

Royal Borough of Kensington and Chelsea
Surface Water Management Plan
Action Plan

MASTER ACTION PLAN - CONFIDENTIAL

Group	ID	Action			Priority Ranking	Cost			Benefit	Potential Funding Source	Timing			Action Type	Comments	Responsibility			Other Stakeholders	EU Related?	Review		Location		Linkages	
		What?	How?	Where?		Investigation / Feasibility	Capital	Other			Timeframe	Start Date	Approx. Duration			Lead Organisation	LLFA Dept.	Primary Support			Frequency	Next Review Date	CDA ID	Policy Area ID	Related Action IDs?	Related Partners' Action IDs?
General Flood Risk Management	1	Take forward actions set out in the SWMP with partners and other flood risk management authorities (if any).	Continue to run the SWMP Steering Group and involve other stakeholders as necessary.	Study Area Wide	High	-	-	-	Co-ordinated delivery of local flood risk management across the catchment	Thames Water, RBKC, Transport for London	Ongoing	2013	Long	FMA		RBKC	FWM Team	Steering Group	Environment Agency, Thames Water, Network Rail	No	Annually	2014	N/A	N/A	N/A	N/A
	2	Seek opportunities to integrate fluvial / tidal and surface water flood risk reduction measures	Review and monitoring of policy implementation and in partnership with EA	Study Area Wide	High	-	-	-	Mid-long term reduction in flood risk and improvement in water quality	Private developer	Ongoing	2013	LP Plan Period	Policy		RBKC	FWM Team	RBKC Departments		No	Annually	2014	N/A	N/A	N/A	N/A
	3	Look for opportunities to reduce flood risk to critical transport infrastructure whilst upgrading the existing drainage network in partnership with Thames Water, Network Rail and Transport for London	Discussion with relevant officers of listed organisations	Study Area Wide	High	-	-	-	Refine understanding of risk to critical infrastructure. Prioritise localised drainage improvements	Thames Water and TfL	Medium	2013	1-2 years	I / F / D, FMA			RBKC Highways	Thames Water and TfL	Network Rail	No	Annually	2014	N/A	N/A	N/A	N/A
	4	Ensure current emergency response to catchment-wide surface water flooding is appropriate	Liaise with Emergency Planning forum	Study Area Wide	High	-	-	-	Emergency response based on best available information	RBKC	Short	2013	1 year	I / F / D		RBKC	Resilience Team	Local Resilience Forum		No	N/A	N/A	N/A	N/A	N/A	N/A
	5	Determine extent of i) residential use of at-risk basements (if any), ii) groundwater boreholes and iii) geological conditions, and decide if a risk from flooding exists.	Basements were identified through analysis of LIDAR information, however this should be confirmed with local knowledge. If basements are identified then use predicted extent of 75year flood to enable determination.	Study Area Wide	High	-	-	-	Better understanding of scope of flooding impact, and improving identification of solutions and funding	RBKC	Medium	2013	1 year	I / F / D		RBKC	FWM Team	Development Control	Local Residents, Thames Water	No	Annually	2014	N/A	N/A	6	N/A
	6	Consider retrofitting flood resilience and resistance measures to areas at risk of flooding in local topographic low points and basement properties where there is a history (and likely future risk) of groundwater ingress	Basements were identified through analysis of LIDAR information, however this should be confirmed with local knowledge. If identified then impermeable membranes, additional drainage should be investigated. Determine risk of flooding in areas at topographic low points (i.e. does a pumping scheme assist in reducing risk)	Study Area Wide	Medium	-	-	-	Reduction in the impact of flooding	Property Level Flood Protection (Defra), FDGIA	Long	2013	10 years	FMA		RBKC	FWM Team	Building Control	Local Residents, Thames Water	No	Annually	2014	N/A	N/A	5	N/A
	7	Determine whether services (e.g. power, telecommunications) are resilient to surface water flooding	Discuss the overall resilience of services with relevant companies	Study Area Wide	Medium	-	-	-	Community resilience to flooding	Service providers	Medium	2013	3 year	CP, FR		RBKC	FWM Team	Resilience Forum		No	Annually	2014	N/A	N/A	N/A	N/A
	8	Installation of additional road gullies or alternative drainage systems to reduce standing water depth and duration	As part of highways improvement programme include additional construction task of installing additional gullies or alternative drainage systems where feasible and required. Consultation with Thames Water may be required.	In relevant CDAs across the catchment	Medium	-	-	-	Reduction in the probability of flooding	RBKC / Developer contributions / TfL	Medium	2013	Ongoing	FMA		RBKC	FWM Team	Thames Water and TfL		No	Annually	2014	N/A	N/A	N/A	N/A
	9	Determine areas within the study area which are appropriate for retrofitting bioretention basins and carparking pods	Desktop study to determine feasibility of incorporating these SuDS	Study Area Wide	Medium	£5k	-	-	Will assist in reducing runoff volumes and improving quality of water discharging to watercourses	Developer contributions / other?	Medium	2013	1-2 years	I / F / D		RBKC	FWM Team		Environment Agency	No	Annually	2014	N/A	N/A	N/A	N/A
Policy	10	Developments across the catchment to include at least one 'at source' SuDS measure, resulting in a net improvement in water quantity or quality discharging to sewer	Development Control Review and Monitoring of policy implementation	Study Area Wide	High	-	-	-	Mid-long term reduction in flood risk and improvement in water quality	Private developers	Ongoing	2013	LP Plan Period	Policy		RBKC	Planning Strategy		Environment Agency	No	Annually	214	N/A	N/A	11 to 16	N/A
	11	All developments across the catchment (excluding minor house extensions less than 50m ²) which relate to a net increase in impermeable area are to include at least one 'at source' SuDS measure (e.g. water butt, rainwater harvesting tank, bioretention planter box etc). This is to assist in reducing the peak volume of runoff discharging from the site	Development Control Review and Monitoring of policy implementation	Study Area Wide	High	-	-	-	Mid-long term reduction in the probability of flooding	Private developer	Ongoing	2013	LP Plan Period	Policy		RBKC (as LLFA and Ilkley SAB)	Planning Strategy		Environment Agency	No	Annually	2014	N/A	N/A	10, 12 to 16	N/A
	12	Proposed 'brownfield' redevelopments of more than one property or area greater than 0.1 hectare are required to reduce post-development runoff rates for events up to and including the 1 in 100 year return period event with an allowance for climate change (in line with NPPF and UKIP guidance) to 50% of the existing site conditions. If this results in a discharge rate lower than the Greenfield conditions it is recommended that the Greenfield rates (calculated in accordance with I04124) are used.	Development Control Review and Monitoring of policy implementation	Study Area Wide	High	-	-	-	Mid-long term reduction in the probability of flooding	Private developer	Ongoing	2013	LP Plan Period	Policy		RBKC (as LLFA and Ilkley SAB)	Planning Strategy		Environment Agency	No	Annually	2014	N/A	N/A	10, 11, 13 to 16	N/A
	13	Developments located in Critical Drainage Areas (CDAs), Local Flood Risk Zones (LFRZs) and for redevelopments of more than one property or area greater than 0.1 hectare should seek betterment to a Greenfield runoff rate (calculated in accordance with I04124). It is recommended that a SuDS treatment train is utilised to assist in this reduction.	Development Control Review and Monitoring of policy implementation	Study Area Wide	High	-	-	-	Mid-long term reduction in the probability of flooding	Private developer	Ongoing	2013	LP Plan Period	Policy		RBKC (as LLFA and Ilkley SAB)	Planning Strategy		Environment Agency	No	Annually	2014	N/A	N/A	10, 11, 12 and 14 to 16	N/A
	14	Implement Policy relating to Best Management Practices in relation to Water Quality and a reduction in pollutant loads	Development Control Review and Monitoring of policy implementation	Study Area Wide	High	-	-	-	Mid-long term reduction in the probability of flooding	Private developer	Ongoing	2013	LP Plan Period	Policy		RBKC (as LLFA and Ilkley SAB)	Planning Strategy		Environment Agency	Yes - WFD	Annually	2014	N/A	N/A	10 to 13, 15 and 16	N/A
	15	Provide support to Thames Water to implement flood mitigation measures in the Counters Creek Catchment	Development Control Review and Monitoring of policy implementation	Counters Creek Catchment	High	-	-	-	Mid-long term reduction in the probability of flooding	Thames Water	Ongoing	2013	LP Plan Period	Policy		Thames Water		RBKC	Environment Agency, Local Residents	Yes - WFD	Annually	2014	N/A	1	10 to 14, 16	N/A
	16	Use SWMP outputs to inform review of proposed Core Strategy Policy CL7 (limit the size of basements being built underground, reduce barriers to groundwater flow patterns and reduces the risk of basements impacting the infiltration potential of a local catchment)	Apply SWMP recommendations to strengthen local planning policy	Study Area Wide	High	-	-	-	Mid-long term reduction in the probability of flooding	Private developer	Ongoing	2013	LP Plan Period	Policy		RBKC (as LLFA and Ilkley SAB)	Planning Strategy		Environment Agency	Yes - WFD	Annually	2014	N/A	CL7	10 to 15	N/A
Maintenance	17	Ensure drainage systems are operating at capacity - maintenance of gullies	Review existing gully cleanliness/ maintenance schedules and if necessary revise/prioritise those within 'wet' areas of	Study Area Wide	High	-	-	-	Reduction in high frequency but low impact surface water flooding	RBKC / TfL	Ongoing	2013	Long	FMA		RBKC	Highways	TfL	Thames Water	No	Quarterly	2014	N/A	N/A	N/A	N/A
	18	Gully Cleaning - Improving 'Visibility' - Targeted based on risks identified in SWMP	Clearly identify gullies prone to flooding (possibly painted yellow)	CDA Specific	Medium	-	£25k+	-	Improved maintenance regimes. May promote residents and ground sweeping teams to maintain them	RBKC / TfL	Medium	2014	1 year	FMA		RBKC	Highways	TfL	Thames Water	No	Annually	2015	All CDAs			
	19	Gully Cleaning - Enforcement Powers - Targeted based on risks identified in SWMP	Encourage gully cleaning contractors to use powers to enforce movement of parked cars to ensure all gullies are regularly cleared.	CDA Specific	Medium	-	<£25k	-	Improved maintenance regimes	RBKC / TfL	Medium	2014	1 year	FMA		RBKC	Highways	TfL	Thames Water	No	Annually	2015	All CDAs			
	20	Gully Cleaning - Timing of Cleansing Rounds - Targeted based on risks identified in SWMP	Coordinate timing of gully cleansing rounds to ensure that they do not coincide with school opening and closing times and other peak times that would prevent gaining access to gullies.	CDA Specific	High	-	<£25k	-	Improved maintenance regimes	RBKC / TfL	Medium	2014	3 months	FMA		RBKC	Highways	TfL	Thames Water	No	Annually	2015	All CDAs			
	21	Clear Blocked Gullies - Targeted based on risks identified in SWMP	Focus attention on the maintenance of gully pots in the identified Critical Drainage Areas (CDAs) which are considered to be high risk	CDA Specific	High	-	-	-	Reduction in the frequency of flooding	RBKC / TfL	Medium	2014	1 year	FMA		RBKC	Highways	TfL	Thames Water	No	Annually	2015	All CDAs			
	22	Ensure drainage systems are operating at capacity - maintenance of Thames Water sewers. Thames Water to recommend SWMP findings to AMP programme, if flooding identified as drainage serviceability issue.	May require mapping of existing drainage infrastructure. Review existing maintenance schedules and if necessary revise/prioritise CDAs	CDA Specific	High	-	-	-	Use of existing assets to maximise flood mitigation benefits	Thames Water	Ongoing	2013	Long	FMA		Thames Water		Highways RBKC	Thames Water	No	Quarterly	2014	N/A	N/A	N/A	N/A
	23	Review all natural assets to ensure the environmental integrity of the area(s) are not compromised by surface water runoff	Undertake monitoring of areas/water quality, debris, flora/ fauna, etc	Study Area Wide	High	-	-	-	Maintain environmental benefits	RBKC	Ongoing	2013	Long	FMA		RBKC	FWM Team	Environment Agency		Yes - WFD and HRA	Quarterly	2014	N/A	N/A	N/A	N/A

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General CDA	24	Proposed developments in urban areas at risk of flooding in Critical Drainage Areas (CDAs) to contribute to measures to reduce surface water flood risk in the CDA.	Section 106, Community Infrastructure Levy, Development Control Policy	Study Area Wide	High	-	-	-	Mid-long term reduction in the probability of flooding	Private developer	Ongoing	2013	LP Plan Period	Policy		RBKC	Development Control	Building Control	Environment Agency	No	Annually	2014	N/A	N/A	N/A	N/A
	25	Seek to include SuDS retrofitting policies in Planning reform to enhance or replace conventional drainage systems in CDAs or elsewhere as opportunities arise	Review and monitoring of policy implementation	Study Area Wide	Low	-	-	-	Mid-long term reduction in flood risk and improvement in water quality	Private developer	Medium	2013	LP Plan Period	Policy		RBKC	Planning Strategy	Building Control		No	Annually	2014	N/A	N/A	N/A	N/A
	26	Use SWMP mapped outputs to require developers in areas at risk of flooding to demonstrate compliance with NPPF to ensure development will remain safe and will not increase risk to others, where necessary supported by more detailed integrated hydraulic modelling.	Development Control Policy	Study Area Wide	High	-	-	-	Mid-long term reduction in the consequences of flooding	Private developer	Ongoing	2013	LP Plan Period	Policy		RBKC	Planning Strategy	Building Control		No	Annually	2014	N/A	N/A	N/A	N/A
	27	Ensure any development falling within CDAs are designed to limit runoff to low redevelopment Greenfield runoff rates.	Development Control Policy	All CDAs	High	-	-	-	Long term reduction in flood risk in the CDA	Private developer	Ongoing	2013	LP Plan Period	Policy		RBKC	Planning Strategy		Environment Agency	No	Annually	2014	N/A	N/A	N/A	N/A
	28	Investigate whether flooding incidents have occurred in CDAs and other areas identified as being at risk of flooding	Review flooding reports, then conduct survey of local residents (e.g. mail drop, door knocking) to update database	CDA Specific	Medium	-	-	-	Validate model outputs, resident 'buy in'	RBKC	Short	2013	1 year	I / F / D		RBKC	FWM Team	Local Resilience Forum	Local Residents	No	N/A	N/A	N/A	N/A	N/A	N/A
	29	Monitor flood risk related problems and manage future development to minimise impact on flood risk	Development control policy and monitoring of flood risk incident register	CDA Specific	Medium	-	-	-	Proactive management of potential flood risk in areas of higher risk probability	RBKC	Ongoing	2013	Ongoing	FMA		RBKC	FWM Team			No	Annually	2014	N/A	N/A	N/A	N/A
	30	Carry out more detailed studies including further investigation of the technical issues and consultation with local stakeholders	Site investigations and modelling	CDA Specific	High	-	-	-	Refine understanding in flood risk within the Borough	RBKC	Short	2013	5 years	I / F / D		RBKC	FWM Team		Environment Agency, Thames Water	No	N/A	N/A	N/A	N/A	N/A	N/A
	31	Work proactively with the EA to monitor the condition of M4 and Tidal Flood Defences.	Share condition assessment information and jointly review other information as it becomes available	Study Area Wide	High	-	-	-	Understanding of standard of defences	EA / RBKC	Ongoing	2013	Ongoing	FMA		EA		RBKC	Local Residents	No	Monthly	2014	N/A	N/A	N/A	N/A
32	Engage TIL to monitor any future flooding and assess the associated risk on all Major Roads	Maintain regular contact with relevant parties to share flood risk information	Study Area Wide	High	-	-	-	Understanding of local flood risk and potential impacts	TIL	Ongoing	2013	Ongoing	FMA		TIL		RBKC	Thames Water	No	Quarterly	2014	N/A	N/A	N/A	N/A	
High Priority CDA Actions (where predicted flood depth)	33	Undertake a detailed study to confirm significant level of flood risk predicted by SWMP study and use as justification for possible FDGIA funding	Engage consultant to complete detailed study and work with EA to investigate FDGIA opportunities	Study Area Wide	High	£40k	TBC	TBC	Improved understanding of flood mechanisms and potential funding opportunities for mitigation solutions	FDGIA / EA	Short	2013	4 months	FMA		RBKC	FWM Team	Thames Water and TIL	Local Residents	No	6months	Mid 2014	N/A	N/A	N/A	N/A
	34	Investigate large areas of deep (>0.5m) flooding - unless there is evidence to suggest that the risk has been mitigated, for example by high capacity drainage or pumping infrastructure.	Site investigations and modelling	Areas with ponding >0.5m	High	-	-	-	Refine understanding in high impact areas	RBKC	Short	2013	5 years	I / F / D		RBKC	FWM Team		Environment Agency, Thames Water	No	N/A	N/A	N/A	N/A	N/A	N/A
	35	Work with Thames Water to mitigate the water quality impacts related to sewer surcharges	Joint investigation of mitigation solutions that have multiple benefits	Study Area Wide	High	£15k	TBC	TBC	Partnership working with others to achieve multiple benefits for local flood risk mitigation and river water quality improvement	EA / Thames Water / EU	Short	2013	4months	FMA		RBKC	FWM Team	Thames Water and TIL	Environment Agency	Yes - WFD	Quarterly	2014	N/A	N/A	N/A	N/A
Rail Cutting, Road and Pedestrian Underpass Risk Assessment	36	Carry out a flood risk assessment for rail cuttings and road/rail underpasses highlighted to flood during extreme events and determine if any specific contingency or management plans are required	This should include determining the standard of protection currently provided and, if necessary, carrying out further investigation/ modelling to improve the level of understanding.	Study Area Wide	Low	-	-	-	Refine understanding of flood risk on key routes	TIL / Network Rail	Medium	2013	6 months	I / F / D		TIL / Network Rail		RBKC	Thames Water	No	Annually	2014	N/A	N/A	N/A	N/A
	37	Carry out a flood risk assessment for pedestrian underpasses and provide signage for those at risk of flooding (such as the underpass along Exhibition Road servicing the South Kensington Tube Station, Natural History Museum, Science Museum and V&A Gallery)	Review of topography and model results to determine risk to users	Study Area Wide	Low	-	-	-	Refine understanding of flood risk in pedestrian underpass	RBKC / TIL	Medium	2013	6 months	I / F / D		RBKC	Highways	TIL	Thames Water	No	Annually	2014	N/A	N/A	N/A	N/A