

City of London Corporation

Climate Change Adaptation Action Plan

This Adaptation Action Plan relates to the [City of London Corporation's Climate Change Adaptation Strategy update 2010](#). The Town Clerk's Department (Sustainability Unit) will annually review progress against this Action Plan, based on the items identified in the "monitoring and reporting on progress" sections for each action. The first progress review will be carried out between January and March 2011.

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The Business City, Physical Infrastructure and Property

Risk Area: Flooding

Adaptation Action	F1. Assign responsibility for coordination and liaison on flood risk management.		
Lead department (and individual) responsible	Probably Town Clerk's (Contingency Planning Team), from April 2010/11	Other departments / partners involved	DES [redacted] Planning [redacted] [redacted] Drain London Partners, Town Clerk (Contingency Planners)
Actions completed to date	Interim lead agreed on 23 October: Planning [redacted]		
Actions to be taken next	<p>F1.1 To ensure practical implementation of flood risk management.</p> <p>F1.2 Ongoing reporting against NI 189.</p> <p>F1.3 Continue to liaise with Environment Agency and Thames Water matters related to flood risk</p>		
Barriers to action	Contingency Planning team was under-staffed in December 2009; this has been overcome by establishing Planning in the interim as lead.		
Possible adverse impacts of the action & how these will be managed	Communication and cooperation between departments and external agencies must function well. The action plan on NI 189 has been agreed as a basis for communication.		
Action start date		Action due date	<p>F1.1 Action Plan to be agreed with Environment Agency by December 2009</p> <p>F1.2 Reporting on NI 189 by end of financial year 2009/10</p>
Monitoring and reporting on progress	<p>F1.1 [redacted] to collect data and report under NI 189 for 2009/10</p> <p>F1.2 Contingency Planning Team to collect data and report under NI 189 for 2010/11.</p>		

Adaptation Action	F2. Identify, map and manage risk in flash flood hotspots.		
Lead department (and individual) responsible	Planning [redacted] has taken the lead to date DES [redacted] Town Clerk's (Contingency Planning: F2.3)	Other departments / partners involved	City Surveyors, possibly Thames Water
Actions completed to date	<p>F2.1 The Strategic Flood Risk Assessment (SFRA), published in 2007 by Planning [redacted] [redacted], has identified risks of flooding from a range of sources and produced flood risk maps identifying areas where flooding is an important consideration in development planning, business planning and emergency planning. This assessment has been done based on historic data of past flood events, data available at postcode scale, and topography (but only to some extent). A more detailed (finer scale) map of surface water flood risk, which differentiates risk within postcodes. is due to be prepared as part of the Drain London project. This will feed into the review of the SFRA and Surface Water Management Plan.</p>		

	F2.2	According to this information, the areas of the City which are most at risk from surface flooding include the EC1 postal district in the north of the City, the former river Fleet valley, and the riverside area south of Upper Thames Street. In extreme circumstances overflowing sewers may discharge straight into the river Thames at Blackfriars. According to the SFRA, the risk of flooding from secondary sources was in general found to be low, although the information required to make detailed assessments of the secondary sources was generally unavailable. This is being addressed by the current development of a methodology for surface water assessment and management by [REDACTED] (DES), who is leading on this through the Drain London project.		
Actions to be taken next	F2.3	As outlined under Action F1 above, Town Clerk's needs to decide which departments will be responsible for managing different elements of the flood risk issue and to ensure appropriate resources are in place. Once this has been decided, will need to confirm which department will lead on this action.		
	F2.4	DES [REDACTED] is investigating representation on the GLA's Drain London project forum, which aims to address flash flood risk by mapping flash flood hotspots and developing surface water management [REDACTED] will report back to Town Clerk's (Contingency Planning) and Planning [REDACTED] on this action.		
	F2.5	Planning (Policy Section) is committing to update the Strategic Flood Risk Assessment, with a view to starting work on the update in 2011.		
Barriers to action				
Possible adverse impacts of the action				
Action start date	F2.3 & F2.4	November 2009	Action due date	F2.3 & F2.4 By end of financial year 2009/10
	F2.5	2011		F2.5 TBC
Monitoring and reporting on progress	The mechanism for reporting flood risk management actions is through NI 189 (national indicator on flood risk management and coastal erosion) that CoL has committed to reporting on. The Planning department has now agreed actions needed to cover this NI with the Environment Agency for 2009-10 and 2010-11.			

Adaptation action	F4. Through the LDF, encourage sustainable drainage systems (SuDS) such as green roofs in flash flood 'hotspots', as part of new developments, redevelopments and major refurbishments. S106 planning agreements should be used to secure long-term commitment to the management and maintenance of SuDs. SuDs should also be promoted and encouraged through awards and in Street Scene.		
Lead department (and individual) responsible	Planning (Policy team, F4.2, F4.3), Planning [REDACTED], Street Scene: F4.5), DES [REDACTED]: F4.5); Town Clerk's (F4.3, F4.4)	Other departments / partners involved	City Surveyor's (investment property team), Economic Development Office (CPAT)
Actions completed to date	F4.1	The draft LDF Core Strategy includes policies on Flood Risk and Sustainable Design and Climate Change, which promote the use of SuDS such as green roofs etc in developments and street enhancements. This document will be subject to external consultation and examination in public prior to expected adoption in 2011.	
Actions to be taken next	F4.2	Planning (policy team) to develop case studies and publish a list of the buildings in the City that have green roofs or other forms of SuDS. Stuart O'Callaghan's team are	

	<p>developing a green roof monitoring framework that will monitor presence of a green roof (with no assessment of biodiversity, flood risk or air quality value). <i>This is different from the existing list of buildings that have a planning condition requiring green roofs.</i></p> <p>F4.3 Planning (policy team) to encourage green roofs through policy, information and other elements of the planning process. Consider implementing an award scheme at a later date.</p> <p>F4.4 Town Clerk's (Sustainability Unit) to run a workshop for CPAT and Investment property stakeholders on Green Leases as a process for covering a range of climate change adaptation issues, like SuDS.</p> <p>F4.5 Planning (Street Scene team, [REDACTED]) and DES ([REDACTED]) to introduce sustainable drainage systems into scheme evaluations.</p>			
Barriers to action	Developers are sometimes reluctant to install green roofs because they prefer hard surfaces so they can use them as open air terraces. Also, green roofs face competition for roof space on buildings from other climate-related measures, namely photovoltaics (PV), solar panels and rainwater harvesting.			
Possible adverse impacts of the action				
Action start date	F4.2	April 2010	Action due date	F4.2 Ongoing
	F4.3	N/A		F4.3 Ongoing through pre application discussions
	F4.4	April 2010		F4.4 June 2010
	F4.5	December 2010		F4.5 Ongoing
Monitoring and reporting on progress	<p>F 4.2 Undecided who should monitor implementation of green roofs. They contribute to open spaces and biodiversity so could be part of Open Spaces' monitoring. This should be discussed with [REDACTED] (Planning). A green roof monitoring network is currently being developed by his team, which can be used for monitoring and reporting.</p> <p>F4.3 Reference to adaptation in policy documents and publications</p> <p>F4.4 Evidence of stakeholder workshop</p> <p>F4.5 Scheme evaluation documentation</p>			

Adaptation action	F5. The LDF should require that drainage systems in all developments have the capacity to cope with heavier rainfall events expected over their lifetimes.		
Lead department (and individual) responsible	Planning ([REDACTED]) DES (District Surveyors: F5.2)	Other departments / partners involved	
Actions completed to date	F5.1 The draft LDF Core Strategy policy on Sustainable Development and Climate Change includes the requirement for buildings and their surroundings to be designed for the climate conditions likely to be encountered during their lifetime. This document will be subject to external consultation and examination in public prior to expected adoption in 2011. This issue should also be addressed through the Surface Water Management Plan discussed above (Adaptation Actions F2 and F3).		
Actions to be taken next	F5.2 District Surveyors to engage with DCLG (Department of Communities and Local Government), encouraging them to amend Part H of Building Regulations to incorporate capacity to cope with heavier rainfall due to climate change into provisions for design of gutters and rainfall pipes. District Surveyors to discuss this with the Adapting to Climate Change (ACC) programme team (Defra) as ACC		

	coordinates and drives forward the development of the Government's work in this area.		
Barriers to action	Revisions to Building Regulations will be key in bringing about change to building design and are controlled by central government. Revisions probably follow a timetable prescribed by DCLG.		
Possible adverse impacts of the action			
Action start date	F5.2 2010/11	Action due date	F5.2 in line with AD'H' review
Monitoring and reporting on progress	F5.2 TBC		

Adaptation action	F6. CoL should consider installing SuDS (permeable paving, green roofs, green walls) on CoL-owned car parks and buildings, when they are refurbished or replaced.		
Lead department (and individual) responsible	Town Clerk's (F6.2)	Other departments / partners involved	Economic Development Office (CPAT), City Surveyors (Investment Properties Division), City Surveyor's (Corporate Properties Division), Planning
Actions completed to date	F6.1	Where feasible, planning permissions are subject to a 'green roof condition'. This would apply to any redevelopment proposals for CoL car parks and buildings.	
Actions to be taken next	F6.2	Town Clerk's (Sustainability Unit) to look into opportunities available through the Carbon Reduction Commitment (CRC) and Green Lease mechanisms to integrate SuDS features on new developments and as part of major refurbishment projects.	
Barriers to action	<p>Refurbishment may not be subject to planning permission so there are limited opportunities to address this action for existing buildings.</p> <p>There is a perception among officers that CoL budgeting uses short payback periods that do not facilitate consideration of long term sustainability issues. It is important to provide more transparent information about the Chamberlain's assessment and consideration of payback periods to staff and Members.</p> <p>A number of investment properties have been bought with a view to enable new development on the site. Their planned lifetime may be shorter than estimated payback periods of SuDS or other sustainability improvements.</p>		
Possible adverse impacts of the action			
Action start date	2011	Action due date	
Monitoring and reporting on progress	Planning does not have the resources to check that conditions in planning permissions have been implemented on a development by development basis. However, it should be possible to ensure that implementation of this action is monitored for CoL-owned property, e.g. through the regular property review.		

Risk Area: Water resources

Adaptation action	W1. Planning, City Surveyors and Barbican Centre to encourage best practice in water efficiency.		
Lead department (and individual) responsible	Planning, City Surveyors (██████████ W1.4, W1.5, W1.6), Town Clerk's (W1.6)	Other departments / partners involved	Barbican Centre
Actions completed to date	<p>W1.1 Planning: The draft LDF core strategy policies on Utilities Infrastructure and Sustainable Development and Climate Change and Flood Risk include the requirement for buildings to incorporate measures to conserve water resources (and reduce impact on the drainage system). This document will be subject to external consultation and examination in public prior to expected adoption in 2011.</p> <p>W1.2 The Barbican Centre is looking at rainwater harvesting and have worked on making water usage as efficient as possible, but more work is needed to tackle the water use and efficiency of existing appliances.</p> <p>W1.3 City Surveyor's (energy team) are tracking water use in CoL and provide an Annual Report (only for the larger and medium operational buildings). This report identifies water use through Corporations' water bill and water meters (where possible).</p>		
Actions to be taken next	<p>W1.4 City Surveyors to aim to achieve BREEAM status excellent (which includes water efficiency) for CoL-owned new developments and major refurbishments.</p> <p>W1.5 City Surveyors to compile a list of the positive actions undertaken within CoL by City Surveyors for water efficiency purposes.</p> <p>W1.6 Town Clerk's and City Surveyor's to run an internal communications campaign aimed at behavioural changes to reduce water usage.</p>		
Barriers to action	<p>LDF only applies to new developments and not to the water efficiency of existing stock in the rest of the City and in open spaces. There is currently no legal requirement that existing building stock should have water meters making it difficult to track all buildings' water use. It is hard to set blanket targets for reducing water consumption - this would have to be assessed individually based on the building in question.</p>		
Possible adverse impacts of the action			
Action start date		Action due date	<p>W1.4 As appropriate</p> <p>W1.5 By end of financial year 2009/10</p> <p>W1.6 End of 2010/11 2010</p>
Monitoring and reporting on progress	<p>W1.4 Accreditation proof</p> <p>W1.5 To be included in NI 188 evidence</p> <p>W1.6 Internal report on outcomes</p>		

Adaptation action	W2. The City of London Corporation LDF should require rainwater harvesting and greywater recycling, where appropriate, in all new developments.		
Lead department (and individual) responsible	Planning (W2.3)	Other departments / partners involved	
Actions completed to date	<p>W2.1 As described under Action W1, the LDF draft core strategy policies on Utilities Infrastructure and Sustainable Development and Climate Change and Flood Risk include the requirement for buildings to incorporate measures to conserve water resources (and reduce impact on the drainage system). This document will be subject to external consultation and examination in public prior to expected adoption in 2011.</p> <p>W2.2 Water efficiency in new dwellings and flats will be controlled under the Building Regulations Requirement G2 which comes into force in April 2010. This requires that water consumption be limited to 125 litres per person per day using the 'Water Efficiency Calculator for New Dwellings' and a notice to that effect must be given to the Building Control Body. The calculator encourages the use of efficient fittings and appliances and 'non-wholesome' water such as harvested rainwater or reclaimed greywater for toilet flushing etc. This new Part G does not make provision for water efficiency in other types of building.</p>		
Actions to be taken next	W2.3 Planning to develop Supplementary Planning Document on Design that would provide more detailed guidance on technologies for water efficiency. This is only to be done in the event that the GLA's forthcoming SPD does not adequately cover issues relevant to CoL, as there is a lot of guidance already available so Planning will only be developing guidance on issues which are City specific. (There are a number of examples of SPGs from other regions that could be drawn upon to help develop this.)		
Barriers to action			
Possible adverse impacts of the action			
Action start date	W2.3 TBC	Action due date	W2.3 The GLA's schedule for publication of Supplementary Planning documents is currently under review. The London Plan has new policies covering climate change and is out for consultation now with a deadline of 12th Jan.
Monitoring and reporting on progress	W2.3 availability of adequate guidance		

Adaptation action	W3. City of London Corporation should investigate feasibility and cost of incorporating rainwater harvesting systems in its operational properties, gardens and large open spaces where appropriate.		
Lead department (and individual) responsible	Planning (W3.3),	Other departments /	Open Spaces (██████████) superintendent of West Ham Parks and City Gardens

	City Surveyor's (W3.2, W3.3), Town Clerk's (W3.4, W3.5)	partners involved	
Actions completed to date	W3.1	Any redevelopment at these sites would be subject to Core Strategy policies on Flood Risk, Sustainable Design & Climate Change and Utilities Infrastructure. However, existing development is the responsibility of the building owner – for City of London owned buildings, this sits with City Surveyors.	
Actions to be taken next	W3.2	City Surveyors to investigate feasibility and costs as outlined under Adaptation Action W3.	
	W3.3	Planning and City Surveyors to draw together case studies of successful rainwater harvesting projects, to highlight what is currently being done. Successful examples include Queens Park (uses a rainwater harvesting system to capture and store water in the winter for irrigation in the summer) and the Freeman's School (uses a Victorian rainwater harvesting system).	
	W3.4	Town Clerk's to promote case studies of successful rainwater harvesting projects, as per W3.3.	
	W3.5	Town Clerk's to meet with TfL to confirm that they have thoroughly investigated possibilities around rainwater harvesting systems for installation on roofs of mainline, DLR and tube stations. It is known that TfL have developed their own targets and plans for climate change-related actions.	
Barriers to action	Financial constraints – rainwater harvesting can be a very expensive undertaking. There is no money available for most rainwater harvesting and greywater use schemes, and in order to successfully implement them, they must be built into long term building maintenance plans. In some developments, there may be no available space to store the water harvested. Tenants may have to finance some of the measures for installing rainwater harvesting systems, as in Spitalfields Market, which may discourage them from supporting such actions.		
Possible adverse impacts of the action	Rainwater harvesting is not always the most sensible solution. Possible adverse impacts may occur if rainwater harvesting systems are recommended indiscriminately, without weighing up how well it compares to other systems such as green roofs and water efficiency measures.		
Action start date	W3.2 W3.3 W3.4 W3.5	2011/12 TBC 2011/12 N/A	Action due date W3.2 2011/12 (expensive action to undertake) W3.3 By end of 2010/11 W3.4 Ongoing W3.5 By May 2010
Monitoring and reporting on progress	W3.2 W3.3 W3.4 W3.5	Availability of report Availability of case studies Availability of case studies Meeting notes	

Risk Area: Heatwaves and Air Pollution

Adaptation action	H1. As part of sustainable design, new buildings should be designed to provide a comfortable internal environment in the face of climate change, with the least use of energy over their lifetimes, and cooling systems should maximise the use of natural ventilation and low-carbon cooling techniques. For existing buildings, identify those most at risk of overheating and make plans to manage this.		
Lead department (and individual) responsible	Planning, City Surveyors (Energy team: H1.4, H1.5)	Other departments / partners involved	
Actions completed to date	<p>H1.1 The draft core strategy policy on Sustainable Development and Climate Change requires the highest viable standards of sustainability to be integrated into the design of each proposed development. This document will be subject to external consultation and examination in public prior to expected adoption in 2011.</p> <p>H1.2 The City Surveyor's (energy team) is in the process of implementing a 'set rule temperature policy' in the Guildhall complex, where a maximum temperature is set for air conditioned spaces and a maximum temperature is set for inside heating. The maximum legal heating limit is 19°C in offices.</p> <p>H1.3 Commercial buildings currently apply a system of 'consequential improvements', which comes from Regulation 17D of the Building Regulations¹, whereby the owner of the building must spend 10% of the cost of the principal works should be used to carry out improvements to thermal elements such as upgrading heating controls, replacing windows or installing energy efficient lighting, which give a payback time of 15 years. This system does not currently apply to dwellings, but Part L of the Building Regulations has been subject to a review this year and consequential improvements may cover dwellings when the new document comes into force in 2010.</p>		
Actions to be taken next	<p>H1.4 City Surveyors to carry out an in-house questionnaire to identify which existing building are most at risk of overheating. All properties should have already undertaken a 'risk' assessment to determine if any part of their building is susceptible to overheating and indeed flooding or subsidence, or any other aspect of climate change.</p> <p>H1.5 City Surveyors to carry out a risk assessment to identify which kinds of properties (both operational and investment properties) are most at risk of overheating</p>		
Barriers to action	<p>There are many old, lightweight buildings that have been designed according to older legislation that will start to overheat as the climate warms, and for which the only solution is likely to be air conditioning. This solution will require more energy use and will ultimately impact carbon reduction commitment (CRC) targets.</p> <p>There is a legal requirement for the minimum temperature in an office building, but a maximum temperature has not been defined by law yet.</p>		
Possible adverse impacts of the action			

¹ This is triggered when a building this size either has an extension, has an initial provision of any fixed building services, or has an increase to the installed capacity of any fixed building services installation.

Action start date	H1.4 H1.5	TBC 2012/13	Action due date	H1.4 H1.5	By end of 2010/2011 TBC
Monitoring and reporting on progress	H1.4 H1.5	Questionnaire outcomes available Assessment outcomes report			

Adaptation action	H2. The City of London Corporation should liaise with electricity providers to the City to ensure security of supply for City buildings and infrastructure, taking account of climate impacts on seasonal demands.				
Lead department (and individual) responsible	Economic Development Office (CPAT: H2.4)		Other departments / partners involved		
Actions completed to date	H2.1	CPAT has been in ongoing contact with occupiers, developers and EDF Energy to ensure appropriate capacity and resilience is built into the power networks. CPAT has informed EDF of future growth scenarios and advised where development activity will occur. CPAT provided a co-ordinated response from City businesses and the property industry to the Distribution Price Control Review document that EDF issued in 2008, as this review forms the basis for the tariff review by the industry regulator, Ofgem. Ofgem will be delivering their verdict on EDF's DPCR5 process on December 6th 2009, which will determine the amount of money that can be invested in the City's electricity supply network from 2010-2015			
	H2.2	CPAT is looking at the resilience of substations and the need for new substations.			
	H2.3	CPAT continue to meet with EDF on a regular basis to review issues with distribution of electricity supply and customer connections and to understand more about capital works and network improvement programmes. CPAT will also co-host regular stakeholder seminars with EDF which will be attended by developers and occupiers throughout the Square Mile.			
Actions to be taken next	H2.4	Future CHP (combined heat and power) energy centres could provide a low carbon form of cooling that would lessen the load on the electricity network in extreme events such as heatwaves. CPAT has commissioned a feasibility study looking into delivery of a comprehensive Decentralised Energy network across the Square Mile. CPAT to communicate the recommendations of the report to other departments once it is completed and assess if, how and on what timescale CHP energy centres could contribute to energy security in times of extreme events and seasonal demands.			
Barriers to action					
Possible adverse impacts of the action					
Action start date			Action due date	H2.4. The feasibility study commissioned by CPAT will be completed in Spring 2010	
Monitoring and reporting on progress	H2.4 Availability of research findings				

Risk Area: Subsidence and Heave

Adaptation action	S1. Keep a watching brief on the incidence of subsidence in CoL-owned property outside the City, to ascertain whether the problem increases as the climate changes. (The Square Mile itself is not affected by subsidence). When underpinning existing buildings already affected by subsidence, building owners should ensure the underpinning is sufficient to cope with climate change.		
Lead department (and individual) responsible	DCCS (Housing Services Division, ██████ S1.1)	Other departments / partners involved	City Surveyor's
Actions completed to date	The only properties which are experiencing subsidence are the City of London Almshouses. The insurers are starting work on these premises w/c 25 January 2010. The work is expected to be completed within 3 months.		
Actions to be taken next	S1.1 Housing Division to determine when to review this action again in the future and to consider whether more action is needed.		
Barriers to action			
Possible adverse impacts of the action			
Action start date	S1.1. January 2010	Action completion date	S1.1. ongoing
Monitoring and reporting on progress	S1.1. meeting minutes		

Risk Area: Cross-cutting issues

Adaptation action	C1. The City of London Corporation should thoroughly address climate adaptation in the Sustainability Appraisal (SA) of the LDF.		
Lead department (and individual) responsible	Planning (C1.1)	Other departments / partners involved	
Actions completed to date	C1.1	The SA of the LDF tests policy options against the objective “to anticipate prepare for and adapt to the impacts of climate change”.	
Actions to be taken next	C1.2	Revisit the SA of the LDF, and submit the final SA report with the Core Strategy,	
Barriers to action			
Possible adverse impacts of the action			
Action start date		Action due date	C1.2 Final SA report to accompany the Core Strategy when it is submitted to the Planning Inspectorate in summer 2010
Monitoring and reporting on progress	C1.2 Content of SA		

Adaptation action	C2. Develop Supplementary Planning Guidance on climate change adaptation for the LDF.		
Lead department (and individual) responsible	Planning (C2.2)	Other departments / partners involved	
Actions completed to date	C2.1	The LDF will be subject to external consultation and examination in public prior to expected adoption in 2011. It includes many policies that address climate change adaptation.	
Actions to be taken next	C2.2	Because the LDF can not get into detail / too many specifics, Supplementary Planning Guidance could be developed, specifically focused on adaptation. This is to be done in the event that the GLA’s guidance does not adequately cover issues relevant to CoL. Various other planning authorities have produced SPGs on adaptation that could be used to develop this. (Details are available from UKCIP).	
Barriers to action			
Possible adverse impacts of the action			
Action start date	C2.2 TBC – after GLA has published its guidance	Action due date	C2.2. TBC
Monitoring and reporting on progress	C2.2. Availability of appropriate guidance		

Adaptation action	C3. The City of London Corporation should review design standards and codes of practice for assets, infrastructure and services, to identify those that include climatic factors. Based on the outcome of the review, the City of London Corporation should consider upgrading design standards and codes of practice where required to take account of predicted climate changes.		
Lead department (and individual) responsible	Chief Officers Sustainability Working Group (C3.3) Planning and Transportation [REDACTED], policy, design, conservation, transportation and street scene: C3.4)	Other departments / partners involved	Town Clerk's, City Surveyors, Planning,
Actions completed to date	<p>C3.1 Climate change adaptation will be considered by City Surveyors and Planning in revising design standards and codes of practice.</p> <p>C3.2 A review of materials and best practice for street enhancements is being undertaken in order to improve sustainability standards in the Street Scene Manual.</p>		
Actions to be taken next	<p>C3.3 Chief Officers Sustainability Working Group to identify what other departments have similar manuals that need to be revised in light of climate change data.</p> <p>C3.4 Departmental area-based spatial strategies to include input from all divisions in the Planning and Transportation Department (policy, design, conservation, transportation and street scene), focusing on sustainability requirements of the area.</p>		
Barriers to action			
Possible adverse impacts of the action			
Action start date	C3.3 2010/11 C3.4 December 2010	Action due date	C3.3 TBC C3.4 ongoing
Monitoring and reporting on progress	C3.3 Meeting minutes C3.4 Meeting minutes		

Adaptation action	C4. The City of London Corporation should integrate adaptation considerations into purchasing and tendering.		
Lead department (and individual) responsible	Chamberlain's (C4.1), Town Clerk's (C4.1)	Other departments / partners involved	
Actions completed to date			
Actions to be taken next	C4.1 Town Clerk's to work with Chamberlain's to establish how / which procurement codes and tender documents could incorporate adaptation. The LCCP publication on public procurement and purchasing could be used to facilitate this.		
Barriers to action			
Possible adverse impacts of the action			
Action start date	C4.1 2010/11	Action due date	C4.1 December 2010



Monitoring and reporting on progress	C4.1 Procurement strategy and related guidance documents
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People, Community and Culture

Risk Area: Water resources

Adaptation action	W4. Develop a co-ordinated and sustained awareness-raising campaign aimed at City businesses, property developers and residents regarding water use and water efficiency.		
Lead department (and individual) responsible	City Surveyors (Energy Team, ██████████ W4.3, W4.5), Town Clerk's (Sustainability team: W4.4, W4.6), Open Spaces ██████████ W4.8), Barbican (██████████ W4.7) Economic Development Office (CPAT: W4.9; W4.10)	Other departments / partners involved	
Actions completed to date	<p>W4.1 The City Surveyors / CPAT have produced a folder entitled "Sustainable Management" into which inserts can be incorporated. Inserts have been obtained from Thames Water and the Carbon Trust providing guidance on water and energy efficiency. These folders are disseminated to businesses and property developers at appropriate events and at one to one meetings, or when general support information is given out.</p> <p>W4.2 The Barbican Centre Sustainability Group has proved to be a useful forum and have trained up head chefs to become more water efficient so they can in turn train their catering crews. This has been found to be successful in raising more awareness among staff on water efficiency issues.</p>		
Actions to be taken next	<p>W4.3 City Surveyors to clarify what water saving measures the City Surveyors Management Team use.</p> <p>W4.4 Town Clerk's ██████████ to arrange for a City Environmental Forum meeting to be held on the topic of water efficiency and how to improve it. Use this meeting to determine whether the Barbican Centre Sustainability Group model could be implemented in bigger firms as well.</p> <p>W4.5 City Surveyors to profile the energy use associated with water use through the CoL EnergyTeam (██████████)</p> <p>W4.6 Town Clerk's ██████████ to contact ██████████ at Defra to express interest in a 'Green Plumbers' training scheme (with a focus on facilities management) to see if there is interest in Defra to initiate such a scheme at a national level.</p> <p>W4.7 Barbican Centre (██████████) to model Barbican Centre Sustainability Group practices in CoL kitchens.</p> <p>W4.8 The Open Spaces Department has several water bodies (ponds) where leaking is occurring. It may be very expensive to repair these. Open Spaces (██████████) is currently working with the City Surveyors department to resolve the issue. A plan of action is being developed to address the issue.</p> <p>W4.9 CPAT to update information in the sustainability folder as necessary.</p>		

	W4.10 CPAT to assist future action to raise awareness amongst businesses and property developers, in addition to disseminating the sustainability folder.		
Barriers to action	<p>Water usage and related energy usage is not metered to sufficient detail in some CoL buildings (this is not a legal requirement), so that it is difficult to make an economic case for undertaking the suggested profile “energy use from water”.</p> <p>There is a lack of resources for implementation of water efficiency measures.</p> <p>CoL do not have the same catering staff coming in all the time so one training round for action W4.7 will not be sufficient. Other awareness raising measures, such as posters will need to be considered.</p>		
Possible adverse impacts of the action			
Action start date	W4.3 N/A	Action due date	W4.3 April 2010
	W4.4 N/A		W4.4 By April 2010
	W4.5 TBC		W4.5 April 2010
	W4.6 N/A		W4.6 May 2010
	W4.7 TBC		W4.7 TBC
	W4.8 N/A		W4.8 End of 2010/11
	W4.9 TBC		W4.9 June 2010
	W4.10 April 2010		W4.10 ongoing
Monitoring and reporting on progress	W4.3	List of measures available	
	W4.4	CEF meeting notes	
	W4.5	Availability of figures	
	W4.6	Defra response	
	W4.7	TBC	
	W4.8	Action plan	
	W4.9	Information provided in the folder	
	W4.10	TBC	

Risk Area: Heatwaves

Adaptation action	H3. CoL should identify residents most vulnerable to heat stress (elderly, young, homeless and those with existing health problems) and ensure they are regularly visited during heatwaves. CoL should raise awareness of heat risks.				
Lead department (and individual) responsible	DCCS (H3.3, H3.4, H3.5, H3.6),	Other departments / partners involved	DES		
Actions completed to date	H3.1	DCCS has incorporated arrangements to visit all residents who are identified as vulnerable during heat waves within established systems such as Home Care, as part of the National Heatwave Plan.			
	H3.2	Sir John Cass school has its own plan in place for managing with heatwave conditions and guidance notes have been provided for nurseries			
Actions to be taken next	H3.3	DCCS to identify what the current level of awareness of heat risk is, in nurseries and should train nursery staff in how to behave in heat waves and how to manage health risks for small children. The school to be asked to provide any local advice to children at the school and nursery.			
	H3.4	DCCS to compile a report on the health impacts from heatwaves to residents, visitors and workers, for the Health Scrutiny Sub Committee, identifying what has been done so far to coordinate PCT work on heat wave with CoL actions.			
	H3.5	DCCS to assess risks for pupils at John Cass primary school, such as overheating in classrooms and getting sunburnt on playgrounds, and discuss with staff at the school.			
Barriers to action	Lack of resources for implementation.				
Possible adverse impacts of the action					
Action start date	H3.3	January 2010	Action due date	H3.3	March 2010
	H3.4	January 2010		H3.4	April 2010
	H3.5	January 2010		H3.5	March 2010
Monitoring and reporting on progress	H3.3	Local policies			
	H3.4	Report			
	H3.5	Local policies			

Adaptation action	H4. The City of London Corporation should aim to ensure that water is freely available in the City for people during heatwaves.			
Lead department (and individual) responsible	Planning (██████████) Street Scene: H4.4, H4.5 DES (H4.3)	Other departments / partners involved	DES	

Actions completed to date	H4.1 CoL's Drinking Fountain Initiative involves the repair of historic drinking fountains and installing 50 new fountains in the City. Planning is working with Thames Water and the Drinking Water Association.						
	H4.2 Approval of new drinking fountain to be installed in Carter Lane Gardens.						
Actions to be taken next	H4.3 According to a survey done by Planning, people are wary of using fountains. If the Drinking Fountain Initiative goes through, DES/ Cleansing will need to raise awareness about their safety, hygiene and existence through a campaign addressed to residents, visitors and workers.						
	H4.4 Planning (Street Scene, ██████████) to restore St. Lawrence Fountain in Carter Lane Gardens.						
	H4.5 First new drinking Fountain to be installed by Planning (Street Scene, ██████████) .						
Barriers to action	Resources needed, possibly from partnering with GLA.						
Possible adverse impacts of the action							
Action start date	<table border="1"> <tr> <td>Action due date</td> <td>H4.3 Evaluation of the initiative is due to be reported in January 2010 - further progress will follow the outcomes of these findings</td> </tr> <tr> <td></td> <td>H4.4 December 2010</td> </tr> <tr> <td></td> <td>H4.5 February 2010</td> </tr> </table>	Action due date	H4.3 Evaluation of the initiative is due to be reported in January 2010 - further progress will follow the outcomes of these findings		H4.4 December 2010		H4.5 February 2010
Action due date	H4.3 Evaluation of the initiative is due to be reported in January 2010 - further progress will follow the outcomes of these findings						
	H4.4 December 2010						
	H4.5 February 2010						
Monitoring and reporting on progress	<p>H4.3 Outcome of report</p> <p>H4.4 Fountain functioning and being used</p> <p>H4.5 Fountain functioning and being used</p>						

Adaptation action	H5. CoL should encourage Transport for London and tube companies to do all possible to manage high temperatures on the underground and make the underground environment more comfortable.		
Lead department (and individual) responsible	City Surveyors (H5.2) Planning (Transportation and projects division, ██████████ H5.3, H5.4, H5.5, H5.6, H5.7),	Other departments / partners involved	TfL, London Chamber of Commerce (H5.6)
Actions completed to date	H5.1 CoL have encouraged TfL to install displays outside tube stations, showing underground temperatures.		
Actions to be taken next	H5.2 If Drinking Fountain Initiative goes ahead, Planning (Street Scene, ██████████) to consider placing some fountains near tube stations as part of the design report.		
	H5.3 Planning (Transportation and projects division) to encourage TfL to reduce unnecessary heat generation in tube stations e.g. by turning off LCD monitors alongside tube escalators on hot days.		

	<p>H5.4 Planning to request an update from TfL on the latest situation with developing a ventilation system for the Tube.</p> <p>H5.5 Planning to investigate S106 money or other planning gain tools that can be directed towards refurbishing tube stations in the City, including provision of cooling as part of this.</p> <p>H5.6 [REDACTED] (London Chamber of Commerce) to discuss with colleagues whether it would be useful to write a letter to TfL on the behalf of London Chamber of Commerce (who have regular dialogue with TfL on a variety of different topics) – to voice concerns over public health and business impacts when temperatures on the tube become too hot.</p>																									
Barriers to action																										
Possible adverse impacts of the action																										
Action start date	<table border="1"> <tr> <td>H5.2</td> <td>April 2010</td> <td>Action due date</td> <td>H5.2</td> <td>December 2010</td> </tr> <tr> <td>H5.3</td> <td>TBC</td> <td></td> <td>H5.3</td> <td>TBC</td> </tr> <tr> <td>H5.4</td> <td>TBC</td> <td></td> <td>H5.4</td> <td>TBC</td> </tr> <tr> <td>H5.5</td> <td>TBC</td> <td></td> <td>H5.5</td> <td>TBC</td> </tr> <tr> <td>H5.6</td> <td>TBC</td> <td></td> <td>H5.6</td> <td>TBC</td> </tr> </table>	H5.2	April 2010	Action due date	H5.2	December 2010	H5.3	TBC		H5.3	TBC	H5.4	TBC		H5.4	TBC	H5.5	TBC		H5.5	TBC	H5.6	TBC		H5.6	TBC
H5.2	April 2010	Action due date	H5.2	December 2010																						
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H5.5	TBC		H5.5	TBC																						
H5.6	TBC		H5.6	TBC																						
Monitoring and reporting on progress	<p>H5.2 TBC</p> <p>H5.3 TBC</p> <p>H5.4 TBC</p> <p>H5.5 TBC</p> <p>H5.6 TBC</p>																									

Risk Area: Cross-cutting issues

Adaptation action	C5. The City of London Corporation should review existing measures in place for managing health and safety risks to people when they are outside to see whether they provide sufficient protection against changing climate risks. (For example, educating outside staff on sun safety and ensuring that clothing has a sufficient SPF/ providing shade in school playgrounds.)		
Lead department (and individual) responsible	Town Clerk's (██████████ - Health Manager: C5.3), Town Clerk's (Learning and Development Unit, ██████████: C5.4) DES (██████████: C5.5)	Other departments / partners involved	DCCS (schools), Open Spaces
Actions completed to date	<p>C5.1. The Open Spaces Department has educated its staff in sun-safety. There are sun cream stations in some Open Spaces' mess rooms for staff to use and the department has also issued sun glasses and hats. Notices go up on the notice boards when it is hot, to advise the public about drinking water and protecting themselves.</p> <p>C5.2. DES have a number of outdoor workers (e.g. street cleaners) that have taken the same actions.</p>		
Actions to be taken next	<p>C5.3. Town Clerk's (██████████) to identify what the Health & Safety team are doing with respect to sun health and safety and determine whether it is best practice. If yes, extend this to other workers.</p> <p>C5.4. Contact ██████████ about creating a program similar to the training program in manual handling at the airport for sun health and safety.</p> <p>C5.5. DES to look into upgrading existing CoL code of best practice for construction workers to incorporate risks to outdoor workers from summertime heat stress and UV exposure.</p>		
Barriers to action			
Possible adverse impacts of the action			
Action start date	<p>C5.3. TBC</p> <p>C5.4. TBC</p> <p>C5.5. TBC</p>	Action due date	<p>C5.3. TBC</p> <p>C5.4. TBC</p> <p>C5.5. TBC</p>
Monitoring and reporting on progress	<p>C5.3. TBC</p> <p>C5.4. TBC</p> <p>C5.5. TBC</p>		

Green Spaces and Biodiversity

Risk Area: Water Resources

Adaptation action	W5. Developers should, where feasible, design and install drought-resistant landscaping schemes and ‘low water gardens’ in open spaces that require minimal irrigation. Open Spaces should investigate opportunities to improve water efficiency and ensure that drought-tolerant species are planted in appropriate places.		
Lead department (and individual) responsible	Planning [REDACTED]: W5.6) Planning (W5.7), Economic Development Office (CPAT: W5.8), Open Spaces (W5.9)	Other departments / partners involved	Town Clerk’s (Sustainability Unit: [REDACTED])
Actions completed to date	<p>W5.1 The LDF draft core strategy policy on Open Spaces and Trees includes the requirement that the design and management of open spaces is environmentally sustainable and take account of the effects of climate change. This document will be subject to external consultation and examination in public prior to expected adoption in 2011.</p> <p>W5.2 All new City of London gardens are fitted with water-efficient irrigation systems. For example, in the City the use of container planting is minimised in order to allow natural drainage and to minimise the artificial watering required. However, old systems are not efficient and Open Spaces department is seeking a more sustainable irrigation system.</p> <p>W5.3 Open Spaces are beginning to favour drought-tolerant species already present ‘on site’ so that they have stock to replace less drought tolerant trees if they go into decline as a result of decreasing precipitation. This applies to maiden trees as well as new pollards.</p> <p>W5.4 West Ham Park nursery grows over 250,000 bedding plants in a planting medium that has reduced need for watering by 50%. The nursery also provides its clients with drought-tolerant plants. All hanging baskets on buildings in the Park are automatically irrigated during the coolest parts of the day (early mornings and late evenings). All watering in the Park also takes place during the morning and again where required in the evening. The Park is currently investigating automatic irrigation for its formal gardens. (Open Spaces)</p> <p>W5.5 Open Spaces are currently working on a report on ‘Climate change in Burnham Beeches’, which will provide more information on how to manage existing environments in the face of climate change. The outcomes of this report will influence the next generation of site management plans.</p>		
Actions to be taken next	W5.6 Planning to identify what the latest requirements are on the amount of detail required from developers when they are installing drought-resistant landscapes.		

	<p>W5.7 Planning to ask developers to put together a case study on what they are doing with respect to drought-tolerant landscaping schemes. The CoL Sustainability Team to compile a folder of these case studies that can be promoted to the City Environmental Forum and put on the website to communicate best practice.</p> <p>W5.8 CPAT and City Environmental Forum should be involved in communicating and promoting to developers the Sustainable City awards and their benefits where feasible (in particular Sustainable Building category) where feasible, as an incentive for better monitoring of drought-resistant gardens.</p> <p>W5.9 Open Spaces to communicate the results of the 'Sustainability Audit System' currently underway by Open Spaces to other departments when it is piloted in 2010.</p>																				
Barriers to action	There is no active monitoring system in place at the moment to ensure that developers follow the requirements listed under #1, due to lack of resources in Planning.																				
Possible adverse impacts of the action	Drought resistant species are not always the prettiest, or the most appropriate, so sometimes irrigation will be needed to maintain landscaping in high-value open spaces within the City.																				
Action start date	<table border="1"> <tr> <td>W5.6</td> <td>TBC</td> <td>Action due date</td> <td>W5.6</td> <td>TBC</td> </tr> <tr> <td>W5.7</td> <td>September 2010</td> <td></td> <td>W5.7</td> <td>ongoing</td> </tr> <tr> <td>W5.8</td> <td>September 2010</td> <td></td> <td>W5.8</td> <td>November 2010</td> </tr> <tr> <td>W5.9</td> <td>May 2010</td> <td></td> <td>W5.9</td> <td>March 2011</td> </tr> </table>	W5.6	TBC	Action due date	W5.6	TBC	W5.7	September 2010		W5.7	ongoing	W5.8	September 2010		W5.8	November 2010	W5.9	May 2010		W5.9	March 2011
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W5.7	September 2010		W5.7	ongoing																	
W5.8	September 2010		W5.8	November 2010																	
W5.9	May 2010		W5.9	March 2011																	
Monitoring and reporting on progress	<p>W5.6 TBC</p> <p>W5.7 Availability of case studies</p> <p>W5.8 Dissemination of relevant communication materials</p> <p>W5.9 Report to Chief Officers' Sustainability Working Group</p>																				

Adaptation action	W6. Ensure that water quality is monitored and maintained in water bodies. Use 'bio-bombs' or barley straw when needed to absorb nutrients and prevent algal blooms.		
Lead department (and individual) responsible	Open Spaces (W6.5, W6.6, W6.7)	Other departments / partners involved	
Actions completed to date	<p>W6.1 Sophisticated management and monitoring of water bodies is in place, for example at the Barbican Lakes and on Hampstead Heath, building up expertise in various technical solutions.</p> <p>W6.2 Barley straw has been used as a means of reducing algae growth in several of the water bodies on Epping Forest. Approximately 500 bales of straw have been used over the last two years.</p> <p>W6.3 Barley straw and 'bio-bombs' (bio-remediation treatment packs) are already in use within the CoL open spaces. They are found to be most effective when combined with 'Aqua Blue Dye' which helps filter certain wavelengths of sunlight thus further enhancing its effects.</p> <p>W6.4 At Hampstead Heath, Open Spaces have trialled the use of barley straw on blue-green algae scums on the worst affected ponds, a scheme developed</p>		

	<p>following the advice of researchers at the Centre for Aquatic Plant Management, who suggest that the Heath scheme is the biggest in the country. In 2006 and 2007 the Men's Bathing Pond did not need to be closed due to toxic blue-green algae scums for the first time in 6 years. Hampstead's experience will help to inform other open spaces should they also experience problems with blue-green algae.</p>			
<p>Actions to be taken next</p>	<p>W6.5 Open Spaces to promote Whitestone Pond in Hampstead Heath as an example of good water quality management.</p>		<p>W6.6 Open Spaces to engage with neighbouring local planning authorities to ensure that developments around CoL water bodies in neighbouring communities are being protected in order to make sure they are not affecting water quality for CoL, and <i>vice versa</i>.</p>	
	<p>W6.7 Open Spaces to identify resources and prioritise hydrological studies - to include water quality assessments across the Open Spaces.</p>			
<p>Barriers to action</p>				
<p>Possible adverse impacts of the action</p>				
<p>Action start date</p>	<p>W6.5 TBC W6.6 TBC W6.7 TBC</p>	<p>Action due date</p>	<p>W6.5 TBC W6.6 TBC W6.7 TBC</p>	
<p>Monitoring and reporting on progress</p>	<p>W6.5 TBC W6.6 TBC W6.7 TBC</p>			

Risk Area: Heatwaves

Adaptation action	H6. Open Spaces to work with the Emergency Services to undertake an analysis of the relationship between weather conditions and fire risk in open spaces.				
Lead department (and individual) responsible	Open Spaces (██████████): H6.3, H6.4)	Other departments / partners involved			
Actions completed to date	<p>H6.1 In light of the fact that Stoke Common will be increasingly at risk from fire if the predicted climate changes occur in the Southeast of England, Open Spaces are already working very closely with the Fire Brigade and Police to ensure that they have a workable fire plan that ensures speedy and effective response to minimise harm to the site and its visitors.</p> <p>H6.2 Open Spaces have worked with the Fire Brigade to provide electronic maps of Epping Forest with all access points referenced and all barrier gates marked to ensure efficient response to fires. Forest Keepers have limited fire fighting facilities but have a good liaison with all local Fire Brigade and all relevant risk assessments include heat wave factors.</p>				
Actions to be taken next	(Successful delivery of these actions involves two stages: getting a predictive tool for forest fires and using this tool to change behaviour. Only the first stage is described here.)				
	H6.3	Open Spaces (██████████) to develop and implement a fire risk management plan across the Open Spaces, possibly emulating the system used in the Peak District.			
	H6.4	Open Spaces (██████████) to initiate a student project to compare records of small fires on CoL estates with the UKCP09 5km baseline climatological dataset, to investigate correlations between weather fire outbreaks and to identify 'hotspots'. This can then be developed into a management tool, whereby weather conditions predisposing high risk of fire are identified in advance.			
Barriers to action					
Possible adverse impacts of the action					
Action start date	H6.3	April 2010	Action due date	H6.3	March 2011
	H6.4	April 2011		H6.4	TBC
Monitoring and reporting on progress	H6.3	Availability of management plan			
	H6.4	Availability of management tool for implementation across CoL Open Spaces			

Adaptation action	H7. City of London should ensure that where possible, enhancements to biodiversity include increased planting for shade in open spaces.		
Lead department (and individual) responsible	Planning	Other departments / partners involved	Open Spaces

Actions completed to date	H7.1 The LDF draft core strategy policies on Open Spaces and Biodiversity include requirements to enhance biodiversity. This document will be subject to external consultation and examination in public prior to expected adoption in 2011.		
Actions to be taken next	H7.2 Complete – no further action required	Due dates	
Barriers to action			
Possible adverse impacts of the action			
Action start date		Action due date	
Monitoring and reporting on progress			

Risk Area: Subsidence and Heave

Adaptation action	S2. When designing landscaping, City of London and developers should choose the types and locations of trees carefully, considering how subsidence and root penetration will be affected by climate change.		
Lead department (and individual) responsible	Open Spaces (██████████): S2.2, S2.3 Planning Department (S2.1, S2.3)	Other departments / partners involved	DES
Actions completed to date	S2.1 Open Spaces, along with other departments such as Planning, currently has developed a Tree Strategy scoping document for the City that follows the Mayor of London’s tree strategy. This needs to be developed further but needs more funding.		
Actions to be taken next	S2.2 Open Spaces and Planning to complete the Tree Strategy and present it to the Sustainability Members’ Working Group for their feedback. S2.3 Open Spaces and Planning to implement the tree strategy.		
Barriers to action	Funding for completing and implementing the complete Tree Strategy are not guaranteed. Approximately £27,000 are needed.		
Possible adverse impacts of the action			
Action start date	S2.2 December 2012. S2.3 January 2014	Action due date	S2.2 December 2013 S2.3 N/A
Monitoring and reporting on progress	S2.2 Availability of strategy S2.3 TBC		

Risk Area: Cross-cutting Issues

Adaptation action	C6. Monitor climate change impacts on biodiversity and link in to research on the issue.				
Lead department (and individual) responsible	Open Spaces (C6.3, C6.4, C5.6)		Other departments / partners involved	Planning	
Actions completed to date	C6.1	CoL is hosting a London Climate Change Partnership event discussing adaptation issues related to biodiversity.			
	C6.2	Planning are reviewing the last draft of their biodiversity action plan and are still debating what to monitor (Open Spaces can assist if needed).			
Actions to be taken next	C6.3	Open Spaces to continue biodiversity monitoring on CoL estates to identify any climate-related risks as and when they arise (C6.3).			
	C6.4	Open Spaces to continue management actions (e.g. managing wetlands) to ensure that habitats are as resilient as possible and update management plans so that they reflect changes as and when they arise.			
	C6.5	Open Spaces to keep GLA up to date on findings of the above through reporting at appropriate intervals.			
Barriers to action					
Possible adverse impacts of the action					
Action start date	C6.3	Annually	Action due date	C6.4	Annually
	C6.4	Annually		C6.5	Annually
	C6.3	Periodically		C6.5	Periodically
Monitoring and reporting on progress	C6.3	As appropriate			
	C6.4	Management plans			
	C6.5	TBC			

Environmental and Public Health

Risk Area: Flooding

Adaptation action	F3. Assess the capacity of the 72km of sewers managed by the City of London Corporation to cope with increasing rainfall due to climate change and coordinate with Thames Tideway Tunnel project to manage the risks		
Lead department (and individual) responsible	DES (██████████): F3.3, F3.4)	Other departments / partners involved	Planning, City Surveyors, Camden Borough Council, possibly Thames Water
Actions completed to date	<p>F3.1 The Strategic Flood Risk Assessment has identified areas of the City susceptible to sewer flooding (see Action F2).</p> <p>F3.2 The Flood and Water Management Bill will bring in a requirement for local authorities to take a leadership role with respect to surface water drainage. This role is likely to be co-ordinated by Environmental Services for the City of London</p>		
Actions to be taken next	<p>F3.3 DES to prepare a Surface Water Management Plan working with Camden Borough Council.</p> <p>F3.4 DES to work jointly to facilitate implementation of the Thames Tideway Tunnel project led by Thames Water (construction due to begin in 2012) to address problems associated with occasional untreated sewer overflows into the river.</p>		
Barriers to action			
Possible adverse impacts of the action			
Action start date	F3.3 TBC F3.4 TBC	Action due date	F3.3 TBC F3.4 TBC
Monitoring and reporting on progress	<p>F3.3 Availability of management plan</p> <p>F3.4 TBC</p>		

Adaptation action	F7. Improve monitoring and recording of gully overflows linked to heavy rainfall events		
Lead department (and individual) responsible	DES (██████████) F7.2, F7.3)	Other departments / partners involved	
Actions completed to date	<p>F7.1 Gullies have gone from being cleaned by DES every 3 months to being cleaned every 6 months due to budgetary issues. (Larger gullies with more debris in them, however, are cleaned more often). There is anecdotal evidence that extreme weather events are occurring more frequently: e.g. the event previously understood to be a '1 in 50 year' rainfall event seems to be happening every few years now.</p>		

Actions to be taken next	<p>F7.2 DES to improve monitoring and recording of gully overflows and relate these back to the rainfall data that caused the overflow, so as to keep track of how frequently heavy rainfall events occur and to understand what rainfall intensity causes overflowing gullies. This is not being recorded at the moment. This will help to identify gullies that are most susceptible to overflow and which should be considered for upgrading.</p> <p>F7.3 DES (District Surveyors) to write to DCLG and British Standards to request that they take into account projections of changes in extreme rainfall (e.g. from UKCP09 projections) and update standards accordingly.</p>		
Barriers to action	The risk of reduced service provision due to budgetary constraints might pose a problem as budgetary planning only looks 6 months to 1 year ahead. This means it is imperative to communicate the risks that climate change poses.		
Possible adverse impacts of the action			
Action start date	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;"> F7.2 TBC F7.3 TBC </td> <td style="width: 50%; text-align: center;"> Action due date F7.2 ongoing F7.3 TBC </td> </tr> </table>	F7.2 TBC F7.3 TBC	Action due date F7.2 ongoing F7.3 TBC
F7.2 TBC F7.3 TBC	Action due date F7.2 ongoing F7.3 TBC		
Monitoring and reporting on progress	<p>F7.2 Availability of monitoring data</p> <p>F7.3 Outcome of communication</p>		

Risk Area: Heatwaves and Air Pollution

Adaptation action	H8. Work with strategic health authorities and primary care trusts to implement the local heatwave plan in the City and to include actions to manage air pollution health risks in these plans, as high air pollution levels often coincide with heatwaves.		
Lead department (and individual) responsible	DCCS (H8.4), DES (H8.5, H8.6), Town Clerk's (Contingency Planning Team: H8.7)	Other departments / partners involved	
Actions completed to date	<p>H8.1 CoL (Town Clerk's) operates the National Heatwave Plan, which is triggered by a government signal when temperatures cross a certain threshold. It was triggered for 3 days at Level 2 in summer 2009 and worked very well.</p> <p>H8.2 The City (DES) has completed a computer modelling exercise to establish the potential impact on a change in climate on the air quality in the City. Overall, pollution levels are predicted to increase, but not by a significant margin. According to this research, pollution incidents (days of high pollution that are linked to the weather) are likely to decline during winter months but are likely to increase during the summer.</p> <p>H8.3 The City (DES) currently operates a free pollution alert system known as <i>AirText</i>. Vulnerable people, those with asthma or heart related health problems, are invited to register for the service. They are notified by text message, voice message or email if the pollution levels are predicted to be high the following day. As a result, service users have the information to manage any potential symptoms that may be caused by poor air quality. This service has not been extended to cover GPs and hospitals yet. The service is currently funded by the European Space Agency but the funding is due to expire soon.</p>		
Actions to be taken next	<p>H8.4 DCCS to ask the PCT if they have notified their GPs about the <i>AirText</i> scheme, and discuss further promoting this scheme through GPs.</p> <p>H8.5 DES to identify what the current status of funding for <i>AirText</i> is and whether there is any S106 money that can be used for continuing <i>AirText</i> after ESA funding runs out.</p> <p>H8.6 DES to find out whether other boroughs where CoL has residents or assets are part of the <i>AirText</i> scheme.</p> <p>H8.7 To build awareness of the growing risk of heatwaves and of the need for increased resources to cope with these, Town Clerk's (Contingency Planning) to ask ambulance services if they have correlated the number of calls they receive with extreme heatwaves.</p>		
Barriers to action			
Possible adverse impacts of the action			
Action start date	H8.4 April 2010 H8.5 TBC	Action due date	H8.4 March 2011 H8.5 TBC

	H8.6 TBC H8.7 TBC		H8.6 TBC H8.7 TBC
Monitoring and reporting on progress	H8.4 TBC H8.5 TBC H8.6 TBC H8.7 Availability of data		

Adaptation action	H9. In partnership with other organisations CoL should examine the provision of ‘cool’ centres (cooled public buildings) during heatwaves, with extended opening hours for vulnerable people, and should include them in emergency plans.		
Lead department (and individual) responsible	DES (H9.2, H9.3, H9.4, H9.5, H9.6), Town Clerk’s (Contingency Planning Team, ██████████ H9.7) Town Clerk’s (Sustainability Unit: H9.3, H9.4 and H9.7)	Other departments / partners involved	DCCS
Actions completed to date	H9.1 A list of vulnerable people is held by Social Care. The list is also supplied to PCT. Social Care ensures that all these clients are visited daily to ensure their welfare. They are also supplied with a leaflet giving advice on ‘Looking after yourself in hot weather’.		
Actions to be taken next	<p>H9.2 DES to work towards introducing more public health representation on the Health Scrutiny Board by Environmental Services.</p> <p>H9.3 Town Clerk’s (Sustainability Unit) to lead a working group that identifies a cluster of ‘cool spots’ (i.e. public places that remain relatively cool due to their construction or air conditioning) within the City that could provide residents, visitors and workers with cool havens on hot days. Ideas for cool spots include churches and the Barbican Centre.</p> <p>H9.4 Town Clerk’s (Sustainability Unit) to lead a working group that negotiates with the London Diocese to allow open access to churches during the day.</p> <p>H9.5 Town Clerk’s (Sustainability Unit) to lead a working group that develops and widely distributes a map for residents, visitors and workers identifying the ‘cool spots’.</p> <p>H9.6 Contingency Planning (██████████) and Town Clerk’s (Sustainability Unit) to lead a working group that develops an internal plan to promote the ‘cool spots’ on the CoL website.</p>		
Barriers to action	Lots of churches that could be used as public ‘cool spots’ are not open during the day.		
Possible adverse impacts of the action			
Action start date	H9.2 TBC H9.3 TBC H9.4 TBC H9.5 TBC H9.6 TBC H9.7 TBC	Action completion date	H9.2 TBC H9.3 TBC H9.4 TBC H9.5 TBC H9.6 TBC H9.7 TBC
Monitoring and reporting on	H9.2 TBC H9.3 TBC		

progress	H9.4 TBC H9.5 TBC H9.6 TBC H9.7 TBC
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Adaptation action	H10. Build awareness among workers and residents of greater potential for noise due to more use of outdoor space.		
Lead department (and individual) responsible	DCCS (Housing Services [REDACTED]): H10.1, H10.2, H10.3)	Other departments / partners involved	
Actions completed to date	H10.1	DCCS (Housing Services) provides information on noise nuisance in tenant handbooks	
Actions to be taken next	H10.2	DCCS (Housing Services) and DES to create codes of practice for general noise issues to highlight what people should expect from the general environment in order to reduce number of complaints DES are receiving. Look at emulating codes that have already been drawn up regarding noise from construction works. DCCS to arrange for the information to be circulated.	
	H10.3	DCCS (Housing Services) to consider educating workers and residents about the need to keep windows closed in warm weather if they have double or triple glazing, which will also help with noise impacts.	
	H10.4	DES to continue working on 'Quiet City' project which aims to identify and improve those open spaces that have the potential of providing more respite to people e.g. design measures in such way as to increase soundproofing in some areas such as playgrounds. Link in climate change impacts to noise issues (i.e. greater use of outdoor space during heatwaves) as a supporting aspect.	
Barriers to action	Possible budgetary or planning constraints, especially when fitting double or triple glazing onto a heritage site. It is unlikely residents will get any funding from CoL or central government, therefore residents would need to be ready to pay for these improvements.		
Possible adverse impacts of the action			
Action start date	H10.2 H10.3 H10.4	2011 As and when necessary N/A	Action due date
			H10.2 TBC H10.3 N/A H10.4 TBC
Monitoring and reporting on progress	H10.2 H10.3 H10.4	Code of practice Communication materials Quiet City project documentation	

Adaptation action	H11. CoL to ensure that impacts of higher temperatures on food safety and associated cooling requirements are addressed.		
Lead department (and individual) responsible	Town Clerk's (H11.1), Markets, DES (Port Health Authority: H11.2)	Other departments / partners involved	
Actions completed			

to date			
Actions to be taken next	H11.1 Town Clerk's to write to DECC to flag up the issues of setting parameters for energy efficiency in the light of the impacts of higher temperatures on markets and food safety / food spoilage leading to increased cooling requirements. Ask DECC whether national standards are addressing these issues adequately.		
Barriers to action			
Possible adverse impacts of the action			
Action start date	H11.1 TBC	Action completion date	H11.1 TBC
Monitoring and reporting on progress	H11.1 TBC		

Adaptation action	H12. Investigate opportunities to reduce health impacts from air pollution and particulates during heatwaves using greywater or groundwater from boreholes.		
Lead department (and individual) responsible	DES ([REDACTED]): H12.1, H12.2)	Other departments / partners involved	
Actions completed to date			
Actions to be taken next	<p>H12.1 DES to investigate what boreholes could be available for use in the City and confirm if they can get the water from boreholes into vehicles.</p> <p>H12.2 DES to clarify with the company that runs and/or owns the borehole needed whether they would want to charge CoL for using it, and how much.</p>		
Barriers to action	Possible costs from using borehole and transporting water.		
Possible adverse impacts of the action			
Action start date	H12.1 2011/12 H12.2 TBC	Action due date	H12.1 TBC H12.2 TBC
Monitoring and reporting on progress	H12.1 TBC H12.2 TBC		

Risk Area: Cross-cutting issues

Adaptation action	C7. Ensure that resourcing and delivery of waste management services is appropriate to cope with the added threats from climate change.		
Lead department (and individual) responsible	DES (██████████): C7.2, C7.3, C7.4, C7.5, C7.7), Town Clerk's (C7.3, C7.6)	Other departments / partners involved	
Actions completed to date	C7.1 DES have a business continuity plan and contingency plan for waste collection. However, issues may also arise from staff not being able to follow their regular work patterns (e.g. due to extreme heat).		
Actions to be taken next	<p>C7.2 DES and Town Clerk's to identify the appropriate budget holder at CoL and communicate concerns about the budgetary restrictions around waste management in the light of additional risks posed by climate change, especially in summer heatwaves, to ensure that collection frequency is not reduced to levels where public health is threatened.</p> <p>C7.3 DES to make more space for food waste and integrate waste storage into long term planning considerations.</p> <p>C7.4 DES to instruct residents to include food waste along with normal waste if food collection points are overflowing to make sure it is all collected, especially in times of hot weather.</p> <p>C7.5 Town Clerk's to respond to the GLA waste strategy consultation and voice the concerns raised in this adaptation action plan, and also encourage them to aim for a high level waste management strategy rather than just a municipal-level one.</p> <p>C7.6 DES to identify whether there are any funding possibilities to build more waste storage space for small businesses.</p>		
Barriers to action	The risk of reduced service provision due to budgetary constraints might pose a problem as budgetary planning only looks 6 months to 1 year ahead. This means it is imperative to communicate the risks climate change poses and ensure waste collection frequency is not reduced too much.		
Possible adverse impacts of the action			
Action start date	<p>C7.2 TBC</p> <p>C7.3 TBC</p> <p>C7.4 TBC</p> <p>C7.5 TBC</p> <p>C7.6 TBC</p> <p>C7.7 TBC</p>	Action due date	<p>C7.2 TBC</p> <p>C7.3 TBC</p> <p>C7.4 TBC</p> <p>C7.5 TBC</p> <p>C7.6 TBC</p> <p>C7.7 TBC</p>
Monitoring and reporting on progress	<p>C7.2 TBC</p> <p>C7.3 TBC</p> <p>C7.4 TBC</p> <p>C7.5 TBC</p> <p>C7.6 TBC</p>		

	C7.7	TBC
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Contingency Planning

Risk Area: Flooding

Adaptation action	F8. Contingency Planning Dept should encourage businesses to consider relocating flood-sensitive equipment (e.g. IT equipment, data centres) and archives out of London to areas with negligible flood risks. Contingency Planning Dept should encourage businesses with assets (e.g. back-up power generators) and equipment (e.g. IT equipment, data centres) that need to be on-site, to move them away from locations at higher risk of flooding, such as basements.		
Lead department (and individual) responsible	Town Clerk's (Contingency Planning, ██████ F8.5), Planning (F8.6), CELT (F8.7), DES (██████████ : F8.8),	Other departments / partners involved	
Actions completed to date	<p>F8.1 Planning ██████ has produced a Strategic Flood Risk Assessment (SFRA), which has identified parts of the City that have had problems with flooding in the past, such as Blackfriars and Smithfield's. Development proposals in flood risk zones must be accompanied by a flood risk assessment which will address these issues for <i>new</i> developments, and the development control process does not permit vulnerable developments in flood risk areas.</p> <p>F8.2 In the light of the City of London Strategic Flood Risk Assessment and the interim conclusions of the Pitt Review of the 2007 floods, the decision was made to review existing contingency planning for flooding in the City. This review has taken into account future flood risks in the light of climate change and the implications of both 'flash' flooding and possible tidal flooding. It incorporates pan-London flood planning undertaken on behalf of the London Regional Resilience Forum. The consideration of the London-wide response to flooding incidents is important, because flooding in other parts of London may have serious implications for resilience and business continuity in the City.</p> <p>F8.3 Planning have also prepared a more detailed map of surface water flooding risk than the one provided by the SFRA that only broadly mapped surface flood risk by postcode. This map shows more differentiated surface flooding risk within postcodes.</p> <p>F8.4 Hodge Street Police have moved their IT equipment from their basement, in response to risks from burst water pipes or blocked drains.</p>		
Actions to be taken next	<p>F8.5 Town Clerk's (Contingency Planning, ██████) to distribute more detailed map of surface water flood risk at sub-postcode scale to those businesses that are shown to be at risk, and to put the map on its website.</p> <p>F8.6 It should be ensured that the Planning department highlights the issue of flooding risks to sensitive assets and equipment located in basements to building occupants.</p> <p>F8.7 CELT to raise the issue of contingency planning for power (i.e. how to generate standby power if your back-up generator is in the basement) with businesses in flood risk areas.</p>		

	F8.8 DES [REDACTED] to discuss contingency planning at Walbrook Wharf with the Contingency Planning team. It was identified as being at flood risk and essential to DES operations.			
Barriers to action	One major barrier with implementing this action for <i>existing</i> development is the historical context of locating equipment in basements, and the significant costs of moving critical infrastructure above ground. Most post-WWII buildings were built following government requirements to keep critical infrastructure underground, for better protection against a nuclear attack. Moving this critical infrastructure would pose a massive cost to London (and indeed to nation as a whole). Furthermore, there are a lot of buildings that cannot be adapted, such as older Victorian (or earlier) buildings.			
Possible adverse impacts of the action				
Action start date	F8.5 TBC F8.6 TBC F8.7 TBC F8.8 TBC	Action due date	F8.5 TBC F8.6 TBC F8.7 TBC F8.8 TBC	
Monitoring and reporting on progress	F8.5 TBC F8.6 TBC F8.7 TBC F8.8 TBC			

Adaptation action	F9. The City of London Corporation should develop a flood recovery plan, which should form part of the City of London's emergency plan. There should be a nominated officer with responsibility for overseeing flood risk management in the City of London Corporation.			
Lead department (and individual) responsible	Town Clerk's (Contingency Planning: F9.4)	Other departments / partners involved	Planning [REDACTED]	
Actions completed to date	<p>F9.1 The SFRA is being used to inform the CoL emergency plans for flood response and contingency planning.</p> <p>F9.2 As outlined under Action F8, point 2, a review of existing contingency planning for flooding in the City has been undertaken and a report submitted to the London Resilience Forum, which makes reference to climate change impacts, and for which CoL police, Emergency Services and ambulances have been consulted. This plan is due to be exercised in 2010.</p> <p>F9.3 Contingency Planning receive severe weather warnings from the Met Office which allows CoL to prepare if heavy rains are forecast.</p>			
Actions to be taken next	F9.4 Town Clerk's [REDACTED] to review the London Climate Change Partnership (LCCP) report on 'The Impacts of Climate Change on London's Transport Systems' so this can be considered by CELT in contingency planning for rainfall events' impact on transport systems.			
Barriers to action				
Possible adverse impacts of the action				
Action start date	F9.4 TBC	Action due date	F9.4 TBC	
Monitoring and reporting on progress	F9.4 TBC			

Risk Area: Water Resources

Adaptation action	W7. Contingency Planning to work with Thames Water Utilities to discuss contingency planning for vital City functions in times of extreme drought.		
Lead department (and individual) responsible	Town Clerk's (Contingency Planning, ██████████ W7.4)	Other departments / partners involved	Economic Department Office (CPAT)
Actions completed to date	<p>W7.1 CPAT has had regular dialogue with Thames Water on the general supply side which in part relates to future needs, and which also covers increasing capacity to protect against such a scenario.</p> <p>W7.2 Contingency Planning complies with / works to the National Drought Plan that is triggered by the government in times of drought. This is seen as being sufficient to handle situations of extreme drought for the City of London.</p> <p>The 'Mind your own business' campaign was launched in 2009 to assist London's small businesses in developing business continuity plans. http://www.cityoflondon.gov.uk/Corporation/media_centre/files2009/Small+Businesses+urged+to+Mind+Your+Own+Business.htm.</p>		
Actions to be taken next	<p>F9.5 Town Clerk's (Contingency Planning) to look into getting a representative of CPAT into CELT.</p> <p>F9.6</p>		
Barriers to action			
Possible adverse impacts of the action			
Action start date	W7.4 TBC	Action due date	W7.4 TBC
Monitoring and reporting on progress	W7.4 TBC		

Appendix – Responsibilities for Delivery

This Action Plan identifies the following Departments, sections and individuals as responsible for delivery of the actions:

Department	Section / Team	Individual	Actions