collection & analysis	Consultant support in smart monitoring, analysis and interpretation and reporting of results & KPIs	CAS funding DBE-OSPR	20K
	Opportunity mapping & data gap analysis	Consultant support	CAS funding DBE-OSPR	75K

	Site identification and prioritisation	Consultant support	CAS funding DBE-OSPR	30K
	Staff costs Site identification and prioritisation	Public Realm/ Highways/ Open spaces staff	CAS Funding DBE-OSPR	50K
	Staff costs Cool Streets & greening workstream management	Environmental resilience team currently funded until Sept 2021 thereafter to be funded through the Mainstreaming Resilience workstream	Environmental Resilience Team	100K funded from existing budgets
	Total cost for this Gateway			320K
	<p><b>Costed Risk Provision requested for this Gateway:</b>  <b>£0</b>(as detailed in the Preliminary Risk Register – Appendix 2)</p>			
<b>3. Governance arrangements</b>	<ul style="list-style-type: none"> <li>• The service committee for this project is the Streets &amp; Walkways Committee</li> <li>• A cross departmental Climate Resilience Steering Group, chaired by the District Surveyor and Environmental Resilience Director, will oversee recommendations on procurement, project prioritisation, budgets, timetable and reporting, through quarterly meetings.</li> <li>• The Senior Responsible Officer for this project is the District Surveyor and Environmental Resilience Director (Gordon Roy)</li> <li>• The Project Manager for this project will be the Senior Sustainability &amp; Lead Environmental Resilience Officer (Janet Laban) who will be supported by the Environmental Resilience team the City Public Realm team, and the City Transportation team, working with highways, transport and open spaces officers on individual implementation projects within this workstream.</li> </ul>			

	<ul style="list-style-type: none"> <li>• Year 1 will be undertaken by the Environmental Resilience team which is a small team using design thinking and agile work practices to achieve results (see appendix 3). The team will work in partnership with officers from other parts of the Environment Service Area in the new Target Operating Model.</li> <li>• Some activities will require partnership working with organisations such as the British Geological Survey, Thames Water and the Environment Agency. Such activities will be undertaken with the relevant confidentiality agreements and memorandums of understanding in place.</li> </ul>
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### **Project Summary**

<p><b>4. Context</b></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 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 food and trade.</p> <p>4.3 The City of London Adaptive Pathways report prepared for the City Corporation by Buro Happold demonstrates the importance of beginning now to incorporate resilience actions into the Square Mile.</p> <p>4.4 The funding for the Climate Action Strategy was agreed in Oct 2020 by Court of Common Council. Individual tranches of funding will be the subject of Resource Allocation Sub Committee approval as appropriate.</p>
<p><b>5. Brief description of project</b></p>	<p>5.1 This Gateway 2 project is the first phase of a wider programme of work to improve the resilience of the City’s streets and spaces to climate change.</p> <p>5.2 This phase will identify opportunities, set an evaluation framework, gather baseline information including from smart sensors and identify and prioritise sites for installation of climate resilience measures such as sustainable drainage (SuDS) and heat resilient materials.</p> <p>5.3 The wider project addresses the range of actions agreed through the City’s Climate Action Strategy to address climate risks for the City’s streets including:</p> <ul style="list-style-type: none"> <li>• Flood modelling</li> <li>• Heat resistant materials testing</li> <li>• Water footprint and leakage management</li> </ul>

	<ul style="list-style-type: none"> <li>• Natural flood management and sustainable drainage (SuDS)</li> <li>• Greening and climate resilient planting.</li> </ul> <p>5.4 Subject to Gateway 3/4/5 approval the wider project will install and evaluate measures and techniques to address the climate challenges that the City faces.</p> <p>5.5 The measures that are found to be effective will then be incorporated into the City’s design guidance providing a roadmap to 2080 for a climate resilient public realm. This aligns with the Climate Action Strategy adapting to climate change diagram – best case by 2080</p> <p>5.6 Ongoing maintenance of the climate resilience measures will be secured through a commuted sum associated with each implementation project to be included at Gateway 3 / 4 /5. The amount of the commuted sum will be included in each project cost and be funded from the Climate Action funding sources.</p>
<p><b>6 Consequences if project not approved</b></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 recognised<sup>1</sup>.</p> <p>6.3 The Climate Resilience Adaptive Pathways study completed for the City Corporation by Buro Happold in 2020 identified the measures 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><b>7 SMART project objectives</b></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"> <li>• The City of London Corporation and its assets are resilient to climate change</li> <li>• The Square Mile’s buildings, public spaces and infrastructure are resilient to climate change</li> </ul>

<sup>1</sup> [Stern Review Report on the Economics of Climate Change](#)

	<ul style="list-style-type: none"> <li>• People in the Square Mile and beyond benefit from a clean, green and safe environment and job creation</li> </ul> <p>These objectives were agreed by Court of Common Council on 8<sup>th</sup> Oct as part of the City’s Climate Action Strategy (Committee report appendix 2)</p> <p>The key project objectives for 2021/22 are to</p> <ol style="list-style-type: none"> <li>1) To develop a catalogue of resilience measures and assessment methodology for consideration in planned public realm, transport, highways and open spaces schemes by Q3 2021/22</li> <li>2) To map the opportunities and constraints for flood and heat resilience interventions in the Square Mile by Q3 2021/22.</li> <li>3) To identify and prioritise sites for Climate resilience interventions by Q3 2021/22</li> <li>4) Develop and implement real time baseline monitoring infrastructure which will be used to evaluate resilience interventions by Q3 2021/22</li> <li>5) Identify and design interventions for 4-7 sites by Q3 2021/22 subject to Gateway 3-4 approval</li> <li>6) Implement and monitor resilience measures on 4-7 sites by Q1 2022/23 subject to Gateway 3-4 approval</li> </ol> <p>The project level Key Performance Indicators for this project will be:</p> <ul style="list-style-type: none"> <li>• Urban Greening Factor for the Square Mile which provides a quantifiable measure of the overall level and environmental benefit of greening in the City.</li> <li>• Area of the Square Mile with Sustainable Drainage (SuDS) installed.</li> </ul>						
<p><b>8 Key benefits</b></p>	<p>This project covers the ten actions agreed by the Court of Common Council on 8<sup>th</sup> Oct 2020 under the City Climate Action Strategy report – nine actions from Appendix 2b Action Area 2 Resilient Streets and Greening and one action from Action Area 4 Resilience co-ordination and training.</p> <p>The Key benefits are set out below:</p> <table border="1"> <thead> <tr> <th>Action</th> <th>Benefit</th> </tr> </thead> <tbody> <tr> <td>2.1 Flood modelling</td> <td>Provides accurate, up to date information about flood risk in the Square Mile</td> </tr> <tr> <td>2.2 Heat resistant materials</td> <td>Provides pilot results for effective heat resilient materials in the public realm</td> </tr> </tbody> </table>	Action	Benefit	2.1 Flood modelling	Provides accurate, up to date information about flood risk in the Square Mile	2.2 Heat resistant materials	Provides pilot results for effective heat resilient materials in the public realm
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	2.3 Water footprint management plan	Identify opportunities to minimise water use (and associated cost) and make best use of this resource
	2.4 Develop natural flood risk management areas	Reduces surface water flooding and sewer overflows
	2.5 Sustainable rain and surface water management	Reduce surface water flooding and sewer overflows
	2.6 Water leakage management	Minimise water loss through leakage through pro active leak detection and asset management
	2.7 Increase green space	Climate resilient greening reducing flood risk and overheating risk
	2.8 Climate resilient planting	Thriving planting in face of climate change
	2.9 External funding sources review	Potential partner funding from non-City of London sources
	2.10 Engagement plans	Best practice used elsewhere
	4.6 Below ground mapping	Identification of climate resilience opportunities
	<p>The measurable benefits for Gateway 2 will consist of:</p> <ul style="list-style-type: none"> <li>• Framework resilience measures catalogue for flood and heat risk and appraisal methodology</li> <li>• Mapping (above and below ground) showing constraints and opportunities for flood and heat resilience measures</li> <li>• Prioritised list of sites that are suitable for climate resilience interventions in the Square Mile</li> <li>• Network of smart sensors to measure flood and heat risk</li> <li>• Baseline monitoring of climate resilience indicators including Urban Greening Factor for the Square Mile</li> </ul>	
<b>9 Project category</b>	7a. Asset enhancement/improvement (capital)	
<b>10 Project priority</b>	A. Essential	

<b>11 Notable exclusions</b>	1 Implementation of buildings related resilience measures 2 Resilience of privately owned assets and infrastructure
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### Options Appraisal

<b>12 Overview of options</b>	<p><b>Option 1</b> – Business as usual. Ad hoc inclusion of climate resilience measures in public realm when funds allow.</p> <p><b>Option 2</b> – Focused programme to install and evaluate climate resilience measures in the Square Mile informing a roadmap for resilience to 2080. This option could be achieved within the requested budget subject to Gateway approvals as appropriate.</p> <p><b>Option 3</b>– extend measures to include open spaces elsewhere. This option would provide more comprehensive data on the impacts of the climate resilience measures and is particularly relevant to surface water management and sewer overflow flooding. Additional funding is being sought from the Environment Agency’s Innovative Resilience fund (£6M over 6 years) which would enable extension of this project beyond the Square Mile to include City Corporation managed open spaces elsewhere.</p> <p><b>Option 2 is the preferred approach</b> since it will progress the City Corporation’s adopted Climate Action Strategy climate resilience actions. Seeking further funding through Option 3 is dependent on the City Corporation progressing Option 2.</p>
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### Project Planning

<b>13 Delivery period and key dates</b>	<p><b>Overall project: This project will run from Jan 2021 until March 2025</b> see Gantt chart – Appendix 4. This Gateway 2 report is seeking approval for the initial phase of year 1 activities.</p> <p><b>Key dates:</b></p> <table border="1"> <tr> <td>Year 0</td> <td>Q4 2020/21</td> <td>Partner engagement Staff upskilling Project plans</td> </tr> <tr> <td>Year 1</td> <td>Q1- 2021/22 to Q1- 2022/23</td> <td> <b>Project design &amp; governance</b>  <b>Resilience measures catalogue</b>  <b>Opportunity and constraint mapping</b>  <b>Smart monitoring infrastructure</b>  <b>Site identification and prioritisation</b>  Design and installation for 4-7 no pilot schemes </td> </tr> </table>		Year 0	Q4 2020/21	Partner engagement Staff upskilling Project plans	Year 1	Q1- 2021/22 to Q1- 2022/23	<b>Project design &amp; governance</b> <b>Resilience measures catalogue</b> <b>Opportunity and constraint mapping</b> <b>Smart monitoring infrastructure</b> <b>Site identification and prioritisation</b> Design and installation for 4-7 no pilot schemes
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			Evaluation and reporting
	Years 2 & 3	Q2-2022/23 To Q1-2024/25	Implementation of resilience measures <ul style="list-style-type: none"> <li>• Sustainable drainage SuDS</li> <li>• Natural flood management (NFM)</li> <li>• Urban greening factor (UGF)</li> <li>• Resilient planting</li> <li>• Leakage management</li> <li>• Heat resilient surfaces</li> </ul>
	Year 4	Q2-2024/25 To Q4-2024/25	Review and recommendations Development of guidance Roadmap for a climate resilient Square Mile to 2080
<p><b>Other works dates to coordinate:</b> The implementation phase of this project will be carried out alongside maintenance cycles and improvement to the public realm, highways and open spaces Benefits from installation of resilience measures maybe realised in adjacent areas e.g. SuDS in open spaces may benefit highway run off. Integration with other projects will minimise cost and disruption but will require careful planning to ensure alignment of dates.</p>			
<p><b>14 Risk implications</b></p>	<p><b>Overall project risk:</b> Low A high level overview of the risks in line with the <a href="#">Projects Procedure Corporate Risks Register</a> is set out in Appendix 2: Risk Register – Costed Risk Provision. Further risk assessment will be carried out at the next Gateway as the workstream progresses.</p> <p>The potential risks at the Gateway 2 stage are as follows:</p> <ul style="list-style-type: none"> <li>• Lack of funding would prevent these actions from progressing however the Climate Action Strategy commits £1.7M per annum to climate resilience.</li> <li>• Contract or partnership problems could delay progress of this stage. City procurement and comptrollers will oversee contracts and partnership governance arrangements.</li> <li>• Skills shortages – Skills currently exist in the Environmental Resilience Team as secondments with consultant support. Measures are underway to secure longer term commitment to skilled staffing for climate resilience.</li> <li>• Smart sensors do not provide suitable data to evaluate resilience measures. To mitigate against this contract specifications will be drawn up to ensure provision of useful data.</li> </ul>		

	<ul style="list-style-type: none"> <li>Opportunity mapping might show that there are minimal opportunities for resilience measures. An alternative approach would then be needed</li> </ul> <p>The Costed Risk Provision assessment shows that at Gateway 2 any costs associated with minor risks and do not present a threat to the project.</p>
<b>15 Stakeholders and consultees</b>	<p>PESTLE analysis has been used to identify the relevant stakeholders for this project (appendix 5) A stakeholder engagement plan is being developed to ensure co-ordinated messaging across the Climate Action Strategy implementation phase.</p>

### Resource Implications

<b>16 Total estimated cost</b>	<p><b>Likely cost range (excluding risk) for Gateway 2 Cool Streets &amp; Greening: £320K</b></p> <p>Likely cost range for the Cool Streets &amp; Greening 4 year programme: £1.7M per annum over 4 years – Total £6.8M</p> <p>Likely cost range (including risk): +/- 20% Years 1-4 £5.4M to £7.2M (if additional funding is not available to cover the shortfall then resilience measures will be implemented on fewer sites).</p>																	
<b>17 Funding strategy</b>	<p>Choose 1:</p> <p>All funding fully guaranteed</p>	<p>Choose 1:</p> <p>Internal - Funded wholly by City's own resource</p> <table border="1"> <thead> <tr> <th>Funds/Sources of Funding</th> <th>Cost (£)</th> </tr> </thead> <tbody> <tr> <td>Year 0 Climate Action Strategy CAS</td> <td>-</td> </tr> <tr> <td>Year 1 CAS*</td> <td>2.0M</td> </tr> <tr> <td>Year 2 CAS*</td> <td>1.8M</td> </tr> <tr> <td>Year 3 CAS*</td> <td>1.6M</td> </tr> <tr> <td>Year 4 CAS*</td> <td>1.4M</td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td style="text-align: right;"><b>Total</b></td> <td><b>6.8M</b></td> </tr> </tbody> </table> <p>There is potential for securing additional funding to extend this programme. For example, a funding bid has been submitted to Defra for their Innovative Resilience Fund which if successful would amount to £6M over 6 years.</p>	Funds/Sources of Funding	Cost (£)	Year 0 Climate Action Strategy CAS	-	Year 1 CAS*	2.0M	Year 2 CAS*	1.8M	Year 3 CAS*	1.6M	Year 4 CAS*	1.4M			<b>Total</b>	<b>6.8M</b>
Funds/Sources of Funding	Cost (£)																	
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<b>Total</b>	<b>6.8M</b>																	
<b>18 Investment appraisal</b>	<p>For the Cool Streets and Greening Gateway 2, an options appraisal is not required. This is preliminary work to assess</p>																	

	future options for implementation of climate resilience measures which will be assessed at Gateway 3/4
<b>19 Procurement strategy/route to market</b>	<p>Procurement for the Gateway 2 element of this workstream will involve specialist consultants and contractors all of which will be procured in line with the City's procurement policies. Appendix 6 summarises the Procurement Strategy for the lifecycle of the project and further procurement approaches will be finalised, in response to the findings of consultants appointed at this Gateway.</p> <p>Procurement will be overseen by the Climate Action Strategy Programme Management Team and the Senior Sustainability and Lead Environmental Resilience Officer</p> <p>City Procurement Reference Number: Not required – all appointments are below PCR threshold</p>
<b>20 Legal implications</b>	<p>This project implements actions agreed by the Court of Common Council under the Climate Action Strategy. There are no specific legal implications at this stage and implications (for example on the highway) will be explored at the next stage as more detailed proposals are formulated. The Climate Change Act 2008 sets a framework for mitigating climate change and for adapting to climate change. This Act enshrined into law a target of reducing the UK's carbon account for the year 2050 by at least 100% of the 1990 baseline. The Climate Action Strategy as a whole and this project, which implements actions agreed by the Court of Common Council within it, are compliant with legislation, including the Climate Change Act 2008</p>
<b>21 Corporate property implications</b>	<p>Year 1 - None</p> <p>Year 2-4 Discussions with Corporate Property team will take place during year 1 as sites are identified. Resilience works will be aligned with maintenance schedules wherever possible</p>
<b>22 Traffic implications</b>	<ol style="list-style-type: none"> <li>1. Resilience interventions in the public realm and highways may have traffic implications through the reduction of carriageway space for vehicles and pedestrians. Implications will be explored at the next stage.</li> </ol>
<b>23 Sustainability and energy implications</b>	<ol style="list-style-type: none"> <li>1. This project will help to prepare the City for the impacts of climate change</li> <li>2. Sustainable procurement and circular economy principles will be applied to minimise the materials impacts of implementation and reduce embodied carbon.</li> <li>3. During Year 1 of this programme monitoring and reporting protocols will be put in place to enable robust evaluation of climate impacts including temperature and flood risk and evaluation methodologies will be developed</li> </ol>

<b>24 IS implications</b>	None.
<b>25 Equality Impact Assessment</b>	<ul style="list-style-type: none"> <li>An equality impact assessment test of relevance will be undertaken at each stage of this project and any potential issues will be addressed prior to progressing the action.</li> </ul>
<b>26 Data Protection Impact Assessment</b>	<ul style="list-style-type: none"> <li>The risk to personal data is less than high or non-applicable and a data protection impact assessment will not be undertaken</li> </ul>

### Appendices

<b>Appendix 1</b>	Gateway 1 Approval
<b>Appendix 2</b>	Risk Register
<b>Appendix 3</b>	Team structure and support
<b>Appendix 4</b>	Schedule of stages Gantt chart
<b>Appendix 5</b>	Stakeholder engagement plan
<b>Appendix 6</b>	Procurement Strategy

### Contact

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