

Norwich SWMP Action Plan

ID	Action			Priority Ranking	Cost			Benefit	Potential Funding Source	Timing			Action Type	Comments	Responsibility			EU Related?	Review	
	What?	How?	Where?		Investigation / Feasibility	Capital	Other			Timeframe	Start Date	Approx. Duration			Lead Organisations	Primary Support	Other Stakeholders		Frequency	Next Review Date
NUA1	Implement a Standardised Flood Incident Log	Implement a standardised flood incident log to record flood events. Ensure City and District Councils are involved in filling in the spreadsheet and ensure everyone involved understands the log and the methodology. It is recommended that the source of flooding be recorded to inform maintenance priorities.	Norfolk Wide	High			<£5k	Improved procedures and protocol for recording flood events and flood risk in the County. Will provide improved historically flood information to support ongoing and future flood mitigation schemes.	Norfolk County Council / Defra	Short		1 Year - Establishing the log could be done immediately. The training of staff may take more time to formulate and action but it should be completed within 1 year.	Flood and Water Management Act / Flood Risk Regulations		Norfolk County Council, Norwich City Council, Broadland District Council and South Norfolk District Council	Drainage, highways and transport departments within lead council bodies. Support also required from GIS department.		Yes		
NUA2	Implement a Standardised Asset Register Structure	Implement a standardised asset register structure as per the suggested template provided by Defra. Educate departments involved in filling in the register, need to ensure everyone involved understands the register, its purpose and the methodology.	Norfolk Wide	High			<£25k	Improved procedures and protocol for recording flood risk assets in the Norwich Urban Area.	Norfolk County Council / Defra	Short		9 - 12 months	Flood and Water Management Act / Flood Risk Regulations		Norfolk County Council	City and District Councils, Transport / Highways department, GIS department		Yes		
NUA3	Populate Asset Register	Populate Asset Register with County Council-owned Surface Water & Flood Risk Drainage Assets	Norfolk Wide	High			Unknown	Improved understanding of flood risk asset base across Norfolk.	Norfolk County Council / Defra	Medium		To populate with the asset type, location and condition by December 2011.	Flood and Water Management Act / Flood Risk Regulations		Norfolk County Council	City and District Councils, highways department and operations team.		Yes		
NUA4	Formalise MOU for Norwich Strategic Flood Management Group	Establishment and Governance Agreement for Norwich Strategic Flood Management Group to manage cross-authority flooding issues, mitigation options and joint funding opportunities.	Norwich Urban Area	High			<£25k	Will encourage a partnership approach to LFRM across the Norwich Urban Area including the neighbouring Districts.	Norfolk County Council / Defra	Short		3 months	Flood and Water Management Act / Flood Risk Regulations		Norfolk County Council, Norwich City Council, Broadland District Council and South Norfolk District Council	Highways and Emergency Planning departments within lead councils	Anglian Water, EA & Local Residents	Yes		
NUA5	Take Forward Existing and Future Local Actions from SWMP	Take forward existing and future local actions in the SWMP through the Local Flood Risk Management Strategy for NCC.	Norwich Urban Area	High			<£25k	Co-ordinated delivery of local flood risk management within the County Council	Norfolk County Council / Defra	Medium		Ongoing	Flood and Water Management Act / Flood Risk Regulations		Norfolk County Council	Norwich City Council, Broadland District Council and South Norfolk District Council	Other Partners within the local Flood Management Group	Yes		
NUA6	Ensure required skills and technical capability is in place to deliver SWMP actions	Training programme for appropriate individuals or departments (as determined by the partnership structure) alongside consultancy support (where required in the short-term).	Norwich Urban Area	High			<£15k	Increase skills in Council to deliver requirements under FWMA	Norfolk County Council / Defra	Medium		2 Years	Financial / Resourcing		Norfolk County Council, Norwich City Council, Broadland District Council and South Norfolk District Council	Include departments within lead council bodies including Transport, Highways, Planning, Emergency Planning and GIS.		No		
NUA7	Implement and gain buy-in to the Communication and Engagement Plan (issued in Sept 2010).	Apply and update the Communication's Plan (Sept 2010) to communicate and raise awareness of risk to different audiences using a clearly defined process for internal and external communication with stakeholders and the public.	Norfolk Wide	High			<£5k	Greater transparency within the County on new role as LLFA and greater collective communication approach to community.	Norfolk County Council / Defra	Short		Ongoing review as part of Local Flood Risk management Strategy Review	Communication / Partnerships		Norfolk County Council	Environment Agency (under strategic overview role)	Anglian Water, Network Rail, ABI and other parties required as external partners for communications	No		
NUA8	Pro-active Awareness Raising of Local Flood Risk	Include Planners and planning policy influences in awareness raising activities as set out in the Communications Plan and this Action Plan - ensure CDA information is clear and accessible.	Norwich Urban Area	Medium			<£5k	Raise awareness of the risks of surface water flooding and CDAs amongst Planners and influence planning policies to prevent the creation of new risk areas and inappropriate development.	Norfolk County Council / Defra	Short		6 months	Communication / Partnerships		Norfolk County Council, Norwich City Council, Broadland District Council and South Norfolk District Council	Key leads within council bodies, Environment Agency and Anglian Water		No		
NUA9	Actively engage political stakeholders	Engage political stakeholders as appropriate within formal political structures and communication protocols - as set out in the Communication Plan.	Norwich Urban Area	Medium			<£10k	Ensure political acceptance and buy in is achieved and that political influence is used positively to support and fund local flood risk actions.	Norfolk County Council / Defra	Short		3 months	Communication / Partnerships		Norfolk County Council, Norwich City Council, Broadland District Council and South Norfolk District Council	Planning, highways and climate change departments from lead council bodies, Elected members and MPs	Anglian Water, Environment Agency, ABI, Network Rail, and Local Residents	No		
NUA10	Ensure Development Control Policy Incorporates Surface Water Flood Risk	Through Development Control Policy, ensure that SWMP outputs are used to require developers to demonstrate compliance with PPS25 by ensuring development will remain safe and will not increase risk to others, where necessary supported by more detailed 2D integrated hydraulic modelling.	Norwich Urban Area	Medium			<£5k	Mid to long term reduction in the consequences of flooding	Private Developers	Medium		LDF Plan Period	Policy Action		Norfolk County Council, Norwich City Council, Broadland District Council and South Norfolk District Council	Development Control, Planning departments	Environment Agency	No		
NUA11	Development Control Policy - Greenfield Runoff Rates	For example, all developments greater than 0.5 hectare in CDAs to reduce runoff to predevelopment greenfield runoff rates	Norwich Urban Area	Medium			<£5k	Mid to long term reduction in the probability and consequences of flooding	Private Developers	Medium		LDF Plan Period	Policy Action		Norfolk County Council, Norwich City Council, Broadland District Council and South Norfolk District Council	Development Control, Planning departments	Environment Agency	No		
NUA12	Development Control Policy - SuDs	For example, all new development across the Norwich Urban Area to include at least one source control SuDS measure, resulting in a net improvement in water quantity and quality discharging to sewer.	Norwich Urban Area	Medium			<£5k	Mid to long term reduction in flood risk and improvement in water quality	Private Developers	Medium		LDF Plan Period	Policy Action		Norfolk County Council, Norwich City Council, Broadland District Council and South Norfolk District Council	Development Control, Planning departments	Environment Agency	No		

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NUA13	Development Control Policy - Reduction in Surface Water Flood Risk	For example, development in CDAs to contribute to measures to reduce surface water flood risk in the CDA through Section 106, Community Infrastructure Levy or similar levy scheme.	All CDAs	Medium			<£5k	Mid to long term reduction in the consequences of flooding	Private Developers - Section 106, Community Infrastructure Levy	Medium		LDF Plan Period	Policy Action		Norfolk County Council, Norwich City Council, Broadland District Council and South Norfolk District Council	Development Control, Planning departments	Environment Agency	No		
NUA14	Development Control Policy - Driveway / Garden Repaving	Ensure that policies are in place (where possible) to provide permeable surfaces when driveways / patios / other property-level hard surfaces are being repaved, or gardens are being paved over. Where possible, follow up repaving post implementation to ensure correct surfaces have been used.	Norwich Urban Area	Medium			<£5k	Flood risk to properties and surrounding properties is not exacerbated through implementing hardstanding, impermeable surfaces	Norfolk County Council / Defra	Medium		Ongoing	Policy Action		Norfolk County Council, Norwich City Council, Broadland District Council and South Norfolk District Council	Development Control, Planning departments	Environment Agency, private developers	No		
NUA15	Confirm Drainage Capacity Assumptions for Sewers in SWMP Modelling	Assess the accuracy of the standard 11mm/hour drainage capacity assumptions to enable further local prioritisation of flood management options through data sharing and meetings with Anglian Water to discuss specific drainage capacity in CDAs.	All CDAs	High	<£25k			Refine flood risk understanding in CDAs as well as the overall contributions from sewer flooding toward local flood risk.	Norfolk County Council / Defra / Anglian Water	Short		1 Year	Investigation / Feasibility / Design		Norfolk County Council	Anglian Water		No		
NUA16	Determine Resilience of Critical Services	Determine whether services (e.g. power, telecommunications) are resilient to surface water flooding through providing outputs of the Norwich Urban Area SWMP to critical services providers (including energy providers) and meet to discuss the overall resilience of service across the study area.	Norwich Urban Area	High	<£10k			Improve community resilience to flooding	Service Providers	Short		1 Year	Investigation / Feasibility / Design		Norfolk County Council	Emergency Planning / Civil Contingencies departments	Environment Agency, Utility Companies / Service Providers	No		
NUA17	Review Emergency Response Procedures with SWMP Outputs	Determine whether current emergency response to Norwich-wide surface water flooding are appropriate through reviewing the Multi-Agency Flood Plan in the context of the SWMP outputs and involving key transport providers such as Norwich City Highways and Network Rail, as appropriate.	Norwich Urban Area	High	<£10k			Emergency Response Agencies have best available information	Norfolk County Council / Defra	Short		1 Year	Investigation / Feasibility / Design		Norwich Resilience Forum	County, City and District Councils and Emergency Planning and Highways departments	Environment Agency, Anglian Water, Network Rail, Emergency Services	No		
NUA18	Review Opportunities for Multi-Functional Open Space for Flood Risk Management	Review all parks and open spaces across the Norwich Urban Area and, where practical, seek the inclusion of flood risk management measures (e.g. permeable paving, detention basins, ponds/wetlands, underground storage).	Norwich Urban Area	Medium		Unknown		Project synergy and overall cost savings by undertaking flood risk reduction work at the same time as other park improvement projects	Norfolk County Council / Defra	Medium		2 Years	Flooding Mitigation Action		Norfolk County Council, Norwich City Council, Broadland District Council and South Norfolk District Council	Parks / Recreation departments within lead council bodies	Environment Agency and local residents	No		
NUA19	Develop approach/tool to understand cumulative effects of combined measures	In CDA areas obtain greater understanding of in combination effects on Local Flood Risk through undertaking more detailed work as part of implementation	CDAs	Low	<£25k			Improved understanding of flood risk in CDAs and effectiveness of proposed measures	Norfolk County Council / Defra	Medium		1 Year	Investigation / Feasibility / Design		Norfolk County Council	City and District Councils	Environment Agency, Anglian Water and Network Rail	No		
NUA20	Ensure a joined-up Drainage Maintenance Regime	Interaction, teamwork and clear communication determined between responsible parties involved in maintenance of surface water assets in the Norwich Urban Area.	Norwich Urban Area and targeted toward CDAs.	High			<£25k	Enable cost-effective prioritisation of key drainage points for maintenance improvements within limited budgets	Norfolk County Council / Defra	Short		6 months	Flooding Mitigation Action		Norfolk County Council, Norwich City Council, Broadland District Council and South Norfolk District Council	Highways departments within lead council bodies	Environment Agency, Anglian Water and Network Rail	No		
NUA21	Improved Maintenance of Drainage Network	Improved and targeted maintenance. Ensure CDAs are targeted for cleaning. Need to determine optimum maintenance frequency for low order events.	Norwich Urban Area.	High		Unknown		Existing drainage systems are maximised and operating at full potential, to ensure flooding is not exacerbated through blocked or partially-working networks	Norfolk County Council / Defra	Medium		Ongoing	Flooding Mitigation Action		Norfolk County Council, Norwich City Council, Broadland District Council and South Norfolk District Council	Highways departments within lead council bodies	Anglian Water,	No		
NUA22	Gully Cleaning - Improving 'Visibility'	Gullies that are known to flood could be painted RED or AMBER to encourage residents to check if they are blocked and to avoid parking directly over them thereby preventing access for gully clearing team.	Norwich Wide / CDA Specific	Medium			<£25k	Improved maintenance regimes and community awareness (Big Society).	Norfolk County Council / Defra	Medium		1 year	Flooding Mitigation Action		Norfolk County Council, Norwich City Council, Broadland District Council and South Norfolk District Council	Highways and operations departments within lead council bodies		No		
NUA23	Gully Cleaning - Enforcement Powers	Provide warnings to residents when gullies are scheduled to be cleaned and encourage them to move vehicles which may block gullies and prevent comprehensive cleaning.	Norwich Wide / CDA Specific	Medium			<£25k	Improved maintenance regimes	Norfolk County Council / Defra	Medium		1 year	Flooding Mitigation Action		Norfolk County Council, Norwich City Council, Broadland District Council and South Norfolk District Council	Highways departments within lead council bodies		No		
NUA24	Clear Blocked Gullies	Focus attention on the maintenance of gully pots in the identified Critical Drainage Areas, on those areas identified as being at risk from blocked gullies and also on those adjacent to CDAs which could increase the risk in the CDA if blocked.	Norwich Wide / CDA Specific	High		Unknown		Reduction in the probability of flooding	Norfolk County Council / Defra	Short		1 year	Flooding Mitigation Action		Norfolk County Council, Norwich City Council, Broadland District Council and South Norfolk District Council	Highways and operations departments within lead council bodies		No		

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NUA25	Community Awareness	Increase awareness of flooding within communities at risk through newsletters, website, drop-in surgeries etc.	Norwich Wide / CDA Specific	Medium			<£10k	Increase awareness of flood risk in communities, therefore improving resilience to flooding and encouragement to implement property-level mitigation measures	Norfolk County Council / Defra	Medium		Ongoing	Communication / Partnerships		Norfolk County Council	Norwich City Council, Broadland District Council and South Norfolk District Council	Environment Agency, Anglian Water	No		
NUA26	Permeable Surfaces Awareness	Aim to raise awareness of the options for installation and maintenance of permeable surfaces within property grounds	Norwich Wide	Low			<£25k	Improved community understanding of local flood risk resilience measures	Norfolk County Council / Defra	Medium		3 months	Communication / Partnerships		Norfolk County Council	Norwich City Council, Broadland District Council and South Norfolk District Council	Local Residents	No		
NUA27	Ensure Planning Officers are Trained to Inform Public on Planning Policy Relating to Permeable Surfaces	Train Planning Officers to ensure they: • are aware of the existing planning permissions, guidance and best practice; • are in a position to educate the public if enquiries are made regarding planning permission to change their drive/garden; and • can identify/enforce for non-compliance or non permitted conversion (in particular in CDAs where it exacerbates the problem).	Norwich Wide	Low			<£5k	Improved guidance to public on planning policy restrictions	Norfolk County Council / Defra	Medium		Ongoing	Communication / Partnerships		Norfolk County Council, Norwich City Council, Broadland District Council and South Norfolk District Council	Planning departments within lead council bodies		No		
NUA28	Flood Risk Resilience Measures Information Portal	Provide an information portal that residents can consult for further information on property-level flood resilience measures, for example - for permeable paving, include a list of 'approved suppliers' whom residents can contact to install permeable driveways etc.	Norwich Wide	Medium			<£25k	Improved community understanding of local flood risk resilience measures	Norfolk County Council / Defra	Medium		3 months	Communication / Partnerships		Norfolk County Council	Norwich City Council, Broadland District Council and South Norfolk District Council	Environment Agency	No		
NUA29	Incentive Scheme for Rainwater Harvesting	Consider providing an incentive scheme for the use of rainwater harvesting systems across greater Norwich urban area.	Norwich Wide	Low			<£25k	Improved community understanding of local flood risk resilience measures	Norfolk County Council / Defra	Medium		3 months	Communication / Partnerships		Norfolk County Council	Norwich City Council, Broadland District Council and South Norfolk District Council	Environment Agency, Anglian Water	No		
NUA30	Investigate Local Drainage Capacity	Investigate local drainage capacity in line with recommendations provided in the SWMP Report. Undertake 'Pilot Study' for one area, e.g. CDA3 Nelson and Town Close.	CDA3 - Nelson & Town Close.	Medium	£15k - £ 25k			Improve understanding of local drainage capacity in areas known to regularly flood and identify requirements for upgrade.	Norfolk County Council / Defra, Anglian Water, Norwich City Council	Short		6 - 9 months - for Pilot Study in one area	Investigation / Feasibility / Design		Norfolk County Council	Highways department, Anglian Water		No		
NUA31	Confirm Drainage Capacity - New Development	Confirm Drainage Capacity / SuDS in new development being undertaken in Broadland DC and update SWMP modelling / Flood Depth / Flood Hazard maps where required.	New development near Bowthorpe (Broadland DC / Developers)	Low	<£10k			Improved understanding of drainage capacity / SuDS in new development and associated residual flood risk	Norfolk County Council / Defra / Broadland DC / Developers	Medium		3 months	Investigation / Feasibility / Design		Norfolk County Council, Broadland District Council	Private developers		No		
NUA32	Source Control SuDS – CDA2 & CDA3	Undertake a feasibility study for providing source control / attenuation and SuDS retrofit measures within CDA2 & CDA3.	CDA2 & CDA3	High	£25k - £50k	£250k - £500k		Provide flood mitigation to residents within CDA2 & CDA3.	Norfolk County Council / Defra / Norwich City Council	Short		3 - 6 months - feasibility study	Investigation / Feasibility / Design		Norfolk County Council	Norwich City Council, Environment Agency		No		
NUA33	Flood Storage Attenuation, Source Control SuDS and Flowpath Management	Undertake a feasibility study for providing source control / attenuation measures in the upper part of the catchment of CDA1 (Drayton), alongside managing overland flowpaths to better manage and attenuate surface water in the area.	CDA1 (Drayton)	High	£25k - £50k	£250k - £500k		Provide flood mitigation to properties in the Drayton area.	Norfolk County Council / Broadland DC / Defra	Medium		3 - 6 months - feasibility study	Investigation / Feasibility / Design		Norfolk County Council, Broadland District Council	Environment Agency		No		
NUA34	Source Control SuDS	Implementation of rainwater harvesting scheme in Angel Road Junior School	Angel Road Junior School	Medium	<£25k	£75k - £150k		Provide flood mitigation to Angel Road Junior School and provide education opportunities for flood attenuation	Norfolk County Council / Defra / Norwich City Council	Short		3 months	Flooding Mitigation Action		Norfolk County Council	Norwich City Council	Environment Agency	No		
NUA35	Flood Storage	Undertake a feasibility study for providing flood storage in Catton Park (to the north of Chartwell Road)	Catton Park	High	<£25k	£75k - £150k		Provide flood mitigation to properties along Oak Lane and reduce surface water flows further down the catchment	Norfolk County Council / Defra / Norwich City Council	Short		3 months	Flooding Mitigation Action		Norfolk County Council	Norwich City Council, Broadland District Council	Environment Agency, Catton Park landowner	No		
NUA36	Water Butts	Undertake feasibility study to quantify the benefits of the implementation of residential water butts on properties within CDA1, CDA2 and CDA3	CDA1, CDA2 & CDA3	High	<£25k	>£500k		Provide immediate flood attenuation to residents within CDAs.	Norfolk County Council / Broadland DC / Defra / Norwich City Council	Short		3 months	Flooding Mitigation Action		Norfolk County Council, Norwich City Council, Broadland District Council and South Norfolk District Council	Environment Agency, Anglian Water		No		

## **Guidance Notes (Norwich Urban Area SWMP)**

Action Types' are defined as follows:

<b>Action Type</b>	<b>Abbreviation</b>	<b>Explanation</b>
Flood and Water Management Act / Flood Risk Regulations	FWMA / FRR	Duties and actions as required by the FRR and FWMA - Refer to Appendix A of the LGG 'Preliminary Framework to assist the development of the Local Strategy for Flood Risk Management' (February 2011) for minimum requirements
Policy Action	Policy	Spatial planning or development control actions
Communication / Partnerships	C + M	Actions to communicate risk internally or externally to LLFA or create / improve flood risk related partnerships
Financial / Resourcing	F + R	Actions to secure funding internally / externally to support works or additional resources to deliver actions
Investigation / Fesibility / Desgin	I / F / D	Further investigation / feasibility study / Design of mitigation
Flooding Mitigation Action	FMA	Maintenance or capital works undertaken to mitigate flood risk