

Appendix 1 Gateway 1 Approval

In September 2020 Resource Allocation Sub Committee and Policy and Resources Committee approved the scoped and costed Climate Action Strategy for the City Corporation which was subsequently approved by the Court of Common Council on 8th October 2020. See Committee Report below. A capital bid was submitted in August 2020 by the relevant Chief Officer – this was then adopted at RASC in Sept – this constitutes the Gateway 1 approval.



Climate Action
Report for Policy and



App2 Actions by
Committee FOR SUB

Appendix 2 of this Committee report provides a breakdown of the actions proposed to implement the Climate Action Strategy. Appendix 2b provides a detailed profile of each action area for climate resilience and Action Area 2 *Resilient Streets and Greening* includes most of the actions that will be covered through the Cool Streets and Greening programme. In addition, one action from Action Area 4 *Resilience Co-ordination and Training* has been included in the Cool Streets and Greening programme. (see below for relevant action plans)

Action Area 2: Resilient Streets and Greening

Committee: Planning & Transportation Committee

<p>CLIMATE RESILIENCE 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>STRATEGY GOALS: B) The City of London Corporation and its assets are resilient to climate change E) The Square Mile’s buildings, public spaces and infrastructure are resilient to climate change F) People in the Square Mile and beyond benefit from a clean, green and safe environment and job creation</p>			
<p>High level actions Action 2.1 Flood modelling, which include SUDs and other mitigation strategies, to complement EA flood models Action 2.2 Conduct pilot to test heat resistant materials in planned works for streets and highways during 2021-2025 Action 2.3 Develop City Corporation and Square Mile water footprint management strategy Action 2.4 Develop natural flood risk management areas Action 2.5 Sustainable rain and surface water management policies and implementation Action 2.6 Work with partners to accelerate actions to address water leak management Action 2.7 Increase the quality and provision of green space and coverage in the Square Mile and wider City Corporation spaces Action 2.8 Introduce climate-resistant and adaptive landscaping in planned works Action 2.9 Undertake funding sources review</p>	<p>Gross cost £M / yr.</p> <p>£2.0m</p>	<p>Impact on employment (estimate of total new jobs created in the green economy /yr.)</p> <p>8</p>	<p>What it pays for</p> <ul style="list-style-type: none"> • An investigation into new water infrastructure such as strategic SUDs, roof top greening, catchment greening and afforestation, and more as relevant • A register and upgrade plan for roads that are vulnerable to acute heat which mainstreams heat-resistant road surfacing • A connected system of water recycling, urban drainage and rainwater management measures • Increased greenery in the Square Mile public realm • Climate change adaptable landscapes and planting • A strong partnership with Thames Water to reduce water wastage from leakage
<p>Resilience Risks</p> <ul style="list-style-type: none"> • Flooding • Overheating • Water stress • Natural capital <p>Impact on resilience risks</p> <ul style="list-style-type: none"> • Additional guidance on climate resilience forming part of Planning Policy will reduce all resilience risks • Minimising temperature increases through the public realm, creating cool spots • Interventions such as shading, urban greening, heat-resistant road surfacing, natural flood risk management areas, flood defence asset maintenance and careful material selection will reduce all resilience risks 	<p>Measurement Total no. climate risks managed</p>	<p>Key Benefits</p> <ul style="list-style-type: none"> • Positive reputation amongst suppliers and construction industry • Indirect effect on green jobs and economic multipliers for green tech ecosystem • Increased visibility and standards across projects • Future proof public realm for climate impacts 	<p>Strategic Links Corporate Plan Outcomes – 5,7, Local Plan 2015, The draft City Plan 2036, Transport Strategy 2018-43, Responsible Business Strategy 2018-23, Local Flood Risk Management Strategy 2014-2020</p>

Action Area 4: Resilience Co-ordination and Training

Committee: Primarily Porth Health & Environmental Services Committee and Planning & Transportation Committee

<p>CLIMATE RESILIENCE VISION: A future where the City's communities benefit from a fair and equitable transition to a climate resilient City with open access to data, knowledge and skills resulting in collaborative climate responses.</p>			
<p>STRATEGY GOALS: B) The City of London Corporation and its assets are resilient to climate change E) The Square Mile's buildings, public spaces and infrastructure are resilient to climate change F) People in the Square Mile and beyond benefit from a clean, green and safe environment and job creation</p>			
<p>High level actions</p> <p>Action 4.1 Develop financial package and programme to manage resilience in longer term Action 4.2 Expand use and availability of non-sensitive data to monitor effectiveness of interventions Action 4.3 Embed principles of inclusion and equity throughout all resilience strategies Action 4.4 Design and deliver cross-Corporation training programme to strengthen skills and capabilities on resilience Action 4.5 Mainstream climate resilience into City Corporation governance and decision-making Action 4.6 Review of above and below ground space utilisation in the Square Mile Action 4.7 Strengthen resilience requirements for planning Action 4.8 Undertake external funding sources review</p>	<p>Gross cost £M / yr.</p> <p>£0.3m</p>	<p>Impact on employment (estimate of total new jobs created in the green economy /yr.)</p> <p>4</p>	<p>What it pays for</p> <ul style="list-style-type: none"> • A considered plan on funding options for climate resilience work, blending internal and external funding sources • A stronger, data-led approach to understanding climate related risks and mitigations across the Square Mile • A method to ensure that the needs of the most vulnerable to climate change are prioritised in decision making • A workforce with the knowledge and skills required to manage climate resilience across the Square Mile, backed up by a climate resilience lens across all decision making • A review of the supplementary planning guidance and approach for new developments to strengthen climate resilience measures
<p>Resilience Risks</p> <ul style="list-style-type: none"> • Flooding • Overheating • Water stress • Cross-cutting themes <p>Impact on resilience risks</p> <ul style="list-style-type: none"> • Embedding inclusion and equity in strategies and projects will ensure that the needs of the most vulnerable are prioritised • Skills gap analysis, skills sharing, and training will future proof the organisation 	<p>Measurement</p> <p>Total no. climate risks managed</p>	<p>Key Benefits</p> <ul style="list-style-type: none"> • External investment in Corporation assets • Increased visibility and standards across projects • Increased performance from capital spend • Future proof key asset base for the Corporation • Decreased costs due to integration of resilience actions 	<p>Strategic Links</p> <p>Corporate Plan Outcomes – 5,7</p>

Appendix 2 Risk Register – Costed Risk Provision (CRP)

See attached spreadsheet

Risk Register - Cool Streets & Greening Gateway 2 - Last Modified: 4m ago

Laban, Janet

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City of London: Projects Procedure Corporate Risks Register

Project Name: Cool Streets & Greening

Unique project identifier: PV12345

PM's overall risk rating: Low

Total estimated cost (exc risk): £ 320,000

CRP requested this gateway: £ -

Total CRP used to date: £ -

Average unmitigated risk: 1.8

Average mitigated risk: 1.0

Open Risks: 5

Closed Risks: 0

General risk classification											Mitigation actions					Ownership & Action							
Risk ID	Gateway	Category	Description of the Risk	Risk Impact Description	Likelihood Classification pre-mitigation	Impact Classification pre-mitigation	Risk score	Costed impact pre-mitigation (£)	Costed Risk Provision requested Y/N	Confidence in the estimation	Mitigating actions	Mitigation cost (£)	Likelihood Classification post-mitigation	Impact Classification post-mitigation	Costed impact post-mitigation (£)	Post-Mitigation risk score	CRP used to date	Use of CRP	Date raised	Named Departmental Risk Manager/Coordinator	Risk owner (Named Officer or External Party)	Date Closed CRP Realised & moved	Comment(s)
R1	2	(2) Financial	Funding not available	Project will not progress	Rare	Minor	1	£0.00	N	A - Very Confident	Climate Action Strategy funding identified	£0.00	Rare	Minor	£0.00	1	£0.00	0					
R2	2	(1) Compliance/Regulatory	Delays due to governance & sign off procedures	Project will be delayed	Possible	Minor	3	£0.00	N	A - Very Confident	Steering Group governance structure	£0.00	Rare	Minor	£0.00	1	£0.00	0					
R3	2	(4) Contractual/Partnership	Contract or partnership problems	Project will be delayed	Rare	Minor	1	£0.00	N	A - Very Confident	Procurement and controllers will oversee contracts and partnership arrangements	£0.00	Rare	Minor	£0.00	1	£0.00	0					
R4	2	(4) Contractual/Partnership	Skills shortage	Project quality compromised	Unlikely	Minor	2	£0.00	N	A - Very Confident	Skills available for this phase	£0.00	Rare	Minor	£0.00	1	£0.00	0					
R5	2	(3) Environmental	Minimal opportunities for resilience measures due to environmental constraints	Future phases of the project will need to be revisited	Unlikely	Minor	2	£0.00	N	A - Very Confident	Carry out this phase as preparation avoiding costly design for individual sites	£0.00	Rare	Minor	£0.00	1	£0.00	0					
R6								£0.00				£0.00			£0.00		£0.00						
R7								£0.00				£0.00			£0.00		£0.00						
R8								£0.00				£0.00			£0.00		£0.00						
R9								£0.00				£0.00			£0.00		£0.00						
R10								£0.00				£0.00			£0.00		£0.00						
R11								£0.00				£0.00			£0.00		£0.00						
R12								£0.00				£0.00			£0.00		£0.00						
R13								£0.00				£0.00			£0.00		£0.00						
R14								£0.00				£0.00			£0.00		£0.00						
R15								£0.00				£0.00			£0.00		£0.00						
R16								£0.00				£0.00			£0.00		£0.00						
R17								£0.00				£0.00			£0.00		£0.00						
R18								£0.00				£0.00			£0.00		£0.00						
R19								£0.00				£0.00			£0.00		£0.00						
R20								£0.00				£0.00			£0.00		£0.00						
R21								£0.00				£0.00			£0.00		£0.00						
R22								£0.00				£0.00			£0.00		£0.00						
R23								£0.00				£0.00			£0.00		£0.00						
R24								£0.00				£0.00			£0.00		£0.00						
R25								£0.00				£0.00			£0.00		£0.00						
R26								£0.00				£0.00			£0.00		£0.00						
R27								£0.00				£0.00			£0.00		£0.00						
R28								£0.00				£0.00			£0.00		£0.00						
R29								£0.00				£0.00			£0.00		£0.00						
R30								£0.00				£0.00			£0.00		£0.00						
R31								£0.00				£0.00			£0.00		£0.00						
R32								£0.00				£0.00			£0.00		£0.00						
R33								£0.00				£0.00			£0.00		£0.00						
R34								£0.00				£0.00			£0.00		£0.00						
R35								£0.00				£0.00			£0.00		£0.00						
R36								£0.00				£0.00			£0.00		£0.00						
R37								£0.00				£0.00			£0.00		£0.00						
R38								£0.00				£0.00			£0.00		£0.00						

Risk Register Issues Assumptions Dependencies

66%

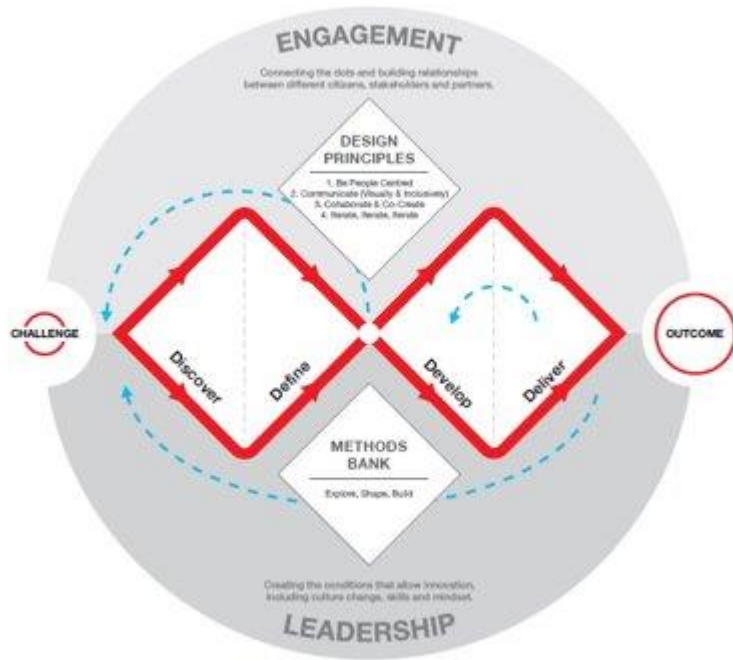
Appendix 3: Team Structure & Support

Proposed Environmental Resilience Team

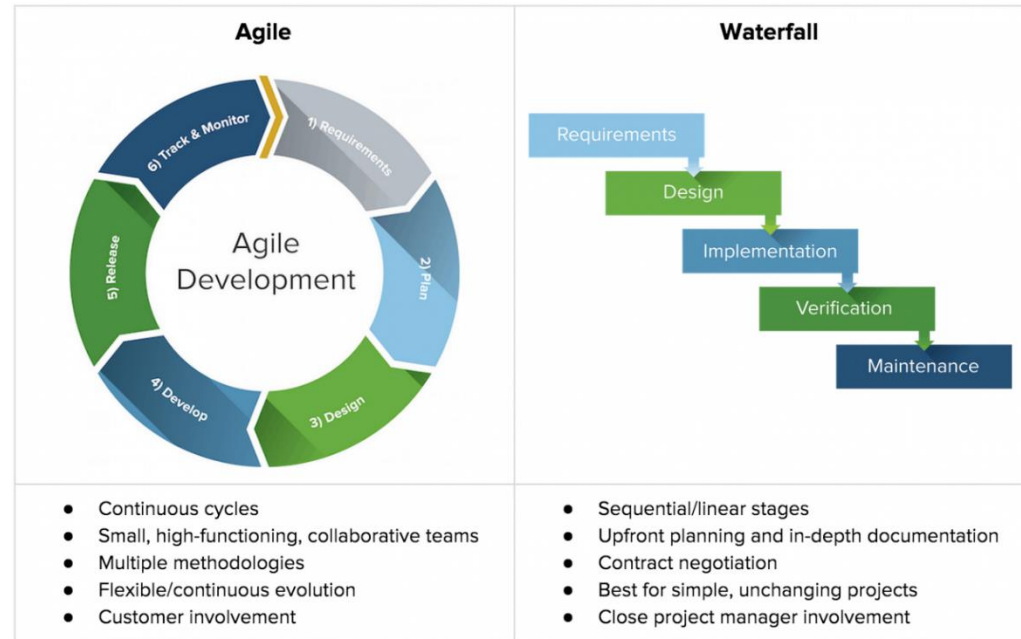
Post	Grade	Skills																		
		Climate Change	Sustainability	Climate resilience	Data management	GIS	SuDS	Flooding	Water resources	Overheating	Natural capital	Greening	Pests & Diseases	Food and trade	Communications	Agile working	Funding bids	Budgeting & Finance		
The resilience team should remain as a small team with secondment or temporary recruitment to fill posts. Part time secondments will help to spread the skills across the organisation and give interested individuals the opportunity to develop their expertise																				
Programme Lead – Climate Resilience	1 FTE Grade F	x	x	x											x	x	x	x		
Data Lead – Climate resilience	1 FTE or 2 x0.5 FTE Grade E	x	x	x	x	x									x	x	x	x		
Topic Lead Flooding / SuDS/ water resources	0.5 FTE Grade D/E			x			x	x	x						x	x			x	
Topic Lead Overheating / natural capital / greening	0.5 FTE Grade D/E			x						x	x	x			x	x			x	
Topic Lead Pest & disease / Food & Trade	0.5 FTE Grade D/E			x									x	x	x	x			x	
Apprentice – Climate Resilience	1 FTE Apprentice		x		x										x	x			x	
Total		1 FTE Grade F			1 FTE Grade E			1.5 FTE Grade D/E				1 FTE Apprentice								

Contact: janet.laban@cityoflondon.gov.uk

Design thinking



Agile Project Management



Lead officer: Janet Laban
 Line manager: Gordon Roy
 Authority: Carolyn Dwyer


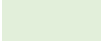
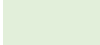
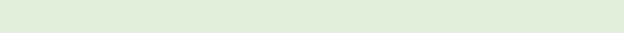




CLIMATE ACTION STRATEGY
 PROJECT PLAN
RESILIENT STREETS AND GREENING

Project ID: CAS-00X
 Date: 30/10/2020
 Version: 1.1

Recipients: Damian Nussbaum, Simi Shah, Stuart Wright

Phases	Responsible	Completion	Year 0	Year 1	Year 2	Year 3	Year 4
			FY20/21	FY21/22	FY22/23	FY23/24	FY24/25
			Oct-Mar	Apr-Sep	Oct-Mar	Apr-Sep	Oct-Mar
2.1 Flood modelling, which include SUDs and other mitigation strategies, to complement EA flood models	JL	0%					
Task 1: Review scope of Strategic Flood Risk Assessment 2017	JL	0%					
Task 2 Strategic Flood Risk Assessment Review	JL/ consultants	0%					
Task 3: Integrate findings into other plans and strategies	KS/ JL	0%					
2.2 Conduct pilot to test heat resistant materials in planned works for streets and highways during 2021-2025		0%					
Task 1: Design programme with Highways, Public Realm & Open Spaces	JL SG HS	0%					
Task 2: Baseline monitoring	SG HS	0%					
Task 3: Engage with partners Utilities highways contractor etc	SG HS	0%					
Task 4 Materials testing	SG HS	0%					
Task 5 Review and conclusions	JL SG HS	0%					
2.3 Develop City Corporation and Square Mile water footprint management strategy		0%					
Task 1: Design Programme	JL HS	0%					
Task 2: Baseline monitoring	JL HS	0%					
Task 3 Engage with Thames Water	JL HS	0%					
Task 4: Implement water reduction measures	JL HS	0%					
Task54: Review and conclusions	JL HS	0%					
2.4 Develop natural flood risk management areas		0%					

Task 1: Identify sites in Public Realm and Open Spaces	JL TM JT	0%	i
Task 2 Baseline monitoring -gulleys and sewers			
Task 3: Implement rain gardens/natural flood management measures	JL TM JT	0%	
Task 4: Review impact	JL TM JT	0%	
Task 5 Develop guidance	JL TM JT		
2.5 Sustainable rain and surface water management policies and implementation		0%	
Task 1: Identify sites in Public Realm and Open Spaces	JL SG TM	0%	
Task 2 Baseline monitoring -gulleys and sewers	JL SG TM		
Task 3: Implement SuDS	JL SG TM	0%	
Task 4: Review impact	JL SG TM	0%	
Task 5 Develop guidance	JL SG TM		
2.6 Work with partners to accelerate actions to address water leak management		0%	
Task 1: Engage with Thames Water	JL HS	0%	
Task 2: Identify vulnerability to burst water mains in the City	JL HS	0%	
Task 3: Leakage monitoring	JL HS	0%	
Task 4 Leakage management	JL HS		
Task 5 Review impacts	JL HS		
2.7 Increase the quality and provision of green space and coverage in the Square Mile and wider City Corporation spaces		0%	
Task 1: Identify sites in Public Realm and Open Spaces	JL SG JT	0%	i
Task 2: Baseline temperature monitoring	JL SG JT		
Task 3: Implement greening	JL SG JT	0%	
Task 4: Review impact	JL SG JT	0%	
Task 5: Develop guidance	JL SG JT		
2.8 Introduce climate-resistant and adaptive landscaping in planned works		0%	
Task 1: Identify sites in Public Realm and Open Spaces	JL SG JT	0%	i
Task 2 Implement resilient planting	JL SG JT	0%	
Task 3: Review impact	JL SG JT	0%	
Task 4: Develop guidance	JL SG JT		

2.9 Undertake external funding sources review			0%
Task 1: Review funding opportunities/ sources government/ utility companies/ businesses/ charities/ partnerships	JL	0%	
Task 2: Set up regular scanning programme for funding	JL	0%	
Task 3: Streamline application process for resilience funding using templates/ standard wording etc	JL	0%	
Task 4: Target 4 funding applications per year	JL	0%	
2.10 Integrate above actions into relevant engagement plans	PROJECT TO BE DEVELOPED		
4.6 Review of above and below ground space utilisation in the Square Mile			0%
Task 1: Engage with British Geological Survey	JL HS	0%	
Task 2: Map below ground utilisation basements, utilities, archaeology, geology	HS	0%	
Task 3: Use mapping to identify opportunities for SuDS, cool routes, water storage etc	HS JL TM	0%	
Task 4: Develop guidance on use of underground spaces	HS JL	0%	
i - overlaps between these projects			
JL - Janet Laban			
SG - Simon Glynn			

HS - Holly Smith

JT - Jake Tibbetts

Appendix 5 Stakeholder Engagement Plan

Who:	What message?	Channels	When
Internal/External. Priority groups.	Inform, engage or consult. Asks/offers.	Tried and tested. New.	Phase around project plan. Media needs 1-month lead-time.
COLC Members <ul style="list-style-type: none"> • Streets & Walkways • Planning & Transport • Open Spaces • PHES 	Engage Asks: Seek approval for projects Offers: CAS implementation projects	Committees	Ongoing as required
London Borough of Camden	Engage Asks: Project partnerships Offers: Collaborative resilience projects	Collaboration through Officers	Quarterly partnership meetings
Potential Funders External <ul style="list-style-type: none"> • Defra • TRFCC • Environment Agency • BIDs 	Engage Asks: Seek funding Offers: Projects which meet funding priorities	Regular partnership meetings Funding opportunities	Ongoing – quarterly partnership meetings
Businesses & SMEs	Consult Asks: Seek comments Offers: Inform of plans	Consultation surveys Website Social media	Q1-2 2021/22
Public realm users City Residents Disability groups City of London Access Group	Consult Asks: Seek feedback on plans Offers: Inform of plans	Consultation surveys Website Social media	Q1-2 2021/22
COLC Officers <ul style="list-style-type: none"> • Highways • Open Spaces • Public Realm • Housing • Cleansing 	Engage Asks: Project management for implementation of resilience measures Offers: Part funding	Climate Chats Interviews 1:1 meetings	Q1-2 2021/22
Green Finance Institute Contractors Academic partner Thames Water UKPN BT Openreach Transport for London British Geological Survey	Engage Asks: Technical / expert input into Climate Resilience plans Offers: Involvement with Local Authority Leader in Climate Resilience	Interviews 1:1 meetings	Q2-3 2021/22
CoLC Comptrollers & City Solicitors Emergency services	Consult Asks Seek feedback on plans Offers: Inform of plans	Consultation	Q2-3 2021/22
Environment Agency	Engage Asks: Expert input into plans Offers: Involvement with Local Authority Leader in Climate Resilience	Partnership meetings 1:1 meetings	Ongoing
London Climate Change Partnership London Councils Green & Resilient Group London Drainage Engineers Network London Environmental Coordinators Forum	Inform Asks: Comment on plans Offer: Knowledge sharing	Presentations at regular meetings	Ongoing Quarterly meetings

Appendix 6 Cool Streets & Greening Procurement Plan

Package	Contract type	Requirements	Contract value	Timescale	Selection process	Responsible procurement
Framework development	Consultant	Develop a framework for the 4 year Cool Streets & Greening Programme to ensure delivery of: Outputs: a minimum of 17 climate resilient test sites Outcomes: monitoring and evaluation of direct impacts, co benefits and value for money. Benefits: A climate resilient Square Mile and roadmap for future resilience	40-70K	Q1 2021/22	Request for quote (RFQ) process via the Procurement Operations team	Include responsible business in tender evaluation
Resilience Measures Catalogue	Consultant	Develop a technical catalogue of resilience measures, methodology for recording effectiveness of resilience measures and recommendations for inclusion in City Corporation design guides	Phase 1 10K-20K + Phase 2 30K-40K	Q4 2020-21 Q2 2021/22	Continuation of previous work with Buro Happold + competitive tender for phase 2	Review sustainability credentials of current provider
Smart sensors for flood risk monitoring	Contractor	Provide and install smart sensors to monitor water levels in gullies in high flood risk parts of the City along with control sensors elsewhere in the City. Integration of the data with MET office weather data, the City's gully emptying schedule and SuDS implementation and reporting real time monitoring results through Power BI	40-50K	Q1-2 2021/22	Procurement Authorisation Report (PAR)	Include responsible business in tender evaluation
Smart sensors for heat risk monitoring	Contractor	Provide and install smart sensors to monitor temperature across the Square Mile. Integration of the temperature data with MET office weather data, air quality monitoring and urban greening reporting real time monitoring results through Power BI	40-50K	Q1-2 2021/22	Procurement Authorisation Report (PAR)	
Data collection & analysis	Contractor	Ongoing assistance in smart monitoring, analysis and interpretation of results	20-30K	Q2 2021/22- to Q4 2024/25	Procurement Authorisation Report (PAR)	Include responsible business in tender evaluation

Opportunity mapping	Specialist consultant	Development of comprehensive below ground mapping for the Square Mile. Integrated 3D spatial assessment, drawing on existing, but disparate, data and models (e.g. 3D geology, soil properties, land use, basements, buried utilities, archaeology) to i) map underground structures and linkages to surface features, ii) model surface-subsurface environmental conditions, iii) model potential interactions between groundwater systems and underground structures and surface water features. The below ground assessment will be used to identify suitable locations for integrated water management options including natural flood management e.g. SuDS and options for dual-use of underground assets for flood alleviation.	Phase 1 75K Phase 2 75K – 125K	Q1 to Q4 2021-/22 Q1 2022/23 to Q3 2023/24	Formal Invitation to Tender (ITT)	Include responsible business in tender evaluation
Site identification & prioritisation	In House or specialist consultant	Using evidence from below ground mapping, City Corporation GIS, vulnerability data and development potential, develop a comprehensive map of suitable sites for implementation of resilience measures, with priorities and timing estimates	80-100K	Q2 2021/22- Q3 2024/25	Request for Quote (RFQ) process via the Procurement Operations team	Include responsible business in tender evaluation
Design and model resilience measures for 4 - 7 pilot sites	In house with advice from specialist consultant	Develop comprehensive designs for resilience measures for 4 - 7 no pilot sites	40K-60K	Q 1-2 2021 /22	Request for Quote (RFQ) process via the Procurement Operations team	Include responsible business in tender evaluation
Installation of resilience measures for 4-7 pilot sites	Highways term contractor	Install resilience measures on 2 -4 pilot sites	0.9M-1.08M	Q2-4 2021/22	Highways term contractor	Include responsible business in tender evaluation
		TOTAL 2021-22	£1.35-£1.7M			
Design, install and monitor resilience measures in suitable sites in the Square Mile	In house design and monitoring with consultancy support plus Highways	Implement a programme of design, installation and evaluation of resilience measures with ongoing maintenance on sites across the Square Mile	1.7M pa	Q1-4 2022/23 Q1-4 2023/24 Q1-4 2024/25	Competitive tender/ Framework contract	Include responsible business in specification and tender evaluation

	term contractor for installation					
Scientific verification of programme findings	Academic partner	Sponsor PhD Researcher to develop robust evidence of Resilience measure effectiveness	35K per annum (total 140K)	Q3 2021/22 to Q2 2024/25	Request for Quote (RFQ) process via the Procurement Operations team	Use academic institution with exemplar responsible business reputation
		TOTAL 2022-24	£5.24M			
		Cool Streets & Greening	£6.59M			
		TOTAL 2021-24	- 6.94M			