				CATEGORY (BASED ON SWMP Guidance (2010) Table 8-2)									
				CRITERIA	TECHNICAL		ENVIRONMENTAL		SOCIAL		ECONOMIC		OBJECTIVES	
				Description / examples	Is the option buildable? Will it be robust and reliable?		Will the environment benefit or suffer from implementation of the measure?		Will the community benefit or suffer from implementation of the measure?		Will benefits exceed costs?		Will it help to achieve the objectives?	
				Scoring	-2 - the measure is not technically feasible without being coupled with another measure.		-2 - the measure is likely to have a significant adverse effect on the environment e.g. increase flood risk downstream, alter the WFD status of a water body or compromise an environmental designation.		-2 - the measure will have a significant negative effect one the community e.g. it will remove an existing amenity and recreation area.		-2 - the costs of the measure are likely to significantly outweigh the benefits.		-2 - the measure will detriment the objectives.	
					-1 - it is uncertain whether this measure is feasible and further investigations are required.		-1 - the measure will have a moderate adverse impact on the environment.		-1 - the measure will have a moderate negative effect on the community e.g. it will temporarily remove an existing amenity and recreation area.		-1 - the costs of the measure are likely to moderately outweigh the benefits		-1 - the measure will not help achieve any objectives	
					1 - the measure is slightly more complex to implement, some investigations will need to be carried out and there are many construction issues which will need to be overcome.		1 - the measure will improve the environment e.g. encourage wildlife to an existing area of open space.		1 - the measure would moderately benefit the community on a local scale e.g. small scale attenuation SuDS would provide amenity to a small number of people.		1 - the benefits of the measure are likely to moderately outweigh the costs.		1 - the measure will help achieve some of the objectives.	
					2 - the measure is simple to implement, no further investigations are required and there are few construction issues to overcome.		2 - the measure will have a significant improvement on the environment e.g. alter the WFD status of a water body for the better or create new habitats.		2 - the measure would significantly benefit the wider community e.g. a wetland area would provide opportunities for amenity and recreation.		2 - the benefits of the measure are likely to significantly outweigh the costs.		2 - the measure will help achieve all of the objectives.	
Hotspot		**Measure**	**Measure description**	**Potential Measure and Location within CDC**	0 - neutral impact	0	0 - neutral impact	0	0 - neutral impact	0	0 - neutral impact	0	0 - neutral impact	0	**OVERALL SCORE**
Source control measures		Do Nothing	Make no intervention / maintenance	Throughout the CDC.	No effort to implement.	-2	By doing nothing, surface water flood risk is predicted to become more frequent with the effects of climate change.	-2	Doing nothing is likely to create opposition from the community and negative feelings.	-2	There would be no benefit from this measure.	-2	Doing nothing would not achieve the objectives.	-2	-6
		Do Minimum	Continue existing maintenance regime, update surface water management policies in line with national guidance and react to flood events and subsequent damage.	Throughout the CDC.	Minimal effort to implement.	-2	By doing minimum, surface water flood risk is likely to become more frequent with the effects of climate change.	-1	Doing minimum could create opposition from the community and negative feelings.	-1	There would be few benefits from this measure.	-1	Doing minimum would not achieve the objectives.	-2	-3
		Green / living roofs, rain gardens	Installing layers of planting onto buildings (green roofs) or reprofiling gardens (rain gardens). It also helps to slow runoff from the building in lower return period rainfall events. Rain gardens should be designed to overflow into areas in which it is safe to do so, such as existing surface water sewers.	Green roofs could be retrofit onto St Mary and St Giles C of E Junior School and the mixed use building on Cofferidge Close. These buildings mostly have flat roofs making them suitable for the installation of green roofs.	Green roofs are relatively simple to install. Handrails will need to be incorporated into any green roof design.	2	Green roofs create new habitats as well as having an insulating effect, improving the building's energy efficiency.	2	The most suitable buildings to host green roofs within this CDC are a school and a mixed use building. If installed onto the roof of the junior school it could be used as an educational tool, which may have a moderate benefit to the local community.	1	Green roofs are only likely to provide benefit to the buildings they have been installed on in very low return periods. Generally, the cost of a green roof is offset by the amount of saving in energy bills.	0	A green roof would only provide a small amount of local flood risk alleviation in very low return periods.	-1	4
				Rain gardens could be incorporated into private gardens in the most at-risk residential areas within Stony Stratford.	Rain gardens are good for lower return period storms. However, the design of these areas will need to take into consideration the routes which overflow paths will follow to ensure there is no increased flood risk to properties downstream.	1	As this option requires private gardens to be reprofiled, it is expected that disruption to existing planting and the spoil which may arise from such works would have a negative environmental impact. In the long-term, the environmental impact is likely to be neutral providing the areas used for rain gardens remain as private gardens.	-1	The works involved in constructing rain gardens in private gardens may be an inconvenience in the short-term. Long-term, it is expected that these areas will have a neutral social impact.	0	Rain gardens are only likely to provide benefit during very low return periods. The cost to construct, remove spoil and connect overflows into existing surface water sewers is likely to outweigh the benefits.	-1	Rain gardens would only provide a small amount of local flood risk alleviation in very low return periods.	1	0
		Infiltration SuDS	E.g. permeable paving, soakaways, filter strips that provide a pathway for rainwater to infiltrate into the ground at a restricted rate. Infiltration SuDS are easier and more economical to install on new developments but can be retrofitted. All methods of infiltration can silt up over time, which may lead to the volume of storage for surface water runoff decreasing.	According to BGS mapping, the bedrock beneath the Stony Stratford CDC is formed from a number of different strata including the Whitby Mudstone Formation, Blisworth Limestone Formation, Blisworth Clay Formation, Cornbrash Formation, Kellaways Formation, Oxford Clay Formation and the Rutland Formation. The superficial deposits across this CDC are formed of River Terrace Deposits 1 and 2, Glaciofluvial Deposits, Alluvium and the Oadby Member. The Environment Agency's groundwater mapping indicates that the bedrock beneath this CDC is mostly designated a Secondary B Aquifer, with a narrow corridor of Principal Aquifer which coincides with the Cornbrash Formation and a small area of Secondary B Aquifer towards the south-east of the CDC. The superficial deposits across this CDC are mostly designated a Secondary A Aquifer. The combined data suggests that the permeability of the ground beneath Stony Stratford is variable, and potentially unreliable for the purpose of infiltration SuDS. Further investigation is required to establish if infiltration SuDS is a feasible option.	N/A		N/A		N/A		N/A		N/A		
		Attenuation SuDS	E.g. storage basins, tanked permeable paving, rainwater harvesting and swales. All methods store surface water before discharging at a restricted flow rate. All methods of attenuation can silt up over time, which may lead to the volume of storage for surface water runoff decreasing.	Attenuation SuDS (tanked permeable paving or tanked geocellular storage) could be retrofitted across the vehicle parking areas for the school in Stony Stratford. Attenuation basins could also be installed at the green space between the residential areas of Latimer and Millford Avenue. Permeable paving could also be implemented at the vehicle parking area at Vicarage Road.	Retrofitting tanked permeable paving or tanked geocellular storage is technically feasible, as is the installation of attenuation basins. However, this option will require further investigation and detailed design.	1	Below ground storage of surface water runoff is likely to have a neutral impact on the environment. Attenuation basins can attract a greater biodiversity and can assist with habitat creation, depending on its design and future management.	1	This option may raise opposition from members of the local community who are directly affected by the works. However, overall there would be a reduced risk of surface water flooding to the community.	1	The construction costs for this measure are likely to be moderate in comparison to the benefits achieved. Ongoing maintenance costs are also expected to be moderate. Therefore, it is considered that for this measure the costs are likely to equal the benefits.	0	Stormwater attenuation through the use of tanked below ground storage and an attenuation basin would help to meet the objectives.	1	4
		Other source measures	None identified		N/A		N/A		N/A		N/A		N/A		

Pathway control measures	Stony Stratford	Increasing capacity and/or conveyance of drainage systems (e.g.. Ditches or sewers)	Increasing conveyance could be achieved by clearing ditches, upsizing sewers, increasing the number of gullies or by incorporating new ditches, sewers and drains. However, increasing conveyance can often lead to an increase in flood risk downstream.	There are gullies present in the areas forming the flood flow pathways. However, upsizing the existing surface water sewer network in flood hotspots, possibly in conjunction with increasing the number of gullies or installing channel drains which outfall into upsized sewers, could assist in alleviating the surface water flood risk across this CDC. The High Street and Clarence Road are areas which may benefit from this measure.	Installation of extra gullies and upsizing parts of the surface water sewer network in this area is technically feasible. However, further investigation will be required as these works will need to take into consideration the capacity of the existing drainage network, buried services and traffic management.	1	Increasing the capacity and conveyance of the network is likely to have a neutral impact on the environment.	0	This option may raise opposition from some members of the local community. However, increasing the capacity and conveyance of the existing network in hotspot areas is unlikely to have a prolonged construction period.	1	The construction cost for this option, providing there are no adverse conditions experienced during construction, is expected to be moderate. Maintenance costs are expected to be low if gullies and/or channel drains are installed in easily accessible areas.	1	Increasing the capacity and conveyance of the existing surface water and stormwater drainage networks would help to meet the objectives.	1	4
		Separation of foul and surface water sewers	Where the hotspot is served by a combined drainage network, separation of the surface water from the combined system should be considered. In growth areas separation creates capacity for new connections.	The foul and surface water sewers within this CDC are separate. Therefore, this is not an option for this area.	N/A		N/A		N/A		N/A		N/A		
		Improved maintenance regimes	Target improved maintenance to critical points in the system and ensure the resources are available to deliver past and existing maintenance regimes. Where ditches, gullies and drains are prone to blockages, quick win measures such as clearance and maintenance can reduce flood risk.	Maintenance plans should be drawn up for areas where there are records of surface water flooding from blocked drains, gullies and ditches.	Maintenance plans are technically feasible, some investigation will be required before maintenance plans can be drawn up.	1	Maintenance plans for flood hotspots is likely to have a neutral impact on the environment.	0	This option will likely have a positive social impact, as regular maintenance may lead to a decrease in the number of flood events due to blocked or damaged assets reduce.	1	The benefits from regular maintenance of assets should outweigh the costs associated with maintenance works.	2	Maintenance plans would help to meet objectives.	1	5
		Managing overland flows	Intercepting known flow pathways and diverting away from receptors. Creating flood routes, e.g. use highway network to keep flood water away from property in all but the most extreme events. This can be achieved through changes to profiling of roads, kerb heights, the use of speed bumps etc.	In the most at-risk residential areas within Stony Stratford, surface water flood flow routes tend to follow highways, with some flooding impacting low spots in the area. Therefore, this option is not practicable for this CDC.	N/A		N/A		N/A		N/A		N/A		
		Land management practices	This can include increased tree coverage, perpendicular ploughing and more sustainable agricultural practices in order to slow down the surface water runoff and potentially assist in removing diffuse pollution from runoff arising from agricultural land. Land management is easy to implement and requires little technological input. However, this will require continuous management.	There are no areas within this CDC where this measure could be implemented.	N/A		N/A		N/A		N/A		N/A		
		Deculverting watercourse(s)	Deculverting watercourses can improve conveyance of water, as culverts can restrict flow rates.	There are no known culverts suitable for this measure within this CDC.	N/A		N/A		N/A		N/A		N/A		
		Other 'pathway' measures	None identified												
Receptor control measures		Planning policies to influence development	Use forthcoming development control policies to direct development away from areas of surface water flood risk or implement flood risk reduction measures. The policies could be borough wide or area specific, e.g. Basement dwellings are not permitted in areas of known surface water flooding, or a reduction in surface water runoff from a new development is required to be demonstrated in an area of known surface water flooding.	There are a limited number of areas across the CDC earmarked for residential development, the areas specified are also considerably small. Attenuation SuDS such as small scale permeable paving areas or geocellular storage would be best suited to developments of this size. Any flows discharged from attenuation features should be restricted to Q_{BAR}.	Small scale attenuation would be relatively simple to incorporate as part of the construction of a new development.	1	This option is likely to have a neutral environmental impact.	0	This measure is likely to have a neutral social impact.	0	As this measure should be constructed as part of the new developments, there is a potential to maximise economies of scale. In addition, develop contributions to assist in flood alleviation that benefit the wider community could be sought. This could lead to benefits outweighing costs.	1	This measure is likely to help in achieving the objectives.	1	3
		Improved resilience and resistance measures	Existing and new buildings can be adapted to reduce damages from flooding. Resistance measures to prevent water entering the property (e.g. demountable barriers). Resilience measures to reduce the damage caused by water within the property (e.g. raising electrics, solid floors).	Residential and commercial properties that are shown in the modelled surface water flood extents could have property level flood protection measures installed.	These are relatively simple to implement although the type of flood protection suitable for each property would need to be determined following a structural survey.	1	It is considered that this measure would not have an impact on the environment. Although it is possible that flood risk to neighbouring properties could be increased which would need to be ascertained through modelling.	0	Depending on the willingness of uptake by the residents this could have a positive or negative social impact. Although, it is considered that if residents have experienced flooding before, they may be happy to install property level flood protection.	1	These measures are typically low-cost and would prevent flooding to the individual properties.	2	This measure is likely to help achieve the objectives.	2	6
		Social change, education and awareness	Increase activities of local flood groups to educate the community e.g. holding flood awareness events, leaflet dropping.	Where not already implemented, Milton Keynes Council could work with local community flood groups to develop community flood plans and raise awareness of flooding.	This option is technically feasible, and should require little in the way of further investigation.	2	This option would likely have a neutral impact on the environment.	0	The community would benefit from this option, and could lead to positive feelings towards schemes if they are involved in formulating plans for flood risk areas.	1	The benefits from this option should outweigh the costs involved.	1	This measure should assist with meeting the objectives.	1	5
		Other 'receptor' measures	None identified												

				CATEGORY (BASED ON SWMP Guidance (2010) Table 8-2)									
				CRITERIA	TECHNICAL		ENVIRONMENTAL		SOCIAL		ECONOMIC		OBJECTIVES	
				Description / examples	Is the option buildable? Will it be robust and reliable?		Will the environment benefit or suffer from implementation of the measure?		Will the community benefit or suffer from implementation of the measure?		Will benefits exceed costs?		Will it help to achieve the objectives?	
				Scoring	-2 - the measure is not technically feasible without being coupled with another measure.		-2 - the measure is likely to have a significant adverse effect on the environment e.g. increase flood risk downstream, alter the WFD status of a water body or compromise an environmental designation.		-2 - the measure will have a significant negative effect one the community e.g. it will remove an existing amenity and recreation area.		-2 - the costs of the measure are likely to significantly outweigh the benefits.		-2 - the measure will detriment the objectives.	
					-1 - it is uncertain whether this measure is feasible and further investigations are required.		-1 - the measure will have a moderate adverse impact on the environment.		-1 - the measure will have a moderate negative effect on the community e.g. it will temporarily remove an existing amenity and recreation area.		-1 - the costs of the measure are likely to moderately outweigh the benefits		-1 - the measure will not help achieve any objectives	
					1 - the measure is slightly more complex to implement, some investigations will need to be carried out and there are many construction issues which will need to be overcome.		1 - the measure will improve the environment e.g. encourage wildlife to an existing area of open space.		1 - the measure would moderately benefit the community on a local scale e.g. small scale attenuation SuDS would provide amenity to a small number of people.		1 - the benefits of the measure are likely to moderately outweigh the costs.		1 - the measure will help achieve some of the objectives.	
					2 - the measure is simple to implement, no further investigations are required and there are few construction issues to overcome.		2 - the measure will have a significant improvement on the environment e.g. alter the WFD status of a water body for the better or create new habitats.		2 - the measure would significantly benefit the wider community e.g. a wetland area would provide opportunities for amenity and recreation.		2 - the benefits of the measure are likely to significantly outweigh the costs.		2 - the measure will help achieve all of the objectives.	
Hotspot		Measure	Measure description	Potential Measure and Location within CDC	0 - neutral impact	0	0 - neutral impact	0	0 - neutral impact	0	0 - neutral impact	0	0 - neutral impact	0	OVERALL SCORE
Source control measures		Do Nothing	Make no intervention / maintenance	Throughout the CDC.	No effort to implement.	-2	By doing nothing, surface water flood risk is predicted to become more frequent with the effects of climate change.	-2	Doing nothing is likely to create opposition from the community and negative feelings.	-2	There would be no benefit from this measure.	-2	Doing nothing would not achieve the objectives.	-2	-6
		Do Minimum	Continue existing maintenance regime, update surface water management policies in line with national guidance and react to flood events and subsequent damage.	Throughout the CDC.	Minimal effort to implement.	-2	By doing minimum, surface water flood risk is likely to become more frequent with the effects of climate change.	-1	Doing minimum could create opposition from the community and negative feelings.	-1	There would be few benefits from this measure.	-1	Doing minimum would not achieve the objectives.	-2	-3
		Green / living roofs, rain gardens	Installing layers of planting onto buildings (green roofs) or reprofiling gardens (rain gardens). It also helps to slow runoff from the building in lower return period rainfall events. Rain gardens should be designed to overflow into areas in which it is safe to do so, such as existing surface water sewers.	Green roofs could be retrofit onto a number of buildings within the industrial estate towards the north of Olney. A green roof could also be installed onto Ousedale School as it has a flat roof.	Green roofs are relatively simple to install. Handrails will need to be incorporated into any green roof design.	2	Green roofs create new habitats as well as having an insulating effect, improving the building's energy efficiency.	2	The most suitable buildings to host green roofs within this CDC are a school and commercial buildings. If installed onto the roof of the school it could be used as an educational tool, which would be a moderate benefit to the local community.	1	Green roofs are only likely to provide benefit to the buildings they have been installed on in very low return periods. Generally, the cost of a green roof is offset by the amount of saving in energy bills.	0	A green roof would only provide a small amount of local flood risk alleviation in very low return periods.	-1	4
				Rain gardens could be incorporated into private gardens in the most at-risk residential areas within Olney.	Rain gardens are good for lower return period storms. However, the design of these areas will need to take into consideration the routes which overflow paths will follow to ensure there is no increased flood risk to properties downstream.	1	As this option requires private gardens to be reprofiled, it is expected that disruption to existing planting and the spoil which may arise from such works would have a negative environmental impact. In the long-term, the environmental impact are likely to be neutral providing the areas used for rain gardens remain as private gardens.	-1	The works involved in constructing rain gardens in private gardens will likely be an inconvenience in the short term. Long-term, it is expected that these areas will have a neutral social impact.	0	Rain gardens are only likely to provide benefit during very low return periods. The cost to construct, remove spoil and connect overflows into existing surface water sewers is likely to outweigh the benefits.	-1	Rain gardens would only provide a small amount of local flood risk alleviation in very low return periods.	1	0
		Infiltration SuDS	E.g. permeable paving, soakaways, filter strips that provide a pathway for rainwater to infiltrate into the ground at a restricted rate. Infiltration SuDS are easier and more economical to install on new developments but can be retrofitted. All methods of infiltration can silt up over time, which will lead to the volume of storage for surface water runoff decreasing.	According to BGS mapping, the bedrock beneath the Olney CDC is variable. The bedrock strata beneath the eastern side of Olney is the Rutland Formation which comprises Argillaceous Rocks with Subordinate Sandstone and Limestone. Towards the western side of Olney, the bedrock is mostly the Blisworth Limestone Formation and the Cornbrash Formation (Limestone), which are separated by a narrow corridor of the Blisworth Clay Formation. The Environment Agency's groundwater mapping indicates that the bedrock beneath this CDC is designated a Principal Aquifer. The combined data suggests that the ground beneath this CDC is potentially suited to infiltration SuDS.	Ground investigations at suitable sites will need to include soakage testing, in order to clarify whether infiltration SuDS is a feasible option. Installation of infiltration SuDS is relatively simple to implement but will require investigation and detailed design.	1	The most suitable forms of infiltration SuDS across this CDC are private soakaways, permeable paving and geocellular storage crates. These forms of infiltration are likely to have a neutral environmental impact, providing potential pollutants are separated out from surface water runoff before infiltrating into the ground.	0	The works involved in installing infiltration SuDS may require access to private gardens and parking areas which may be an inconvenience to affected residents. However, in the long term, the reduced risk of surface water flooding would be of benefit to the local residents and visitors to the area.	1	The construction costs for infiltration SuDS can be variable, depending on the SuDS type. Overall, it is expected that costs will equal benefits.	0	Infiltration SuDS would assist in meeting the objectives.	1	3
		Attenuation SuDS	E.g. storage basins, tanked permeable paving, rainwater harvesting and swales. All methods store surface water before discharging at a restricted flow rate. All methods of attenuation can silt up over time, which will lead to the volume of storage for surface water runoff decreasing.	Tanked permeable paving or tanked geocellular storage could be retrofitted at Olney Junior and Middle School across vehicle parking areas and play areas, if infiltration SuDS isn't a feasible option. Attenuated stormwater would then discharge to existing public surface water sewers at a restricted rate. Permeable paving would not be suitable in areas used by heavy goods vehicles.	Retrofitting tanked permeable paving or tanked geocellular storage is technically feasible. However, this option will require further investigation and detailed design.	1	Below ground storage of surface water runoff is likely to have a neutral impact on the environment.	1	This option may raise opposition from members of the local community who are directly affected by the works. However, overall there would be a reduced risk of surface water flooding to the community.	1	The construction costs for this measure are likely to be moderate in comparison to the benefits achieved. Ongoing maintenance costs are also expected to be moderate. Therefore, it is considered that for this measure the costs are likely to equal the benefits.	0	Stormwater attenuation through the use of tanked below ground storage would help to meet the objectives.	1	4
		Other source measures	None identified		N/A		N/A		N/A		N/A		N/A		

Pathway control measures	Olney	Increasing capacity and/or conveyance of drainage systems (e.g.. Ditches or sewers)	Increasing conveyance could be achieved by clearing ditches, upsizing sewers, increasing the number of gullies or by incorporating new ditches, sewers and drains. However, increasing conveyance can often lead to an increase in flood risk downstream.	The surface water sewers and highway drains in the worst affected areas could be increased in size, most significantly in the High Street of the CDC. This could be coupled with increasing the maintenance of the existing gullies and installation of new gullies or channel drains to increase conveyance further.	Upsizing sewers with increased gullies or installation of channel drains in this area is technically feasible. However, further investigation will be required as the installation of new gullies will need to take into consideration the capacity of the existing drainage network, buried services and traffic management.	1	Increasing the capacity and the conveyance of the existing surface water and stormwater sewer network is likely to have a neutral environmental impact.	0	This option may raise opposition from frequent visitors and from local businesses. However, this option is unlikely to have a prolonged construction period. In the long term, the alleviated flood risk to the High Street would be of benefit to businesses and visitors to the area.	1	The construction cost for this option, providing there are no adverse conditions experienced during construction, is moderate. Maintenance costs should be low if gullies or channel drains are installed in easily accessible areas.	0	Increasing the capacity and conveyance of the existing system would help to meet the objectives.	1	3
		Separation of foul and surface water sewers	Where the hotspot is served by a combined drainage network, separation of the surface water from the combined system should be considered. In growth areas separation creates capacity for new connections.	The foul and surface water sewers within this CDC are separate. Therefore, this is not an option for this area.	N/A		N/A		N/A		N/A		N/A		
		Improved maintenance regimes	Target improved maintenance to critical points in the system and ensure the resources are available to deliver past and existing maintenance regimes. Where ditches, gullies and drains are prone to blockages, quick win measures such as clearance and maintenance can reduce flood risk.	Maintenance plans should be drawn up for areas where there are records of surface water flooding from blocked drains, gullies and ditches.	Maintenance plans are technically feasible, some investigation will be required before maintenance plans can be drawn up.	1	Maintenance plans for flood hotspots is likely to have a neutral impact on the environment.	0	This option will likely have a positive social impact, as regular maintenance should lead to the number of flood events due to blocked or damaged assets reduce.	1	The benefits from regular maintenance of assets should outweigh the costs associated with maintenance works.	1	Maintenance plans would help to meet objectives.	1	4
		Managing overland flows	Intercepting known flow pathways and diverting away from receptors. Creating flood routes, e.g. use highway network to keep flood water away from property in all but the most extreme events. This can be achieved through changes to profiling of roads, kerb heights, the use of speed bumps etc.	In the most at-risk residential areas of Olney, surface water flood flow routes tend to follow highways. However, this is not the case in the vicinity of the High Street and the residential area south of Spring Lane. In these areas interception of flood flow in order to divert away from receptors, by using speed bumps and road reprofiling could be feasible.	This option's feasibility is dependent on the local topography.	1	This option is likely to have a neutral impact on the environment.	0	This option is likely to have a positive social impact, as the diversion of flood flow routes should see the number of flood events impacting residential properties decrease.	1	The cost of this option is likely to be relatively high in relation to the benefits.	-1	This option would help to meet objectives.	1	2
		Land management practices	This can include increased tree coverage, perpendicular ploughing and more sustainable agricultural practices in order to slow down the surface water runoff and potentially assist in removing diffuse pollution from runoff arising from agricultural land. Land management is easy to implement and requires little technological input. However, this will require continuous management.	There are no areas within this CDC where this option could be implemented.	N/A		N/A		N/A		N/A		N/A		
		Deculverting watercourse(s)	Deculverting watercourses can improve conveyance of water, as culverts can restrict flow rates.	There are no known culverts suitable for this option within this CDC.	N/A		N/A		N/A		N/A		N/A		
		Other 'pathway' measures	None identified												
Receptor control measures		Planning policies to influence development	Use forthcoming development control policies to direct development away from areas of surface water flood risk or implement flood risk reduction measures. The policies could be borough wide or area specific, e.g. Basement dwellings are not permitted in areas of known surface water flooding, or a reduction in surface water runoff from a new development is required to be demonstrated in an area of known surface water flooding.	There are a number of areas across the Olney CDC earmarked for residential development. Infiltration SuDS such as basins or swales should be included in any development plans. If infiltration is not feasible, attenuation basins, dry ponds, or other forms of attenuation SuDS should be required of developments. Any flows discharged from attenuation features should be restricted to Q_{BAR}.	Infiltration or attenuation ponds, swales and blue-green corridors are widely used in new developments and would be relatively simple to incorporate as part of the construction of a new development.	2	This option could lead to increased biodiversity and habitat creation at a local scale.	2	This measure could provide a local amenity area and raise awareness of flooding locally.	2	As this measure should be constructed as part of the new developments, there is a potential to maximise economies of scale. In addition, develop contributions to assist in flood alleviation that benefit the wider community could be sought. Given the location of these proposed developments and their interaction with overland flood flow pathways, there is a potential that this could alleviate flooding to many properties and therefore it is considered that this measure would be cost beneficial.	2	This measure will help in achieving the objectives.	1	9
		Improved resilience and resistance measures	Existing and new buildings can be adapted to reduce damages from flooding. Resistance measures to prevent water entering the property (e.g. demountable barriers). Resilience measures to reduce the damage caused by water within the property (e.g. raising electrics, solid floors).	All residential and commercial properties that are shown in the modelled surface water flood extents could have property level flood protection measures.	These are relatively simple to implement although the type of flood protection suitable for each property would need to be determined following a structural survey.	1	It is considered that this measure would not have an impact on the environment. Although it is possible that flood risk to neighbouring properties could be increased which would need to be ascertained through modelling.	0	Depending on the willingness of uptake by the residents this could have a positive or negative social impact. Although, it is considered that if residents have experienced flooding before, they may be happy to install property level flood protection.	1	These measures are typically low-cost and would prevent flooding to the individual properties.	1	This measure will help achieve the objectives.	1	4
		Social change, education and awareness	Increase activities of local flood groups to educate the community e.g. holding flood awareness events, leaflet dropping.	Where not already implemented, Milton Keynes Council could work with local community flood groups to develop community flood plans and raise awareness of flooding.	This option is technically feasible, and should require little in the way of further investigation.	2	This option would likely have a neutral impact on the environment.	0	The community would benefit from this option, and could lead to positive feelings towards schemes if they are involved in formulating plans for flood risk areas.	1	The benefits from this option should outweigh the costs involved.	1	This measure should assist with meeting the objectives.	1	5
		Other 'receptor' measures	None identified												

	CATEGORY (BASED ON SWMP Guidance (2010) Table 8-2)				
CRITERIA	TECHNICAL	ENVIRONMENTAL	SOCIAL	ECONOMIC	OBJECTIVES
Description / examples	Is the option buildable? Will it be robust and reliable?	Will the environment benefit or suffer from implementation of the measure?	Will the community benefit or suffer from implementation of the measure?	Will benefits exceed costs?	Will it help to achieve the objectives?
Scoring	-2 - the measure is not technically feasible without being coupled with another measure.	-2 - the measure is likely to have a significant adverse effect on the environment e.g. increase flood risk downstream, alter the WFD status of a water body or compromise an environmental designation.	-2 - the measure will have a significant negative effect one the community e.g. it will remove an existing amenity and recreation area.	-2 - the costs of the measure are likely to significantly outweigh the benefits.	-2 - the measure will detriment the objectives.
	-1 - it is uncertain whether this measure is feasible and further investigations are required.	-1 - the measure will have a moderate adverse impact on the environment.	-1 - the measure will have a moderate negative effect on the community e.g. it will temporarily remove an existing amenity and recreation area.	-1 - the costs of the measure are likely to moderately outweigh the benefits	-1 - the measure will not help achieve any objectives
	1 - the measure is slightly more complex to implement, some investigations will need to be carried out and there are many construction issues which will need to be overcome.	1 - the measure will improve the environment e.g. encourage wildlife to an existing area of open space.	1 - the measure would moderately benefit the community on a local scale e.g. small scale attenuation SuDS would provide amenity to a small number of people.	1 - the benefits of the measure are likely to moderately outweigh the costs.	1 - the measure will help achieve some of the objectives.
	2 - the measure is simple to implement, no further investigations are required and there are few construction issues to overcome.	2 - the measure will have a significant improvement on the environment e.g. alter the WFD status of a water body for the better or create new habitats.	2 - the measure would significantly benefit the wider community e.g. a wetland area would provide opportunities for amenity and recreation.	2 - the benefits of the measure are likely to significantly outweigh the costs.	2 - the measure will help achieve all of the objectives.

Hotspot		Measure	Measure description	Potential Measure and Location within CDC	0 - neutral impact	0	0 - neutral impact	0	0 - neutral impact	0	0 - neutral impact	0	0 - neutral impact	0	OVERALL SCORE
Source control measures		Do Nothing	Make no intervention / maintenance	Throughout the CDC.	No effort to implement.	2	By doing nothing, surface water flood risk is predicted to become more frequent with the effects of climate change.	-2	Doing nothing is likely to create opposition from the community and negative feelings.	-2	There would be no benefit from this measure.	-2	Doing nothing would not achieve the objectives.	-2	-6
		Do Minimum	Continue existing maintenance regime, update surface water management policies in line with national guidance and react to flood events and subsequent damage.	Throughout the CDC.	Minimal effort to implement.	2	By doing minimum, surface water flood risk is likely to become more frequent with the effects of climate change.	-1	Doing minimum could create opposition from the community and negative feelings.	-1	There would be few benefits from this measure.	-1	Doing minimum would not achieve the objectives.	-2	-3
		Green / living roofs, rain gardens	Installing layers of planting onto buildings (green roofs) or reprofiling gardens (rain gardens). It also helps to slow runoff from the building in lower return period rainfall events. Rain gardens should be designed to overflow into areas in which it is safe to do so, such as existing surface water sewers.	There are no suitable roofs within this CDC for the installation of green roofs.	N/A		N/A		N/A		N/A		N/A		
				Rain gardens could be incorporated into private gardens in the most at-risk residential areas within Newport Pagnell.	Rain gardens are good for lower return period storms. However, the design of these areas will need to take into consideration the routes which overflow paths will follow to ensure there is no increased flood risk to properties downstream.	1	As this option requires private gardens to be reprofiled, it is expected that disruption to existing planting and the spoil which may arise from such works would have a negative environmental impact. In the long-term, the environmental impact will be neutral providing the areas used for rain gardens remain as private gardens.	-1	The works involved in constructing rain gardens in private gardens will likely be an inconvenience in the short term. Long-term, it is expected that these areas will have a neutral social impact.	0	Rain gardens are only likely to provide benefit during very low return periods. The cost to construct, remove spoil and connect overflows into existing surface water sewers is likely to outweigh the benefits.	-1	Rain gardens would only provide a small amount of local flood risk alleviation in very low return periods.	1	0
		Infiltration SuDS	E.g. permeable paving, soakaways, filter strips that provide a pathway for rainwater to infiltrate into the ground at a restricted rate. Infiltration SuDS are easier and more economical to install on new developments but can be retrofitted. All methods of infiltration can silt up over time, which will lead to the volume of storage for surface water runoff decreasing.	According to BGS mapping, the geological strata which Newport Pagnell is underlain by is varied and includes the Kellaways Clay Member, Peterborough Member and the Stewartby Member. These strata are formed from mudstone, which is not typically permeable enough to make infiltration SuDS a feasible option.	N/A		N/A		N/A		N/A		N/A		
		Attenuation SuDS	E.g. storage basins, tanked permeable paving, rainwater harvesting and swales. All methods store surface water before discharging at a restricted flow rate. All methods of attenuation can silt up over time, which will lead to the volume of storage for surface water runoff decreasing.	Tanked permeable paving or tanked geocellular storage could be retrofit across Portfield Combined Schools, Newport Pagnell Youth Club Playing Field, Green Park School Playing Field and Kingfisher Park. Attenuated stormwater would then discharge to existing public surface water sewers at a restricted rate. Permeable paving would not be suitable in areas used by heavy goods vehicles.	Retrofitting tanked permeable paving or tanked geocellular storage is technically feasible. However, this option will require further investigation and detailed design.	1	Below ground storage of surface water runoff is likely to have a neutral impact on the environment.	1	This option may raise opposition from members of the local community who are directly affected by the works. However, overall there would be a reduced risk of surface water flooding to the community.	1	The construction costs for this measure are likely to be moderate in comparison to the benefits achieved. Ongoing maintenance costs are also expected to be moderate. Therefore, it is considered that for this measure the costs are likely to equal the benefits.	0	Stormwater attenuation through the use of tanked below ground storage would help to meet the objectives.	1	4
		Other source measures	None identified		N/A		N/A		N/A		N/A		N/A		
		Increasing capacity and/or conveyance of drainage systems (e.g.. Ditches or sewers)	Increasing conveyance could be achieved by clearing ditches, upsizing sewers, increasing the number of gullies or by incorporating new ditches, sewers and drains. However, increasing conveyance can often lead to an increase in flood risk downstream.	The surface water sewers and highway drains in the worst affected areas could be increased in size, most significantly in the High Street of the CDC. This could be coupled with increasing the maintenance of the existing gullies and installation of new gullies or channel drains to increase conveyance further. There are also numerous watercourses across this CDC which could benefit from vegetation maintenance to improve conveyance.	Upsizing sewers with increased gullies or installation of channel drains in this area is technically feasible. However, further investigation will be required as the installation of new gullies will need to take into consideration the capacity of the existing drainage network, buried services and traffic management.	1	Increasing the capacity and the conveyance of the existing surface water and stormwater sewer network and maintaining vegetation on the banks of watercourses is likely to have a neutral environmental impact.	0	This option may raise opposition from some members of the local community. However, increasing the capacity and conveyance of the existing network in hotspot areas is unlikely to have a prolonged construction period. In the long term, the alleviated flood risk would be of benefit to the local community, businesses and visitors to the area.	1	The construction cost for this option, providing there are no adverse conditions experienced during construction, is moderate. Maintenance costs should be low if gullies or channel drains are installed in easily accessible areas.	0	Increasing the capacity and conveyance of the existing system would help to meet the objectives.	1	3

Pathway control measures	Newport Pagnell	Separation of foul and surface water sewers	Where the hotspot is served by a combined drainage network, separation of the surface water from the combined system should be considered. In growth areas separation creates capacity for new connections.	The foul and surface water sewers within this CDC are separate. Therefore, this is not an option for this area.	N/A		N/A		N/A		N/A		N/A		
		Improved maintenance regimes	Target improved maintenance to critical points in the system and ensure the resources are available to deliver past and existing maintenance regimes. Where ditches, gullies and drains are prone to blockages, quick win measures such as clearance and maintenance can reduce flood risk.	Maintenance plans should be drawn up for areas where there are records of surface water flooding from blocked drains, gullies and ditches.	Maintenance plans are technically feasible, some investigation will be required before maintenance plans can be drawn up.	1	Maintenance plans for flood hotspots is likely to have a neutral impact on the environment.	0	This option will likely have a positive social impact, as regular maintenance should lead to the number of flood events due to blocked or damaged assets reduce.	1	The benefits from regular maintenance of assets should outweigh the costs associated with maintenance works.	1	Maintenance plans would help to meet objectives.	1	4
		Managing overland flows	Intercepting known flow pathways and diverting away from receptors. Creating flood routes, e.g. use highway network to keep flood water away from property in all but the most extreme events. This can be achieved through changes to profiling of roads, kerb heights, the use of speed bumps etc.	In the most at-risk residential areas of Newport Pagnell, surface water flood flow routes tend to follow highways. However, in some residential areas, such as Wolverton Road, kerbs heights are currently variable and would benefit from being raised.	This option's feasibility is dependent on the local topography.	1	This option is likely to have a neutral impact on the environment.	0	This option is likely to have a positive social impact, as the diversion of flood flow routes should see the number of flood events impacting residential properties decrease.	1	The cost of this option is likely to be moderate in relation to the benefits.	0	This option would help to meet objectives.	1	3
		Land management practices	This can include increased tree coverage, perpendicular ploughing and more sustainable agricultural practices in order to slow down the surface water runoff and potentially assist in removing diffuse pollution from runoff arising from agricultural land. Land management is easy to implement and requires little technological input. However, this will require continuous management.	There are no areas within this CDC where this option could be implemented.	N/A		N/A		N/A		N/A		N/A		
		Deculverting watercourse(s)	Deculverting watercourses can improve conveyance of water, as culverts can restrict flow rates.	There are no known culverts suitable for this option within this CDC.	N/A		N/A		N/A		N/A		N/A		
		Other 'pathway' measures	Other 'pathway' measures beyond those identified above.	The Milton Keynes Council Drainage Team are considering implementing flood gates along Little Linford Lane to prevent residents accessing an area of high flood risk.	This measure is technically feasible yet it is likely that additional investigations would be required to further an appropriate design.	1	Providing pollution prevention control measures are implemented, the construction and operation of flood gates will have a neutral impact on the environment.	0	There may be strong community opposition from this measure. However, this measure is intended to protect the health and wellbeing of road users and local residents.	1	The cost of implementing flood gates is likely to be low. The benefits could outweigh the costs.	1	This measure will help in achieving the objectives.	1	4
Receptor control measures		Planning policies to influence development	Use forthcoming development control policies to direct development away from areas of surface water flood risk or implement flood risk reduction measures. The policies could be borough wide or area specific, e.g. Basement dwellings are not permitted in areas of known surface water flooding, or a reduction in surface water runoff from a new development is required to be demonstrated in an area of known surface water flooding.	There are a number of areas across the CDC earmarked for residential development. Infiltration SuDS such as basins or swales should be included in any development plans. If infiltration is not feasible, attenuation basins, dry ponds, or other forms of attenuation SuDS should be required of developments. Any flows discharged from attenuation features should be restricted to Q_{BAR}.	Attenuation ponds, swales and blue-green corridors are widely used in new developments and would be relatively simple to incorporate as part of the construction of a new development.	2	This option could lead to increased biodiversity and habitat creation at a local scale.	2	This measure could provide a local amenity area and raise awareness of flooding locally.	2	As this measure should be constructed as part of the new developments, there is a potential to maximise economies of scale. In addition, develop contributions to assist in flood alleviation that benefit the wider community could be sought. Given the location of these proposed developments and their interaction with overland flood flow pathways, there is a potential that this could alleviate flooding to many properties and therefore it is considered that this	2	This measure will help in achieving the objectives.	1	9
		Improved resilience and resistance measures	Existing and new buildings can be adapted to reduce damages from flooding. Resistance measures to prevent water entering the property (e.g. demountable barriers). Resilience measures to reduce the damage caused by water within the property (e.g. raising electrics, solid floors).	All residential and commercial properties that are shown in the modelled surface water flood extents could have property level flood protection measures.	These are relatively simple to implement although the type of flood protection suitable for each property would need to be determined following a structural survey.	1	It is considered that this measure would not have an impact on the environment. Although it is possible that flood risk to neighbouring properties could be increased which would need to be ascertained through modelling.	0	Depending on the willingness of uptake by the residents this could have a positive or negative social impact. Although, it is considered that if residents have experienced flooding before, they may be happy to install property level flood protection.	1	These measures are typically low-cost and would prevent flooding to the individual properties.	1	This measure will help achieve the objectives.	1	4
		Social change, education and awareness	Increase activities of local flood groups to educate the community e.g. holding flood awareness events, leaflet dropping.	Where not already implemented, Milton Keynes Council could work with local community flood groups to develop community flood plans and raise awareness of flooding.	This option is technically feasible, and should require little in the way of further investigation.	2	This option would likely have a neutral impact on the environment.	0	The community would benefit from this option, and could lead to positive feelings towards schemes if they are involved in formulating plans for flood risk areas.	1	The benefits from this option should outweigh the costs involved.	1	This measure should assist with meeting the objectives.	1	5
		Other 'receptor' measures	None identified												

				CATEGORY (BASED ON SWMP Guidance (2010) Table 8-2)									
				CRITERIA	TECHNICAL		ENVIRONMENTAL		SOCIAL		ECONOMIC		OBJECTIVES
				Description / examples	Is the option buildable? Will it be robust and reliable?		Will the environment benefit or suffer from implementation of the measure?		Will the community benefit or suffer from implementation of the measure?		Will benefits exceed costs?		Will it help to achieve the objectives?
				Scoring	-2 - the measure is not technically feasible without being coupled with another measure.		-2 - the measure is likely to have a significant adverse effect on the environment e.g. increase flood risk downstream, alter the WFD status of a water body or compromise an environmental designation.		-2 - the measure will have a significant negative effect one the community e.g. it will remove an existing amenity and recreation area.		-2 - the costs of the measure are likely to significantly outweigh the benefits.		-2 - the measure will detriment the objectives.
					-1 - it is uncertain whether this measure is feasible and further investigations are required.		-1 - the measure will have a moderate adverse impact on the environment.		-1 - the measure will have a moderate negative effect on the community e.g. it will temporarily remove an existing amenity and recreation area.		-1 - the costs of the measure are likely to moderately outweigh the benefits		-1 - the measure will not help achieve any objectives
					1 - the measure is slightly more complex to implement, some investigations will need to be carried out and there are many construction issues which will need to be overcome.		1 - the measure will improve the environment e.g. encourage wildlife to an existing area of open space.		1 - the measure would moderately benefit the community on a local scale e.g. small scale attenuation SuDS would provide amenity to a small number of people.		1 - the benefits of the measure are likely to moderately outweigh the costs.		1 - the measure will help achieve some of the objectives.
					2 - the measure is simple to implement, no further investigations are required and there are few construction issues to overcome.		2 - the measure will have a significant improvement on the environment e.g. alter the WFD status of a water body for the better or create new habitats.		2 - the measure would significantly benefit the wider community e.g. a wetland area would provide opportunities for amenity and recreation.		2 - the benefits of the measure are likely to significantly outweigh the costs.		2 - the measure will help achieve all of the objectives.
Hotspot		Measure	Measure description	Potential Measure and Location within CDC	0 - neutral impact	0	0 - neutral impact	0	0 - neutral impact	0	0 - neutral impact	0	0 - neutral impact	0	OVERALL SCORE
Source control measures		Do Nothing	Make no intervention / maintenance	Throughout the CDC.	No effort to implement.	2	By doing nothing, surface water flood risk is predicted to become more frequent with the effects of climate change.	-2	Doing nothing is likely to create opposition from the community and negative feelings.	-2	There would be no benefit from this measure.	-2	Doing nothing would not achieve the objectives.	-2	-6
		Do Minimum	Continue existing maintenance regime, update surface water management policies in line with national guidance and react to flood events and subsequent damage.	Throughout the CDC.	Minimal effort to implement.	2	By doing minimum, surface water flood risk is likely to become more frequent with the effects of climate change.	-1	Doing minimum could create opposition from the community and negative feelings.	-1	There would be few benefits from this measure.	-1	Doing minimum would not achieve the objectives.	-2	-3
		Green / living roofs, rain gardens	Installing layers of planting onto buildings (green roofs) or reprofiling gardens (rain gardens). It also helps to slow runoff from the building in lower return period rainfall events. Rain gardens should be designed to overflow into areas in which it is safe to do so, such as existing surface water sewers.	Green roofs could be retrofit onto some buildings within Stacy Bushes and Kiln Farm industrial estate.	Green roofs are relatively simple to install. Handrails will need to be incorporated into any green roof design.	2	Green roofs create new habitats as well as having an insulating effect, improving the building's energy efficiency.	2	The most suitable buildings to host green roofs within this CDC are a school and commercial buildings. If installed onto the roof of the school it could be used as an educational tool, which would be a moderate benefit to the local community.	1	Green roofs are only likely to provide benefit to the buildings they have been installed on in very low return periods. Generally, the cost of a green roof is offset by the amount of saving in energy bills.	0	A green roof would only provide a small amount of local flood risk alleviation in very low return periods.	-1	4
				Rain gardens could be incorporated into private gardens in the most at-risk residential areas within this CDC.	Rain gardens are good for lower return period storms. However, the design of these areas will need to take into consideration the routes which overflow paths will follow to ensure there is no increased flood risk to properties downstream.	1	As this option requires private gardens to be reprofiled, it is expected that disruption to existing planting and the spoil which may arise from such works would have a negative environmental impact. In the long-term, the environmental impact will be neutral providing the areas used for rain gardens remain as private gardens.	-1	The works involved in constructing rain gardens in private gardens will likely be an inconvenience in the short term. Long-term, it is expected that these areas will have a neutral social impact.	0	Rain gardens are only likely to provide benefit during very low return periods. The cost to construct, remove spoil and connect overflows into existing surface water sewers is likely to outweigh the benefits.	-1	Rain gardens would only provide a small amount of local flood risk alleviation in very low return periods.	1	0
		Infiltration SuDS	E.g. permeable paving, soakaways, filter strips that provide a pathway for rainwater to infiltrate into the ground at a restricted rate. Infiltration SuDS are easier and more economical to install on new developments but can be retrofitted. All methods of infiltration can silt up over time, which will lead to the volume of storage for surface water runoff decreasing.	The majority of Bradwell Abbey is underlain by impermeable bedrock geology such as the Peterborough member, Oxford Clay and the Blisworth (clay) formation. However, the bedrock across this CDC is varied. Upon initial inspection the hard standing located at the Trading Centre was considered as a potential area for the installation of infiltration SuDS such as permeable paving due to the underlying bedrock comprising Blisworth limestone and Cornbrash limestone. However, the weight of the vehicles which are likely to be using the site may result in the deformation of the permeable paving. Consequently, there are no opportunities to use infiltration SuDS across Bradwell Abbey.	N/A		N/A		N/A		N/A		N/A		
		Attenuation SuDS	E.g. storage basins, tanked permeable paving, rainwater harvesting and swales. All methods store surface water before discharging at a restricted flow rate. All methods of attenuation can silt up over time, which will lead to the volume of storage for surface water runoff decreasing.	Attenuation SuDS could be implemented in the following areas: Bradwell Abbey Golf Course opposite Dalvina and Kildonan Place. Attenuation SuDS could also be implemented at the northern extent of Bradwell Abbey cricket field (next to Calvie Croft) and at the vegetated area to the south of Millers Way just north of Myrtle Bank.	Installation of surface water attenuation areas is technically feasible. However, this option will require further investigation and detailed design.	1	Attenuation basins could lead to greater biodiversity, therefore this option would provide a benefit to the environment.	1	This option may raise opposition from members of the local community who are directly affected by the works. However, overall there would be a reduced risk of surface water flooding to the community.	1	The cost to implement large scale attenuation areas is relatively small in comparison to the benefits gained from these areas.	2	Attenuation areas would help to meet objectives.	1	6
		Other source measures	None identified		N/A		N/A		N/A		N/A		N/A		
		Increasing capacity and/or conveyance of drainage systems (e.g.. Ditches or sewers)	Increasing conveyance could be achieved by clearing ditches, upsizing sewers, increasing the number of gullies or by incorporating new ditches, sewers and drains. However, increasing conveyance can often lead to an increase in flood risk downstream.	Upsizing the existing surface water sewer network in flood hotspots, such as White Alder, possibly in conjunction with increasing the number of gullies or installing channel drains which outfall into upsized sewers, could assist in alleviating the surface water flood risk across this CDC. There is also an ordinary watercourse which cuts across this CDC, this could benefit from vegetation clearance and maintenance in hotspot or strategic regions.	Installation of extra gullies and upsizing parts of the surface water sewer network in this area is technically feasible. However, further investigation will be required as these works will need to take into consideration the capacity of the existing drainage network, buried services and traffic management.	1	Increasing the capacity and the conveyance of the existing surface water and stormwater sewer network and maintaining vegetation on the banks of watercourses is likely to have a neutral environmental impact.	0	This option may raise opposition from some members of the local community. However, increasing the capacity and conveyance of the existing network in hotspot areas is unlikely to have a prolonged construction period. In the long term, the alleviated flood risk would be of benefit to the local community, businesses and visitors to the area.	1	The construction cost for this option, providing there are no adverse conditions experienced during construction, is expected to be moderate. Maintenance costs are expected to be low if gullies and/or channel drains are installed in easily accessible areas.	1	Increasing the capacity and conveyance of the existing surface water and stormwater drainage networks would help to meet the objectives.	1	4

Pathway control measures	Bradwell Abbey	Separation of foul and surface water sewers	Where the hotspot is served by a combined drainage network, separation of the surface water from the combined system should be considered. In growth areas separation creates capacity for new connections.	The foul and surface water sewers within this CDC are separate. Therefore, this is not an option for this area.	N/A		N/A		N/A		N/A		N/A		
		Improved maintenance regimes	Target improved maintenance to critical points in the system and ensure the resources are available to deliver past and existing maintenance regimes. Where ditches, gullies and drains are prone to blockages, quick win measures such as clearance and maintenance can reduce flood risk.	Maintenance plans should be drawn up for areas where there are records of surface water flooding from block drains, gullies and ditches.	Maintenance plans are technically feasible, some investigation will be required before maintenance plans can be drawn up.	1	Maintenance plans for flood hotspots is likely to have a neutral impact on the environment.	0	This option will likely have a positive social impact, as regular maintenance should lead to the number of flood events due to blocked or damaged assets reduce.	1	The benefits from regular maintenance of assets should outweigh the costs associated with maintenance works.	1	Maintenance plans would help to meet objectives.	1	4
		Managing overland flows	Intercepting known flow pathways and diverting away from receptors. Creating flood routes, e.g. use highway network to keep flood water away from property in all but the most extreme events. This can be achieved through changes to profiling of roads, kerb heights, the use of speed bumps etc.	There is the potential for raising the kerb heights of highway networks which are shown to at a high risk of surface water flooding, particular in residential areas such as White Alder which has low kerbs.	Increasing the kerb heights along White Alder is technically feasible. Additional investigation works would be required relating to finalise design yet is unlikely that any constructional issues would have to be overcome.	1	Increasing the kerb height in areas such as White Alder is unlikely to have any environmental effects, provided appropriate pollution prevention and control measures are undertaken during construction.	0	This option may raise opposition from residents of White Alder and from local businesses within the commercial areas in the surrounding area. However, kerb raising is unlikely to have a prolonged construction period. In the long term, the alleviated flood risk to White Alder would be of benefit to businesses and visitors to the area.	1	The construction cost for this option, providing there are no adverse conditions experienced during construction, is relatively low. Maintenance costs would be very low.	1	Raising kerbs and thereby diverting surface water from residential properties, is likely to help meet objectives.	1	4
		Land management practices	This can include increased tree coverage, perpendicular ploughing and more sustainable agricultural practices in order to slow down the surface water runoff and potentially assist in removing diffuse pollution from runoff arising from agricultural land. Land management is easy to implement and requires little technological input. However, this	There are no areas within this CDC where this option could be implemented.	N/A		N/A		N/A		N/A		N/A		
		Deculverting watercourse(s)	Deculverting watercourses can improve conveyance of water, as culverts can restrict flow rates.	The ordinary watercourse which flows from south-west to east across Bradwell Abbey contains a large double-culvert (images available). Across Bradwell Abbey, watercourses remain as open channels wherever possible, and further de-culverting does not appear to be a practicable option.	N/A		N/A		N/A		N/A		N/A		
		Other 'pathway' measures	None identified												
Receptor control measures		Planning policies to influence development	Use forthcoming development control policies to direct development away from areas of surface water flood risk or implement flood risk reduction measures. The policies could be borough wide or area specific, e.g. Basement dwellings are not permitted in areas of known surface water flooding, or a reduction in surface water runoff from a new development is required to be demonstrated in an area of known surface water flooding.	There are a small number of areas within Bradwell Abbey earmarked for residential development. Attenuation SuDS such as basins, dry ponds, swales with outfalls to local sewers or other forms of attenuation SuDS should be required of developments. Any flows discharged from attenuation features should be restricted to Q_{BAR}.	Attenuation ponds, swales and blue-green corridors are widely used in new developments and would be relatively simple to incorporate as part of the construction of a new development.	2	This option could lead to increased biodiversity and habitat creation at a local scale.	2	This measure could provide a local amenity area and raise awareness of flooding locally.	2	As this measure should be constructed as part of the new developments, there is a potential to maximise economies of scale. In addition, develop contributions to assist in flood alleviation that benefit the wider community could be sought. . Given the location of these proposed developments and their interaction with overland flood flow pathways, there is a potential that this could alleviate flooding to many properties and therefore it is considered that this measure would be cost beneficial.	2	This measure will help in achieving the objectives.	1	9
		Improved resilience and resistance measures	Existing and new buildings can be adapted to reduce damages from flooding. Resistance measures to prevent water entering the property (e.g. demountable barriers). Resilience measures to reduce the damage caused by water within the property (e.g. raising electrics, solid floors).	All residential and commercial properties that are shown in the modelled surface water flood extents could have property level flood protection measures.	These are relatively simple to implement although the type of flood protection suitable for each property would need to be determined following a structural survey.	1	It is considered that this measure would not have an impact on the environment. Although it is possible that flood risk to neighbouring properties could be increased which would need to be ascertained through modelling.	0	Depending on the willingness of uptake by the residents this could have a positive or negative social impact. Although, it is considered that if residents have experienced flooding before, they may be happy to install property level flood protection.	1	These measures are typically low-cost and would prevent flooding to the individual properties.	1	This measure will help achieve the objectives.	1	4
		Social change, education and awareness	Increase activities of local flood groups to educate the community e.g. holding flood awareness events, leaflet dropping.	Where not already implemented, Milton Keynes Council could work with local community flood groups to develop community flood plans and raise awareness of flooding.	This option is technically feasible, and should require little in the way of further investigation.	2	This option would likely have a neutral impact on the environment.	0	The community would benefit from this option, and could lead to positive feelings towards schemes if they are involved in formulating plans for flood risk areas.	1	The benefits from this option should outweigh the costs involved.	1	This measure should assist with meeting the objectives.	1	5
		Other 'receptor' measures	None identified												

				CATEGORY (BASED ON SWMP Guidance (2010) Table 8-2)									
			CRITERIA	TECHNICAL		ENVIRONMENTAL		SOCIAL		ECONOMIC		OBJECTIVES	
			Description / examples	Is the option buildable? Will it be robust and reliable?		Will the environment benefit or suffer from implementation of the measure?		Will the community benefit or suffer from implementation of the measure?		Will benefits exceed costs?		Will it help to achieve the objectives?	
			Scoring	-2 - the measure is not technically feasible without being coupled with another measure.		-2 - the measure is likely to have a significant adverse effect on the environment e.g. increase flood risk downstream, alter the WFD status of a water body or compromise an environmental designation.		-2 - the measure will have a significant negative effect one the community e.g. it will remove an existing amenity and recreation area.		-2 - the costs of the measure are likely to significantly outweigh the benefits.		-2 - the measure will detriment the objectives.	
				-1 - it is uncertain whether this measure is feasible and further investigations are required.		-1 - the measure will have a moderate adverse impact on the environment.		-1 - the measure will have a moderate negative effect on the community e.g. it will temporarily remove an existing amenity and recreation area.		-1 - the costs of the measure are likely to moderately outweigh the benefits		-1 - the measure will not help achieve any objectives	
				1 - the measure is slightly more complex to implement, some investigations will need to be carried out and there are many construction issues which will need to be overcome.		1 - the measure will improve the environment e.g. encourage wildlife to an existing area of open space.		1 - the measure would moderately benefit the community on a local scale e.g. small scale attenuation SuDS would provide amenity to a small number of people.		1 - the benefits of the measure are likely to moderately outweigh the costs.		1 - the measure will help achieve some of the objectives.	
				2 - the measure is simple to implement, no further investigations are required and there are few construction issues to overcome.		2 - the measure will have a significant improvement on the environment e.g. alter the WFD status of a water body for the better or create new habitats.		2 - the measure would significantly benefit the wider community e.g. a wetland area would provide opportunities for amenity and recreation.		2 - the benefits of the measure are likely to significantly outweigh the costs.		2 - the measure will help achieve all of the objectives.	
Hotspot		Measure	Measure description	Potential Measure and Location within CDC	0 - neutral impact	0	0 - neutral impact	0	0 - neutral impact	0	0 - neutral impact	0	0 - neutral impact	0	OVERALL SCORE
Source control measures		Do Nothing	Make no intervention / maintenance	Throughout the CDC.	No effort to implement.	-2	By doing nothing, surface water flood risk is predicted to become more frequent with the effects of climate change.	-2	Doing nothing is likely to create opposition from the community and negative feelings.	-2	There would be no benefit from this measure.	-2	Doing nothing would not achieve the objectives.	-2	-6
		Do Minimum	Continue existing maintenance regime, update surface water management policies in line with national guidance and react to flood events and subsequent damage.	Throughout the CDC.	Minimal effort to implement.	-2	By doing minimum, surface water flood risk is likely to become more frequent with the effects of climate change.	-1	Doing minimum could create opposition from the community and negative feelings.	-1	There would be few benefits from this measure.	-1	Doing minimum would not achieve the objectives.	-2	-3
		Green / living roofs, rain gardens	Installing layers of planting onto buildings (green roofs) or reprofiling gardens (rain gardens). It also helps to slow runoff from the building in lower return period rainfall events. Rain gardens should be designed to overflow into areas in which it is safe to do so, such as existing surface water sewers.	Green roofs could be retrofit onto some buildings within Snelshall West, towards the west of the CDC.	Green roofs are relatively simple to install. Handrails will need to be incorporated into any green roof design.	2	Green roofs create new habitats as well as having an insulating effect, improving the building's energy efficiency.	2	The most suitable buildings to host green roofs within this CDC are a school and commercial buildings. If installed onto the roof of the school it could be used as an educational tool, which would be a moderate benefit to	1	Green roofs are only likely to provide benefit to the buildings they have been installed on in very low return periods. Generally, the cost of a green roof is offset by the amount of saving in energy bills.	0	A green roof would only provide a small amount of local flood risk alleviation in very low return periods.	-1	4
				Rain gardens could be incorporated into private gardens in the most at-risk residential areas within the West Bletchley CDC.	Rain gardens are good for lower return period storms. However, the design of these areas will need to take into consideration the routes which overflow paths will follow to ensure there is no increased flood risk to properties downstream.	1	As this option requires private gardens to be reprofiled, it is expected that disruption to existing planting and the spoil which may arise from such works would have a negative environmental impact. In the long-term, the environmental impact will be neutral providing the areas used for rain gardens remain as private gardens.	-1	The works involved in constructing rain gardens in private gardens will likely be an inconvenience in the short term. Long-term, it is expected that these areas will have a neutral social impact.	0	Rain gardens are only likely to provide benefit during very low return periods. The cost to construct, remove spoil and connect overflows into existing surface water sewers is likely to outweigh the benefits.	-1	Rain gardens would only provide a small amount of local flood risk alleviation in very low return periods.	1	0
		Infiltration SuDS	E.g. permeable paving, soakaways, filter strips that provide a pathway for rainwater to infiltrate into the ground at a restricted rate. Infiltration SuDS are easier and more economical to install on new developments but can be retrofitted. All methods of infiltration can silt up over time, which will lead to the volume of storage for	The bedrock beneath the West Bletchley CDC comprises the Peterborough Member, the Stewartby Member and the Oxford Clay Formation, all of which are formed of Mudstone which is not typically permeable enough to make infiltration SuDS feasible.	N/A		N/A		N/A		N/A		N/A		
		Attenuation SuDS	E.g. storage basins, tanked permeable paving, rainwater harvesting and swales. All methods store surface water before discharging at a restricted flow rate. All methods of attenuation can silt up over time, which will lead to the volume of storage for surface water runoff decreasing.	A number of areas across this CDC would be suitable for use as surface water attenuation areas including: Oxley Park Academy, Howe Park wood, Green space next to the N of Snelshall West Industrial Estate, Windmill Hill Golf course, Chestnuts School (Green Space), St. Thomas Aquinas Catholic Primary School and Barleyhurst park Primary School. Attenuated stormwater would then discharge to existing public surface water sewers or to local	Installation of surface water attenuation areas is technically feasible. However, this option will require further investigation and detailed design.	1	Attenuation basins could lead to greater biodiversity, therefore this option would provide a benefit to the environment.	1	This option may raise opposition from members of the local community who are directly affected by the works. However, overall there would be a reduced risk of surface water flooding to the community.	1	The cost to implement large scale attenuation areas is relatively small in comparison to the benefits gained from these areas.	2	Attenuation areas would help to meet objectives.	1	6
		Other source measures	None identified		N/A		N/A		N/A		N/A		N/A		

Pathway control measures	West Bletchley	Increasing capacity and/or conveyance of drainage systems (e.g.. Ditches or sewers)	Increasing conveyance could be achieved by clearing ditches, upsizing sewers, increasing the number of gullies or by incorporating new ditches, sewers and drains. However, increasing conveyance can often lead to an increase in flood risk downstream.	There are gullies present in the areas forming the flood flow pathways. However, upsizing the existing surface water sewer network in flood hotspots, possibly in conjunction with increasing the number of gullies or installing channel drains which outfall into upsized sewers, could assist in alleviating the surface water flood risk across this CDC. There are a number of ditches and watercourses across this CDC. Many of these appear to require maintenance. Residential areas across this CDC are likely to benefit from increasing the capacity and/or conveyance of highway drainage networks.	Installation of extra gullies and upsizing parts of the surface water sewer network in this area is technically feasible. However, further investigation will be required as these works will need to take into consideration the capacity of the existing drainage network, buried services and traffic management.	1	Increasing the capacity and conveyance of the network is likely to have a neutral impact on the environment.	0	This option may raise opposition from some members of the local community. However, increasing the capacity and conveyance of the existing network in hotspot areas is unlikely to have a prolonged construction period. In the long term, the alleviated flood risk would be of benefit to the local community, businesses and visitors to the area.	1	The construction cost for this option, providing there are no adverse conditions experienced during construction, is expected to be moderate. Maintenance costs are expected to be low if gullies and/or channel drains are installed in easily accessible areas.	1	Increasing the capacity and conveyance of the existing surface water and stormwater drainage networks would help to meet the objectives.	1	4
		Separation of foul and surface water sewers	Where the hotspot is served by a combined drainage network, separation of the surface water from the combined system should be considered. In growth areas separation creates capacity for new connections.	The foul and surface water sewers within this CDC are separate. Therefore, this is not an option for this area.	N/A		N/A		N/A		N/A		N/A			
		Improved maintenance regimes	Target improved maintenance to critical points in the system and ensure the resources are available to deliver past and existing maintenance regimes. Where ditches, gullies and drains are prone to blockages, quick win measures such as clearance and maintenance can reduce flood risk.	Maintenance plans should be drawn up for areas where there are records of surface water flooding from block drains, gullies and ditches.	Maintenance plans are technically feasible, some investigation will be required before maintenance plans can be drawn up.	1	Maintenance plans for flood hotspots is likely to have a neutral impact on the environment.	0	This option will likely have a positive social impact, as regular maintenance should lead to the number of flood events due to blocked or damaged assets reduce.	1	The benefits from regular maintenance of assets should outweigh the costs associated with maintenance works.	1	Maintenance plans would help to meet objectives.	1	4
		Managing overland flows	Intercepting known flow pathways and diverting away from receptors. Creating flood routes, e.g. use highway network to keep flood water away from property in all but the most extreme events. This can be achieved through changes to profiling of roads, kerb	In the most at-risk residential areas within the West Bletchley CDC, surface water flood flow routes tend to follow highways before building up behind the embankments forming the main A roads in the area. Therefore, this option is not practical for this CDC.	N/A		N/A		N/A		N/A		N/A			
		Land management practices	This can include increased tree coverage, perpendicular ploughing and more sustainable agricultural practices in order to slow down the surface water runoff and potentially assist in removing diffuse pollution from runoff arising from agricultural land. Land management is easy to implement and requires little technological input. However, this will require continuous management.	There are no areas within this CDC where this option could be implemented.	N/A		N/A		N/A		N/A		N/A			
		Deculverting watercourse(s)	Deculverting watercourses can improve conveyance of water, as culverts can restrict flow rates.	There are no known culverts suitable for this option within this CDC.	N/A		N/A		N/A		N/A		N/A			
		Other 'pathway' measures	None identified													
Receptor control measures		Planning policies to influence development	Use forthcoming development control policies to direct development away from areas of surface water flood risk or implement flood risk reduction measures. The policies could be borough wide or area specific, e.g. Basement dwellings are not permitted in areas of known surface water flooding, or a reduction in surface water runoff from a new development is required to be demonstrated in an area of known surface water flooding.	There are a number of areas across the West Bletchley CDC earmarked for residential development, and construction has started in some areas. Attenuation SuDS such as basins, dry ponds, swales with outfalls to local sewers or other forms of attenuation SuDS should be required of developments. Any flows discharged from attenuation features should be restricted to Q_{BAR}.	Attenuation ponds, swales and blue-green corridors are widely used in new developments and would be relatively simple to incorporate as part of the construction of a new development.	2	This option could lead to increased biodiversity and habitat creation at a local scale.	2	This measure could provide a local amenity area and raise awareness of flooding locally.	2	As this measure should be constructed as part of the new developments, there is a potential to maximise economies of scale. In addition, develop contributions to assist in flood alleviation that benefit the wider community could be sought. Given the location of these proposed developments and their interaction with overland flood flow pathways, there is a potential that this could alleviate flooding to many properties	2	This measure will help in achieving the objectives.	1	9
		Improved resilience and resistance measures	Existing and new buildings can be adapted to reduce damages from flooding. Resistance measures to prevent water entering the property (e.g. demountable barriers). Resilience measures to reduce the damage caused by water within the property (e.g. raising electrics, solid floors).	All residential and commercial properties that are shown in the modelled surface water flood extents could have property level flood protection measures.	These are relatively simple to implement although the type of flood protection suitable for each property would need to be determined following a structural survey.	1	It is considered that this measure would not have an impact on the environment. Although it is possible that flood risk to neighbouring properties could be increased which would need to be ascertained through modelling.	0	Depending on the willingness of uptake by the residents this could have a positive or negative social impact. Although, it is considered that if residents have experienced flooding before, they may be happy to install property level flood protection.	1	These measures are typically low-cost and would prevent flooding to the individual properties.	1	This measure will help achieve the objectives.	1	4
		Social change, education and awareness	Increase activities of local flood groups to educate the community e.g. holding flood awareness events, leaflet dropping.	Where not already implemented, Milton Keynes Council could work with local community flood groups to develop community flood plans and raise awareness of flooding.	This option is technically feasible, and should require little in the way of further investigation.	2	This option would likely have a neutral impact on the environment.	0	The community would benefit from this option, and could lead to positive feelings towards schemes if they are involved in formulating plans for flood risk areas.	1	The benefits from this option should outweigh the costs involved.	1	This measure should assist with meeting the objectives.	1	5
		Other 'receptor' measures	None identified													

				CATEGORY (BASED ON SWMP Guidance (2010) Table 8-2)								
				CRITERIA	TECHNICAL		ENVIRONMENTAL		SOCIAL		ECONOMIC		OBJECTIVES		
				Description / examples	Is the option buildable? Will it be robust and reliable?		Will the environment benefit or suffer from implementation of the measure?		Will the community benefit or suffer from implementation of the measure?		Will benefits exceed costs?		Will it help to achieve the objectives?		
				Scoring	-2 - the measure is not technically feasible without being coupled with another measure.		-2 - the measure is likely to have a significant adverse effect on the environment e.g. increase flood risk downstream, alter the WFD status of a water body or compromise an environmental designation.		-2 - the measure will have a significant negative effect one the community e.g. it will remove an existing amenity and recreation area.		-2 - the costs of the measure are likely to significantly outweigh the benefits.		-2 - the measure will detriment the objectives.		
					-1 - it is uncertain whether this measure is feasible and further investigations are required.		-1 - the measure will have a moderate adverse impact on the environment.		-1 - the measure will have a moderate negative effect on the community e.g. it will temporarily remove an existing amenity and recreation area.		-1 - the costs of the measure are likely to moderately outweigh the benefits		-1 - the measure will not help achieve any objectives		
					1 - the measure is slightly more complex to implement, some investigations will need to be carried out and there are many construction issues which will need to be overcome.		1 - the measure will improve the environment e.g. encourage wildlife to an existing area of open space.		1 - the measure would moderately benefit the community on a local scale e.g. small scale attenuation SuDS would provide amenity to a small number of people.		1 - the benefits of the measure are likely to moderately outweigh the costs.		1 - the measure will help achieve some of the objectives.		
					2 - the measure is simple to implement, no further investigations are required and there are few construction issues to overcome.		2 - the measure will have a significant improvement on the environment e.g. alter the WFD status of a water body for the better or create new habitats.		2 - the measure would significantly benefit the wider community e.g. a wetland area would provide opportunities for amenity and recreation.		2 - the benefits of the measure are likely to significantly outweigh the costs.		2 - the measure will help achieve all of the objectives.		
Hotspot		Measure	Measure description	Potential Measure and Location within CDC	0 - neutral impact	0	0 - neutral impact	0	0 - neutral impact	0	0 - neutral impact	0	0 - neutral impact	0	OVERALL SCORE
Source control measures		Do Nothing	Make no intervention / maintenance	Throughout the CDC.	No effort to implement.	2	By doing nothing, surface water flood risk is predicted to become more frequent with the effects of climate change.	-2	Doing nothing is likely to create opposition from the community and negative feelings.	-2	There would be no benefit from this measure.	-2	Doing nothing would not achieve the objectives.	-2	-6
		Do Minimum	Continue existing maintenance regime, update surface water management policies in line with national guidance and react to flood events and subsequent damage.	Throughout the CDC.	Minimal effort to implement.	2	By doing minimum, surface water flood risk is likely to become more frequent with the effects of climate change.	-1	Doing minimum could create opposition from the community and negative feelings.	-1	There would be few benefits from this measure.	-1	Doing minimum would not achieve the objectives.	-2	-3
		Green / living roofs, rain gardens	Installing layers of planting onto buildings (green roofs) or reprofiling gardens (rain gardens). It also helps to slow runoff from the building in lower return period rainfall events. Rain gardens should be designed to overflow into areas in which it is safe to do so, such as existing surface water sewers.	There are no suitable roofs within this CDC for the installation of green roofs.	N/A		N/A		N/A		N/A		N/A		
				Rain gardens could be incorporated into private gardens in the most at-risk residential areas across this CDC.	Rain gardens are good for lower return period storms. However, the design of these areas will need to take into consideration the routes which overflow paths will follow to ensure there is no increased flood risk to properties downstream.	1	As this option requires private gardens to be reprofiled, it is expected that disruption to existing planting and the spoil which may arise from such works would have a negative environmental impact. In the long-term, the environmental impact will be neutral providing the areas used for rain gardens remain as private gardens.	-1	The works involved in constructing rain gardens in private gardens will likely be an inconvenience in the short term. Long-term, it is expected that these areas will have a neutral social impact.	0	Rain gardens are only likely to provide benefit during very low return periods. The cost to construct, remove spoil and connect overflows into existing surface water sewers is likely to outweigh the benefits.	-1	Rain gardens would only provide a small amount of local flood risk alleviation in very low return periods.	1	0
		Infiltration SuDS	E.g. permeable paving, soakaways, filter strips that provide a pathway for rainwater to infiltrate into the ground at a restricted rate. Infiltration SuDS are easier and more economical to install on new developments but can be retrofitted. All methods of infiltration can silt up over time, which will lead to the volume of storage for surface water runoff decreasing.	According to BGS mapping, the bedrock beneath the Medbourne/Crownhill CDC is formed from the Stewartby Member, the Kellaways Formation and the Peterborough Member. These strata are mostly formed from mudstone. The superficial deposits across this CDC are formed from Alluvium, Till and the Oadby Member. The Environment Agency's groundwater mapping indicates that the bedrock and superficial deposits beneath this CDC have no aquifer designations assigned to them. This combined information suggests that the permeability of the ground beneath this CDC is poor, leading to infiltration SuDS not being a viable option.	N/A		N/A		N/A		N/A		N/A		
		Attenuation SuDS	E.g. storage basins, tanked permeable paving, rainwater harvesting and swales. All methods store surface water before discharging at a restricted flow rate. All methods of attenuation can silt up over time, which will lead to the volume of storage for surface water runoff decreasing.	There are a number of areas across this CDC which could be suitable for the installation of attenuation SuDS including at the recreation ground at Grange Farm, green space forming the Medbourne Community Sports Pavilion, Loughton Manor First School and the Green Space in between Shenley Wood and Chalkdell Drive. Tanked permeable paving or tanked geocellular storage could also be retrofitted across the vehicle parking areas of Chalkdell Drive. Attenuated stormwater would then discharge to existing public surface water sewers at a restricted rate. Permeable paving would not be suitable in areas used by heavy goods vehicles.	Installation of attenuation basins and retrofitting tanked permeable paving or tanked geocellular storage is technically feasible. However, this option will require further investigation and detailed design.	1	Attenuation basins could provide a wider range of habitats, thus increasing biodiversity. Tanked below ground surface water storage is likely to have a neutral environmental impact.	1	As this option would be implemented in areas possibly used as public open space, it may raise opposition from the local community as they could be adversely affected by the works. However, the reduction in flood risk would provide an overall benefit to the local community.	1	The construction costs for this measure are likely to be moderate as it will require a considerable amount of excavation. Ongoing maintenance costs may also be moderate. Therefore, it is considered that for this measure the costs are likely to equal the benefits.	0	Attenuation basins and below ground stormwater storage will help to meet the objectives.	1	4
		Other source measures	None identified		N/A		N/A		N/A		N/A		N/A		

Pathway control measures	Medbourne/Crownhill	Increasing capacity and/or conveyance of drainage systems (e.g.. Ditches or sewers)	Increasing conveyance could be achieved by clearing ditches, upsizing sewers, increasing the number of gullies or by incorporating new ditches, sewers and drains. However, increasing conveyance can often lead to an increase in flood risk downstream.	Upsizing the existing surface water sewer network in flood hotspots, possibly compiled with increasing the number of gullies or installing channel drains which outfall into upsized sewers, could assist in alleviating the surface water flood risk across this CDC.	Installation of extra gullies and upsizing parts of the surface water sewer network in this area is technically feasible. However, further investigation will be required as these works will need to take into consideration the capacity of the existing drainage network, buried services and traffic management.	1	Increasing the capacity and conveyance of the network is likely to have a neutral impact on the environment.	0	This option may raise opposition from some members of the local community. However, increasing the capacity and conveyance of the existing network in hotspot areas is unlikely to have a prolonged construction period. In the long term, the alleviated flood risk would be of benefit to the local community, businesses and visitors to the area.	1	The construction cost for this option, providing there are no adverse conditions experienced during construction, is expected to be moderate. Maintenance costs are expected to be low if gullies and/or channel drains are installed in easily accessible areas.	1	Increasing the capacity and conveyance of the existing surface water and stormwater drainage networks would help to meet the objectives.	1	4
		Separation of foul and surface water sewers	Where the hotspot is served by a combined drainage network, separation of the surface water from the combined system should be considered. In growth areas separation creates capacity for new connections.	The foul and surface water sewers within this CDC are separate. Therefore, this is not an option for this area.	N/A		N/A		N/A		N/A		N/A		
		Improved maintenance regimes	Target improved maintenance to critical points in the system and ensure the resources are available to deliver past and existing maintenance regimes. Where ditches, gullies and drains are prone to blockages, quick win measures such as clearance and maintenance can reduce flood risk.	Maintenance plans should be drawn up for areas where there are records of surface water flooding from block drains, gullies and ditches i.e. at Shenley Church End.	Maintenance plans are technically feasible, some investigation will be required before maintenance plans can be drawn up.	1	Maintenance plans for flood hotspots is likely to have a neutral impact on the environment.	0	This option will likely have a positive social impact, as regular maintenance should lead to the number of flood events due to blocked or damaged assets reduce.	1	The benefits from regular maintenance of assets should outweigh the costs associated with maintenance works.	1	Maintenance plans would help to meet objectives.	1	4
		Managing overland flows	Intercepting known flow pathways and diverting away from receptors. Creating flood routes, e.g. use highway network to keep flood water away from property in all but the most extreme events. This can be achieved through changes to profiling of roads, kerb heights, the use of speed bumps etc.	In the most at-risk residential areas, surface water flood flow routes tend to follow highways. However, this is not the case for the residential properties north of the Medbourne Community Sports Pavilion, the properties south-east of Shenley Church End Recreation Ground and those in the east of Crownhill. In these areas interception of flood flow in order to divert away from receptors, by using speed bumps and road reprofiling could be feasible.	This option's feasibility is dependent on the local topography.	1	This option is likely to have a neutral impact on the environment.	0	This option is likely to have a positive social impact, as the diversion of flood flow routes should see the number of flood events impacting residential properties decrease.	1	The cost of this option is likely to be relatively high in relation to the benefits.	-1	This option would help to meet objectives.	1	2
		Land management practices	This can include increased tree coverage, perpendicular ploughing and more sustainable agricultural practices in order to slow down the surface water runoff and potentially assist in removing diffuse pollution from runoff arising from agricultural land. Land management is easy to implement and requires little technological input. However, this will require continuous management.	There are no areas within this CDC where this option could be implemented.	N/A		N/A		N/A		N/A		N/A		
		Deculverting watercourse(s)	Deculverting watercourses can improve conveyance of water, as culverts can restrict flow rates.	There are no known culverts suitable for this option within this CDC.	N/A		N/A		N/A		N/A		N/A		
		Other 'pathway' measures	None identified												
Receptor control measures		Planning policies to influence development	Use forthcoming development control policies to direct development away from areas of surface water flood risk or implement flood risk reduction measures. The policies could be borough wide or area specific, e.g. Basement dwellings are not permitted in areas of known surface water flooding, or a reduction in surface water runoff from a new development is required to be demonstrated in an area of known surface water flooding.	There are a number of areas across the CDC earmarked for residential development. Attenuation SuDS such as basins, dry ponds, swales with outfalls to local sewers or other forms of attenuation SuDS should be required of developments. Any flows discharged from attenuation features should be restricted to Q_{BAR}.	Attenuation ponds, swales and blue-green corridors are widely used in new developments and would be relatively simple to incorporate as part of the construction of a new development.	2	This option could lead to increased biodiversity and habitat creation at a local scale.	2	This measure could provide a local amenity area and raise awareness of flooding locally.	2	As this measure should be constructed as part of the new developments, there is a potential to maximise economies of scale. In addition, develop contributions to assist in flood alleviation that benefit the wider community could be sought. Given the location of these proposed developments and their interaction with overland flood flow pathways, there is a potential that this could alleviate flooding to many properties and therefore it is considered that this measure would be cost beneficial.	2	This measure will help in achieving the objectives.	1	9
		Improved resilience and resistance measures	Existing and new buildings can be adapted to reduce damages from flooding. Resistance measures to prevent water entering the property (e.g. demountable barriers). Resilience measures to reduce the damage caused by water within the property (e.g. raising electrics, solid floors).	All residential and commercial properties that are shown in the modelled surface water flood extents could have property level flood protection measures.	These are relatively simple to implement although the type of flood protection suitable for each property would need to be determined following a structural survey.	1	It is considered that this measure would not have an impact on the environment. Although it is possible that flood risk to neighbouring properties could be increased which would need to be ascertained through modelling.	0	Depending on the willingness of uptake by the residents this could have a positive or negative social impact. Although, it is considered that if residents have experienced flooding before, they may be happy to install property level flood protection.	1	These measures are typically low-cost and would prevent flooding to the individual properties.	1	This measure will help achieve the objectives.	1	4
		Social change, education and awareness	Increase activities of local flood groups to educate the community e.g. holding flood awareness events, leaflet dropping.	Where not already implemented, Milton Keynes Council could work with local community flood groups to develop community flood plans and raise awareness of flooding.	This option is technically feasible, and should require little in the way of further investigation.	2	This option would likely have a neutral impact on the environment.	0	The community would benefit from this option, and could lead to positive feelings towards schemes if they are involved in formulating plans for flood risk areas.	1	The benefits from this option should outweigh the costs involved.	1	This measure should assist with meeting the objectives.	1	5
		Other 'receptor' measures	None identified												

				CATEGORY (BASED ON SWMP Guidance (2010) Table 8-2)									
				CRITERIA	TECHNICAL		ENVIRONMENTAL		SOCIAL		ECONOMIC		OBJECTIVES
				Description / examples	Is the option buildable? Will it be robust and reliable?		Will the environment benefit or suffer from implementation of the measure?		Will the community benefit or suffer from implementation of the measure?		Will benefits exceed costs?		Will it help to achieve the objectives?
				Scoring	-2 - the measure is not technically feasible without being coupled with another measure.		-2 - the measure is likely to have a significant adverse effect on the environment e.g. increase flood risk downstream, alter the WFD status of a water body or compromise an environmental designation.		-2 - the measure will have a significant negative effect one the community e.g. it will remove an existing amenity and recreation area.		-2 - the costs of the measure are likely to significantly outweigh the benefits.		-2 - the measure will detriment the objectives.
					-1 - it is uncertain whether this measure is feasible and further investigations are required.		-1 - the measure will have a moderate adverse impact on the environment.		-1 - the measure will have a moderate negative effect on the community e.g. it will temporarily remove an existing amenity and recreation area.		-1 - the costs of the measure are likely to moderately outweigh the benefits		-1 - the measure will not help achieve any objectives
					1 - the measure is slightly more complex to implement, some investigations will need to be carried out and there are many construction issues which will need to be overcome.		1 - the measure will improve the environment e.g. encourage wildlife to an existing area of open space.		1 - the measure would moderately benefit the community on a local scale e.g. small scale attenuation SuDS would provide amenity to a small number of people.		1 - the benefits of the measure are likely to moderately outweigh the costs.		1 - the measure will help achieve some of the objectives.
					2 - the measure is simple to implement, no further investigations are required and there are few construction issues to overcome.		2 - the measure will have a significant improvement on the environment e.g. alter the WFD status of a water body for the better or create new habitats.		2 - the measure would significantly benefit the wider community e.g. a wetland area would provide opportunities for amenity and recreation.		2 - the benefits of the measure are likely to significantly outweigh the costs.		2 - the measure will help achieve all of the objectives.
Hotspot		Measure	Measure description	Potential Measure and Location within CDC	0 - neutral impact	0	0 - neutral impact	0	0 - neutral impact	0	0 - neutral impact	0	0 - neutral impact	0	OVERALL SCORE
Source control measures		Do Nothing	Make no intervention / maintenance	Throughout the CDC.	No effort to implement.	2	By doing nothing, surface water flood risk is predicted to become more frequent with the effects of climate change.	-2	Doing nothing is likely to create opposition from the community and negative feelings.	-2	There would be no benefit from this measure.	-2	Doing nothing would not achieve the objectives.	-2	-6
		Do Minimum	Continue existing maintenance regime, update surface water management policies in line with national guidance and react to flood events and subsequent damage.	Throughout the CDC.	Minimal effort to implement.	2	By doing minimum, surface water flood risk is likely to become more frequent with the effects of climate change.	-1	Doing minimum could create opposition from the community and negative feelings.	-1	There would be few benefits from this measure.	-1	Doing minimum would not achieve the objectives.	-2	-3
		Green / living roofs, rain gardens	Installing layers of planting onto buildings (green roofs) or reprofiling gardens (rain gardens). It also helps to slow runoff from the building in lower return period rainfall events. Rain gardens should be designed to overflow into areas in which it is safe to do so, such as existing surface water sewers.	None of the properties or commercial premises within the Woburn Sands CDC are suitable for the installation of Green Roofs.	N/A		N/A		N/A		N/A		N/A		
				Rain gardens could be incorporated into private gardens in the most at-risk residential areas of Woburn Sands.	Rain gardens are good for lower return period storms. However, the design of these areas will need to take into consideration the routes which overflow paths will follow to ensure there is no increased flood risk to properties downstream.	1	As this option requires private gardens to be reprofiled, it is expected that disruption to existing planting and the spoil which may arise from such works would have a negative environmental impact. In the long-term, the environmental impact will be neutral providing the areas used for rain gardens remain as private gardens.	-1	The works involved in constructing rain gardens in private gardens will likely be an inconvenience in the short term. Long-term, it is expected that these areas will have a neutral social impact.	0	Rain gardens are only likely to provide benefit during very low return periods. The cost to construct, remove spoil and connect overflows into existing surface water sewers is likely to outweigh the benefits.	-1	Rain gardens would only provide a small amount of local flood risk alleviation in very low return periods.	1	0
		Infiltration SuDS	E.g. permeable paving, soakaways, filter strips that provide a pathway for rainwater to infiltrate into the ground at a restricted rate. Infiltration SuDS are easier and more economical to install on new developments but can be retrofitted. All methods of infiltration can silt up over time, which will lead to the volume of storage for surface water runoff decreasing.	The geological strata which the Woburn Sands CDC is underlain by is mostly the Oxford Clay Formation which comprises Mudstone. This geology typically has a low infiltration rate. Towards the south-east of the CDC the bedrock is formed of the Woburn Sands Formation which comprises Sandstone. As the majority of the CDC is located on impermeable bedrock, infiltration SuDS is not deemed appropriate for this site.	N/A		N/A		N/A		N/A		N/A		
		Attenuation SuDS	E.g. storage basins, tanked permeable paving, rainwater harvesting and swales. All methods store surface water before discharging at a restricted flow rate. All methods of attenuation can silt up over time, which will lead to the volume of storage for surface water runoff decreasing.	There are two potential areas for attenuation SuDS within this CDC such as at Old Park Farm and southeast of Walton High School playing field;	The two opposed examples of attenuation SuDS are technically feasible to implement. However, further modelling and investigations will be required.	1	Attenuation in these areas would lead to a reduction in flood risk by storing surface water runoff and restricting outflows to Q_{BAR}.	1	This option may raise opposition from members of the local community who are directly affected by the works. However, overall there would be a reduced risk of surface water flooding to the community.	1	The construction costs for this measure are likely to be low to moderate in comparison to the benefits achieved. Ongoing maintenance costs are also expected to be moderate. Therefore, it is considered that for this measure the costs are likely to equal the benefits.	0	Stormwater attenuation would help to meet the objectives.	1	4
		Other source measures	None identified		N/A		N/A		N/A		N/A		N/A		

Pathway control measures	Woburn Sands	Increasing capacity and/or conveyance of drainage systems (e.g.. Ditches or sewers)	Increasing conveyance could be achieved by clearing ditches, upsizing sewers, increasing the number of gullies or by incorporating new ditches, sewers and drains. However, increasing conveyance can often lead to an increase in flood risk downstream.	There are a number of ordinary watercourses and drainage board designated watercourses which could be suitable for clearance works. Milton Keynes Council's highways department has proposed an over-sized pipe along Cranfield Road to help alleviate surface water ponding around Turnpike Court.	Clearance works to watercourses is simple to implement and is should not require additional investigation. The installation of an oversized pipe is also technically feasible but will require further investigation and detailed design as this option will need to take into consideration the capacity existing drainage network, buried services and traffic management.	1	Vegetation clearance at watercourses and an oversized pipe is likely to have a neutral impact on the environment.	0	The clearance of watercourses and the installation of an oversized pipe may cause disruption, especially with regard to traffic management. Thus, there may be some opposition from the local community in the short term. In the long term, local residents would benefit from a reduced flood risk to their properties.	1	The costs for these measures, providing there are no adverse conditions experienced, is relatively low. Maintenance costs should also be low if gullies are installed in easily accessible areas.	1	Increasing the capacity and conveyance of the surface water drainage network would help to meet the objectives.	1	4
		Separation of foul and surface water sewers	Where the hotspot is served by a combined drainage network, separation of the surface water from the combined system should be considered. In growth areas separation creates capacity for new connections.	The foul and surface water sewers within this CDC are separate. Therefore, this is not an option for this area.	N/A		N/A		N/A		N/A		N/A		
		Improved maintenance regimes	Target improved maintenance to critical points in the system and ensure the resources are available to deliver past and existing maintenance regimes. Where ditches, gullies and drains are prone to blockages, quick win measures such as clearance and maintenance can reduce flood risk.	Maintenance plans should be drawn up for areas where there are records of surface water flooding from block drains, gullies and ditches.	Maintenance plans are technically feasible, some investigation will be required before maintenance plans can be drawn up.	1	Maintenance plans for flood hotspots is likely to have a neutral impact on the environment.	0	This option will likely have a positive social impact, as regular maintenance should lead to the number of flood events due to blocked or damaged assets reduce.	1	The benefits from regular maintenance of assets should outweigh the costs associated with maintenance works.	1	Maintenance plans would help to meet objectives.	1	4
		Managing overland flows	Intercepting known flow pathways and diverting away from receptors. Creating flood routes, e.g. use highway network to keep flood water away from property in all but the most extreme events. This can be achieved	In the most at-risk residential areas, surface water flood flow routes tend to follow highways. Across the flood hotspot areas in Woburn Sands, the thresholds and kerb heights are adequately raised. Therefore, this option is not feasible for this CDC.	N/A		N/A		N/A		N/A		N/A		
		Land management practices	This can include increased tree coverage, perpendicular ploughing and more sustainable agricultural practices in order to slow down the surface water runoff and potentially assist in removing diffuse pollution from runoff arising from agricultural land. Land management is easy to implement and requires little technological input. However, this will require continuous management.	Woburn Sands is bordered by agricultural land to the east. As this land is upstream of Woburn Sands, and surface water runoff from this area is likely contributing to the flood risk to residential properties, perpendicular ploughing and attenuation areas could be implemented.	Implementing land management practices is often a simple process which is easy to implement and requires little technical input. However, land management is a continuous process.	1	This measure has the potential to improve the water environment through the removal of diffuse pollutants from overland flows. This could lead to the WFD status of reportable water bodies downstream improving.	1	Land management is likely to have a neutral social impact.	0	Land management is likely to have a low-moderate cost, as this option requires continuous attention.	0	The implementation of effective planning policy requirements is likely to help meet objectives.	1	3
		Deculverting watercourse(s)	Deculverting watercourses can improve conveyance of water, as culverts can restrict flow rates.	There are no culverts suitable for this option within this CDC.	N/A		N/A		N/A		N/A		N/A		
		Other 'pathway' measures	None identified												
Receptor control measures		Planning policies to influence development	Use forthcoming development control policies to direct development away from areas of surface water flood risk or implement flood risk reduction measures. The policies could be borough wide or area specific, e.g. Basement dwellings are not permitted in areas of known surface water flooding, or a reduction in surface water runoff from a new development is required to be demonstrated in an area of known surface water flooding.	There are a number of areas across the CDC earmarked for residential development. Attenuation SuDS such as basins, dry ponds, swales with outfalls to local sewers or other forms of attenuation SuDS should be required of developments. Any flows discharged from attenuation features should be restricted to Q_{BAR}.	Attenuation ponds, swales and blue-green corridors are widely used in new developments and would be relatively simple to incorporate as part of the construction of a new development.	2	This option could lead to increased biodiversity and habitat creation at a local scale.	2	This measure could provide a local amenity area and raise awareness of flooding locally.	2	As this measure should be constructed as part of the new developments, there is a potential to maximise economies of scale. In addition, develop contributions to assist in flood alleviation that benefit the wider community could be sought. Given the location of these proposed developments and their interaction with overland flood flow pathways, there is a potential that this could alleviate flooding to many properties and therefore it is considered that this measure would be cost beneficial.	2	This measure will help in achieving the objectives.	1	9
		Improved resilience and resistance measures	Existing and new buildings can be adapted to reduce damages from flooding. Resistance measures to prevent water entering the property (e.g. demountable barriers). Resilience measures to reduce the damage caused by water within the property (e.g. raising electrics, solid floors).	All residential and commercial properties that are shown in the modelled surface water flood extents could have property level flood protection measures.	These are relatively simple to implement although the type of flood protection suitable for each property would need to be determined following a structural survey.	1	It is considered that this measure would not have an impact on the environment. Although it is possible that flood risk to neighbouring properties could be increased which would need to be ascertained through modelling.	0	Depending on the willingness of uptake by the residents this could have a positive or negative social impact. Although, it is considered that if residents have experienced flooding before, they may be happy to install property level flood protection.	1	These measures are typically low-cost and would prevent flooding to the individual properties.	1	This measure will help achieve the objectives.	1	4
		Social change, education and awareness	Increase activities of local flood groups to educate the community e.g. holding flood awareness events, leaflet dropping.	Where not already implemented, Milton Keynes Council could work with local community flood groups to develop community flood plans and raise awareness of flooding.	This option is technically feasible, and should require little in the way of further investigation.	2	This option would likely have a neutral impact on the environment.	0	The community would benefit from this option, and could lead to positive feelings towards schemes if they are involved in formulating plans for flood risk areas.	1	The benefits from this option should outweigh the costs involved.	1	This measure should assist with meeting the objectives.	1	5
		Other 'Receptor' Measures	None identified												

				CATEGORY (BASED ON SWMP Guidance (2010) Table 8-2)									
				CRITERIA	TECHNICAL		ENVIRONMENTAL		SOCIAL		ECONOMIC		OBJECTIVES
				Description / examples	Is the option buildable? Will it be robust and reliable?		Will the environment benefit or suffer from implementation of the measure?		Will the community benefit or suffer from implementation of the measure?		Will benefits exceed costs?		Will it help to achieve the objectives?
				Scoring	-2 - the measure is not technically feasible without being coupled with another measure.		-2 - the measure is likely to have a significant adverse effect on the environment e.g. increase flood risk downstream, alter the WFD status of a water body or compromise an environmental designation.		-2 - the measure will have a significant negative effect one the community e.g. it will remove an existing amenity and recreation area.		-2 - the costs of the measure are likely to significantly outweigh the benefits.		-2 - the measure will detriment the objectives.
					-1 - it is uncertain whether this measure is feasible and further investigations are required.		-1 - the measure will have a moderate adverse impact on the environment.		-1 - the measure will have a moderate negative effect on the community e.g. it will temporarily remove an existing amenity and recreation area.		-1 - the costs of the measure are likely to moderately outweigh the benefits		-1 - the measure will not help achieve any objectives
					1 - the measure is slightly more complex to implement, some investigations will need to be carried out and there are many construction issues which will need to be overcome.		1 - the measure will improve the environment e.g. encourage wildlife to an existing area of open space.		1 - the measure would moderately benefit the community on a local scale e.g. small scale attenuation SuDS would provide amenity to a small number of people.		1 - the benefits of the measure are likely to moderately outweigh the costs.		1 - the measure will help achieve some of the objectives.
					2 - the measure is simple to implement, no further investigations are required and there are few construction issues to overcome.		2 - the measure will have a significant improvement on the environment e.g. alter the WFD status of a water body for the better or create new habitats.		2 - the measure would significantly benefit the wider community e.g. a wetland area would provide opportunities for amenity and recreation.		2 - the benefits of the measure are likely to significantly outweigh the costs.		2 - the measure will help achieve all of the objectives.
Hotspot		Measure	Measure description	Potential Measure and Location within CDC	0 - neutral impact	0	0 - neutral impact	0	0 - neutral impact	0	0 - neutral impact	0	0 - neutral impact	0	OVERALL SCORE
Source control measures		Do Nothing	Make no intervention / maintenance	Throughout the CDC.	No effort to implement.	-2	By doing nothing, surface water flood risk is predicted to become more frequent with the effects of climate change.	-2	Doing nothing is likely to create opposition from the community and negative feelings.	-2	There would be no benefit from this measure.	-2	Doing nothing would not achieve the objectives.	-2	-6
		Do Minimum	Continue existing maintenance regime, update surface water management policies in line with national guidance and react to flood events and subsequent damage.	Throughout the CDC.	Minimal effort to implement.	-2	By doing minimum, surface water flood risk is likely to become more frequent with the effects of climate change.	-1	Doing minimum could create opposition from the community and negative feelings.	-1	There would be few benefits from this measure.	-1	Doing minimum would not achieve the objectives.	-2	-3
		Green / living roofs, rain gardens	Installing layers of planting onto buildings (green roofs) or reprofiling gardens (rain gardens). It also helps to slow runoff from the building in lower return period rainfall events. Rain gardens should be designed to overflow into areas in which it is safe to do so, such as existing surface water sewers.	None of the properties or commercial premises within the this CDC are suitable for the installation of green roofs.	N/A		N/A		N/A		N/A		N/A		
				Rain gardens could be incorporated into private gardens in the most at-risk residential areas of Ravenstone.	Rain gardens are good for lower return period storms. However, the design of these areas will need to take into consideration the routes which overflow paths will follow to ensure there is no increased flood risk to properties downstream.	1	As this option requires private gardens to be reprofiled, it is expected that disruption to existing planting and the spoil which may arise from such works would have a negative environmental impact. In the long-term, the environmental impact will be neutral providing the areas used for rain gardens remain as private gardens.	-1	The works involved in constructing rain gardens in private gardens will likely be an inconvenience in the short term. Long-term, it is expected that these areas will have a neutral social impact.	0	Rain gardens are only likely to provide benefit during very low return periods. The cost to construct, remove spoil and connect overflows into existing surface water sewers is likely to outweigh the benefits.	-1	Rain gardens would only provide a small amount of local flood risk alleviation in very low return periods.	1	0
		Infiltration SuDS	E.g. permeable paving, soakaways, filter strips that provide a pathway for rainwater to infiltrate into the ground at a restricted rate. Infiltration SuDS are easier and more economical to install on new developments but can be retrofitted. All methods of infiltration can silt up over time, which will lead to the volume of storage for surface water runoff decreasing.	The geological strata which the Ravenstone CDC is underlain by is mostly the Blisworth Limestone Formation. This geology has the potential to possess a good infiltration rate, further supported by its designation as a Principal Aquifer. Therefore, infiltration SuDS could be utilised north of Northend Farm and north-east of Abbey Farm.	Ground investigations at suitable sites will need to include soakage testing, in order to clarify whether infiltration SuDS is a feasible option. Installation of infiltration SuDS is relatively simple to implement but will require investigation and detailed design.	1	The most suitable forms of infiltration SuDS across this CDC are basins and swales, as there is a possibility that groundwater levels are high in the area. These forms of infiltration are likely to have a neutral environmental impact, providing potential pollutants are separated out from surface water runoff before infiltrating into the ground.	0	The works involved in installing infiltration SuDS may require access to private gardens and amenity space which may be an inconvenience to affected residents. However, in the long term, the reduced risk of surface water flooding would be of benefit to the local residents and visitors to the area.	1	The construction costs for infiltration SuDS can be variable, depending on the SuDS type. Overall, it is expected that benefits would outweigh costs in this region.	1	Infiltration SuDS would assist in meeting the objectives.	1	4
		Attenuation SuDS	E.g. storage basins, tanked permeable paving, rainwater harvesting and swales. All methods store surface water before discharging at a restricted flow rate. All methods of attenuation can silt up over time, which will lead to the volume of storage for surface water runoff decreasing.	If infiltration SuDS isn't a feasible option, attenuation SuDS could instead be utilised. Basins or bunded areas could be located north of Northend Farm and north-east of Abbey Farm. There is also a flood flow pathway located in the south of the CDC, which flows east-to-west between Weston Road and Common Street which could be intercepted by attenuation SuDS. Attenuated stormwater would then discharge to existing public surface water sewers specified overland routes at a restricted rate.	Attenuation SuDS are technically feasible to implement. However, further modelling and investigations will be required.	1	Attenuation SuDS are likely to have a neutral environmental impact.	1	This option may raise opposition from members of the local community and local landowners who are directly affected by the works. However, attenuation in these areas would lead to a reduction in flood risk to the local community by storing surface water runoff and restricting outflows to Q_{BAR}.	1	The construction costs for this measure are likely to be low to moderate in comparison to the benefits achieved. Ongoing maintenance costs are also expected to be low to moderate. Therefore, it is considered that for this measure the benefits are likely to outweigh the costs.	1	Stormwater attenuation would help to meet the objectives.	1	5
		Other source measures	None identified		N/A		N/A		N/A		N/A		N/A		

Pathway control measures	Ravenstone	Increasing capacity and/or conveyance of drainage systems (e.g.. Ditches or sewers)	Increasing conveyance could be achieved by clearing ditches, upsizing sewers, increasing the number of gullies or by incorporating new ditches, sewers and drains. However, increasing conveyance can often lead	There are opportunities for ditch clearance alongside Common Street. This ditch appears to convey surface water runoff arising from the village to the River Great Ouse. Where house soakaways exist these could also benefit from clearance.	This measure is simple to implement, however communicating with residents regarding the clearance of house soakaways (if present) may have complications.	1	Vegetation and silt clearance from the ditch and soakaway clearance and maintenance is likely to have a neutral impact on the environment.	0	These works may cause disruption, Thus, there may be some opposition from the local community in the short term. In the long term, local residents would benefit from a reduced flood	1	The costs for these measures, providing there are no adverse conditions experienced, is relatively low. Maintenance costs should also be low.	1	Increasing the capacity and conveyance of the surface water drainage network would help to meet the objectives.	1	4
		Separation of foul and surface water sewers	Where the hotspot is served by a combined drainage network, separation of the surface water from the combined system should be considered. In growth areas separation creates capacity for new connections.	Ravenstone is served by foul water sewers, but there doesn't appear to be surface water sewers within this CDC. It is likely that surface water runoff arising in this CDC is either conveyed to the ditch adjacent to Common Street or is discharged to the ground. Therefore, this option is not feasible in this area.	N/A		N/A		N/A		N/A		N/A		
		Improved maintenance regimes	Target improved maintenance to critical points in the system and ensure the resources are available to deliver past and existing maintenance regimes. Where ditches, gullies and drains are prone to blockages, quick win measures such as clearance and maintenance can reduce flood risk.	Maintenance plans should be drawn up for areas where there are records of surface water flooding from block drains, gullies and ditches.	Maintenance plans are technically feasible, some investigation will be required before maintenance plans can be drawn up.	1	Maintenance plans for flood hotspots is likely to have a neutral impact on the environment.	0	This option will likely have a positive social impact, as regular maintenance should lead to the number of flood events due to blocked or damaged assets reduce.	1	The benefits from regular maintenance of assets should outweigh the costs associated with maintenance works.	1	Maintenance plans would help to meet objectives.	1	4
		Managing overland flows	Intercepting known flow pathways and diverting away from receptors. Creating flood routes, e.g. use highway network to keep flood water away from property in all but the most extreme events. This can be achieved through changes to profiling of roads, kerb heights, the use of speed bumps etc.	The surface water flow paths are already largely constrained to highways, apart from the area south of Northend Farm and to the north-east of the allotment gardens, where Common Street meets Weston Road. However, to divert surface water flows to highways in this area could put an increased number of properties at risk as. Therefore this option is not suitable in this area.	N/A		N/A		N/A		N/A		N/A		
		Land management practices	This can include increased tree coverage, perpendicular ploughing and more sustainable agricultural practices in order to slow down the surface water runoff and potentially assist in removing diffuse pollution from runoff arising from agricultural land. Land management is easy to implement and requires little technological input. However, this will require continuous management.	Ravenstone is predominantly a vegetated, rural area with agricultural land uses. Perpendicular ploughing could be implemented across agricultural land to the north, east and west of Ravenstone. This would slow down flow rates of surface water runoff and could assist in removing diffuse pollutants from runoff arising from agricultural land.	Implementing land management practices is often a simple process which and requires little technical input. However, land management is a continuous process.	1	This measure has the potential to improve the water environment through the removal of diffuse pollutants from overland flows. This could lead to the WFD status of reportable water bodies downstream improving.	1	Land management is likely to have a neutral social impact.	0	Land management is likely to have a low-moderate cost, as this option requires continuous attention.	0	The implementation of effective planning policy requirements is likely to help meet objectives.	1	3
		Deculverting watercourse(s)	Deculverting watercourses can improve conveyance of water, as culverts can restrict flow rates.	There are no culverts suitable for this option within this CDC.	N/A		N/A		N/A		N/A		N/A		
		Other 'pathway' measures	None identified												
Receptor control measures		Planning policies to influence development	Use forthcoming development control policies to direct development away from areas of surface water flood risk or implement flood risk reduction measures. The policies could be borough wide or area specific, e.g. Basement dwellings are not permitted in areas of known surface water flooding, or a reduction in surface water runoff from a new development is required to be demonstrated in an area of known surface water flooding.	There are a limited number of areas across the CDC earmarked for residential development, the areas specified are also considerably small. Attenuation SuDS such as small scale permeable paving areas or geocellular storage would be best suited to developments of this size. Any flows discharged from attenuation features should be restricted to Q_{BAR}.	Small scale attenuation would be relatively simple to incorporate as part of the construction of a new development.	1	This option is likely to have a neutral environmental impact.	0	This measure is likely to have a neutral social impact.	0	As this measure should be constructed as part of the new developments, there is a potential to maximise economies of scale. In addition, develop contributions to assist in flood alleviation that benefit the wider community could be sought. This could lead to benefits outweighing costs.	1	This measure will help in achieving the objectives.	1	3
		Improved resilience and resistance measures	Existing and new buildings can be adapted to reduce damages from flooding. Resistance measures to prevent water entering the property (e.g. demountable barriers). Resilience measures to reduce the damage caused by water within the property (e.g. raising electrics, solid floors).	All residential and commercial properties that are shown in the modelled surface water flood extents could have property level flood protection measures.	These are relatively simple to implement although the type of flood protection suitable for each property would need to be determined following a structural survey.	1	It is considered that this measure would not have an impact on the environment. Although it is possible that flood risk to neighbouring properties could be increased which would need to be ascertained through modelling.	0	Depending on the willingness of uptake by the residents this could have a positive or negative social impact. Although, it is considered that if residents have experienced flooding before, they may be happy to install property level flood protection.	1	These measures are typically low-cost and would prevent flooding to the individual properties.	1	This measure will help achieve the objectives.	1	4
		Social change, education and awareness	Increase activities of local flood groups to educate the community e.g. holding flood awareness events, leaflet dropping.	Where not already implemented, Milton Keynes Council could work with local community flood groups to develop community flood plans and raise awareness of flooding.	This option is technically feasible, and should require little in the way of further investigation.	2	This option would likely have a neutral impact on the environment.	0	The community would benefit from this option, and could lead to positive feelings towards schemes if they are involved in formulating plans for flood risk areas.	1	The benefits from this option should outweigh the costs involved.	1	This measure should assist with meeting the objectives.	1	5
		Other 'Receptor' Measures													

		CATEGORY (BASED ON SWMP Guidance (2010) Table 8-2)				
	CRITERIA	TECHNICAL	ENVIRONMENTAL	SOCIAL	ECONOMIC	OBJECTIVES
	Description / examples	Is the option buildable? Will it be robust and reliable?	Will the environment benefit or suffer from implementation of the measure?	Will the community benefit or suffer from implementation of the measure?	Will benefits exceed costs?	Will it help to achieve the objectives?
	Scoring	-2 - the measure is not technically feasible without being coupled with another measure.	-2 - the measure is likely to have a significant adverse effect on the environment e.g. increase flood risk downstream, alter the WFD status of a water body or compromise an environmental designation.	-2 - the measure will have a significant negative effect one the community e.g. it will remove an existing amenity and recreation area.	-2 - the costs of the measure are likely to significantly outweigh the benefits.	-2 - the measure will detriment the objectives.
		-1 - it is uncertain whether this measure is feasible and further investigations are required.	-1 - the measure will have a moderate adverse impact on the environment.	-1 - the measure will have a moderate negative effect on the community e.g. it will temporarily remove an existing amenity and recreation area.	-1 - the costs of the measure are likely to moderately outweigh the benefits	-1 - the measure will not help achieve any objectives
		1 - the measure is slightly more complex to implement, some investigations will need to be carried out and there are many construction issues which will need to be overcome.	1 - the measure will improve the environment e.g. encourage wildlife to an existing area of open space.	1 - the measure would moderately benefit the community on a local scale e.g. small scale attenuation SuDS would provide amenity to a small number of people.	1 - the benefits of the measure are likely to moderately outweigh the costs.	1 - the measure will help achieve some of the objectives.
		2 - the measure is simple to implement, no further investigations are required and there are few construction issues to overcome.	2 - the measure will have a significant improvement on the environment e.g. alter the WFD status of a water body for the better or create new habitats.	2 - the measure would significantly benefit the wider community e.g. a wetland area would provide opportunities for amenity and recreation.	2 - the benefits of the measure are likely to significantly outweigh the costs.	2 - the measure will help achieve all of the objectives.

Hotspot		Measure	Measure description	Potential Measure and Location within CDC	0 - neutral impact		0 - neutral impact		0 - neutral impact		0 - neutral impact		0 - neutral impact		OVERALL SCORE
Source control measures		Do Nothing	Make no intervention / maintenance	Throughout the CDC.	No effort to implement.	2	By doing nothing, surface water flood risk is predicted to become more frequent with the effects of climate change.	-2	Doing nothing is likely to create opposition from the community and negative feelings.	-2	There would be no benefit from this measure.	-2	Doing nothing would not achieve the objectives.	-2	-6
		Do Minimum	Continue existing maintenance regime, update surface water management policies in line with national guidance and react to flood events and subsequent damage.	Throughout the CDC.	Minimal effort to implement.	2	By doing minimum, surface water flood risk is likely to become more frequent with the effects of climate change.	-1	Doing minimum could create opposition from the community and negative feelings.	-1	There would be few benefits from this measure.	-1	Doing minimum would not achieve the objectives.	-2	-3
		Green / living roofs, rain gardens	Installing layers of planting onto buildings (green roofs) or reprofiling gardens (rain gardens). It also helps to slow runoff from the building in lower return period rainfall events. Rain gardens should be designed to overflow into areas in which it is safe to do so, such as existing surface water sewers.	Green roofs could be retrofit onto some buildings on Garamonde Drive.	Green roofs are relatively simple to install. Handrails will need to be incorporated into any green roof design.	2	Green roofs create new habitats as well as having an insulating effect, improving the building's energy efficiency.	2	The most suitable buildings to host green roofs within this CDC are a school and commercial buildings. If installed onto the roof of the school it could be used as an educational tool	1	Green roofs are only likely to provide benefit to the buildings they have been installed on in very low return periods. Generally, the cost of a green roof is offset by the amount of	0	A green roof would only provide a small amount of local flood risk alleviation in very low return periods.	-1	4
				Rain gardens could be incorporated into private gardens in the most at-risk residential areas of this CDC.	Rain gardens are good for lower return period storms. However, the design of these areas will need to take into consideration the routes which overflow paths will follow to ensure there is no increased flood risk to properties downstream.	1	As this option requires private gardens to be reprofiled, it is expected that disruption to existing planting and the spoil which may arise from such works would have a negative environmental impact. In the long-term, the environmental impact will be neutral providing the areas used for rain gardens remain as private gardens.	-1	The works involved in constructing rain gardens in private gardens will likely be an inconvenience in the short term. Long-term, it is expected that these areas will have a neutral social impact.	0	Rain gardens are only likely to provide benefit during very low return periods. The cost to construct, remove spoil and connect overflows into existing surface water sewers is likely to outweigh the benefits.	-1	Rain gardens would only provide a small amount of local flood risk alleviation in very low return periods.	1	0
		Infiltration SuDS	E.g. permeable paving, soakaways, filter strips that provide a pathway for rainwater to infiltrate into the ground at a restricted rate. Infiltration SuDS are easier and more economical to install on new developments but can be retrofitted. All methods of infiltration can silt up over time, which will lead to the volume of storage for surface water runoff decreasing.	The geological strata which the Wymbush/Two Mile Ash CDC is underlain by is the Oxford Clay Formation and the Peterborough Member. This is formed of mudstone, which is not typically permeable enough to make infiltration SuDS feasible. Some areas of this CDC are underlain by the Kellaways formation which is a mixture of sandstone, siltstone and mudstone. Due to the impermeable nature of the bedrock in this CDC, it has been determined that Infiltration SuDS are not appropriate in this location.	N/A		N/A		N/A		N/A		N/A		
		Attenuation SuDS	E.g. storage basins, tanked permeable paving, rainwater harvesting and swales. All methods store surface water before discharging at a restricted flow rate. All methods of attenuation can silt up over time, which will lead to the volume of storage for surface water runoff decreasing.	There are two potential areas for attenuation SuDS within this CDC an attenuation basin located on the Golf Course in the west of the CDC and an attenuation bund located on the school playing fields adjacent to Downland.	The two proposed examples of attenuation SuDS are technically feasible to implement. However, further modelling and investigations will be required.	1	The proposed measures will reduce flooding by storing surface water and restricting surface water flows rates. Consequently, environmental receptors are less likely to be affected by flooding.	1	Residents of Wymbush/Two Mile Ash are likely to significantly benefit from the implementation of attenuation SuDS. Benefits will arise as a result of a reduction in flood events which directly impacts the health and wellbeing of residents and through the 'peace of mind' offered by the measure. However, land owners may oppose the measures due to a perceived inconvenience.	1	This measure is likely to be relatively low cost to implement. However, compensation may be required by land-owners which could be costly. In addition to this, attenuation SuDS are prone to silting and therefore regular maintenance may be required. Depending on the scheme, benefits may be outweighed by costs.	0	This measure would help to achieve objectives.	1	4
		Other source measures	None identified		N/A		N/A		N/A		N/A		N/A		

Pathway control measures	Wymbush/Two Mile Ash	Increasing capacity and/or conveyance of drainage systems (e.g.. Ditches or sewers)	Increasing conveyance could be achieved by clearing ditches, upsizing sewers, increasing the number of gullies or by incorporating new ditches, sewers and drains. However, increasing conveyance can often lead to an increase in flood risk downstream.	A ditch separates the two school playing fields adjacent to Downland. This ditch would benefit from clearance works, leading to ongoing maintenance, as the ditch conveys flows through a vegetated area and is liable to blockage due to vegetation overgrowth.	This measure is simple to implement, it is unlikely that further investigations will be required and there should be no construction issues to overcome.	1	Appropriate monitoring and management of ditches is likely to significantly improve the water environment, potentially providing a new habitat and enhancing WFD status of reportable water bodies downstream. However, increasing conveyance may lead to an increase in flood risk downstream.	1	Residents of Wymbush/Two Mile Ash are likely to benefit from these measures as a result of a reduction in flood events which directly impacts the health and wellbeing of residents and through the 'peace of mind' offered by the measure.	1	Ditch clearance is likely to be a relatively low-cost measure. The benefits derived from clearance and maintenance should moderately outweigh the costs.	1	The implementation of ditch clearance is likely to help meet the objectives.	1	4
		Separation of foul and surface water sewers	Where the hotspot is served by a combined drainage network, separation of the surface water from the combined system should be considered. In growth areas separation creates capacity for new connections.	The foul and surface water sewers within this CDC are separate. Therefore, this is not an option for this area.	N/A		N/A		N/A		N/A		N/A		
		Improved maintenance regimes	Target improved maintenance to critical points in the system and ensure the resources are available to deliver past and existing maintenance regimes. Where ditches, gullies and drains are prone to blockages, quick win measures such as clearance and maintenance can reduce flood risk.	Maintenance plans should be drawn up for areas where there are records of surface water flooding from block drains, gullies and ditches.	Maintenance plans are technically feasible, some investigation will be required before maintenance plans can be drawn up.	1	Maintenance plans for flood hotspots is likely to have a neutral impact on the environment.	0	This option will likely have a positive social impact, as regular maintenance should lead to the number of flood events due to blocked or damaged assets reduce.	1	The benefits from regular maintenance of assets should outweigh the costs associated with maintenance works.	1	Maintenance plans would help to meet objectives.	1	4
		Managing overland flows	Intercepting known flow pathways and diverting away from receptors. Creating flood routes, e.g. use highway network to keep flood water away from property in all but the most extreme events. This can be achieved through changes to profiling of roads, kerb heights, the use of speed bumps etc.	In the most at-risk residential areas within Wymbush/Two Mile Ash such as Great Monks Street, surface water flow routes tend to follow highways before building up behind the embankments forming the main A roads in the area. Therefore, this option is not practicable for this CDC.	N/A		N/A		N/A		N/A		N/A		
				Surface water flooding is indicated to impact on the hardstanding areas surrounding some of the commercial buildings located off Garamonde Drive. These areas could be reprofiled to direct flows away from access and egress routes from these buildings.	This measure would be likely to result in the re-direction of surface water flooding to potentially vulnerable areas unless coupled with another measure such as attenuation.	-2	This option may result in an increased flood risk elsewhere and/or downstream.	-2	Safety of employees is likely to be improved. Safety of nearby residents may be reduced as a result of increased flood risk.	-1	The costs of the measure are likely to significantly outweigh the benefits.	-2	The measure will detriment the objectives.	-2	-9
		Land management practices	This can include increased tree coverage, perpendicular ploughing and more sustainable agricultural practices in order to slow down the surface water runoff and potentially assist in removing diffuse pollution from runoff arising from agricultural land. Land management is easy to implement and requires little technological input. However, this	There are no areas within this CDC where this option could be implemented.	N/A		N/A		N/A		N/A		N/A		
		Deculverting watercourse(s)	Deculverting watercourses can improve conveyance of water, as culverts can restrict flow rates.	There are no culverts suitable for this option within this CDC.	N/A		N/A		N/A		N/A		N/A		
		Other 'pathway' measures	None identified												
Receptor control measures		Planning policies to influence development	Use forthcoming development control policies to direct development away from areas of surface water flood risk or implement flood risk reduction measures. The policies could be borough wide or area specific, e.g. Basement dwellings are not permitted in areas of known surface water flooding, or a reduction in surface water runoff from a new development is required to be demonstrated in an area of known surface water flooding.	There are a limited number of areas across the CDC earmarked for residential development, the areas specified are also considerably small. Attenuation SuDS such as small scale permeable paving areas or geocellular storage would be best suited to developments of this size. Any flows discharged from attenuation features should be restricted to Q_{BAR}.	Small scale attenuation would be relatively simple to incorporate as part of the construction of a new development.	1	This option is likely to have a neutral environmental impact.	0	This measure is likely to have a neutral social impact.	0	As this measure should be constructed as part of the new developments, there is a potential to maximise economies of scale. In addition, develop contributions to assist in flood alleviation that benefit the wider community could be sought. This could lead to benefits outweighing costs.	1	This measure will help in achieving the objectives.	1	3
		Improved resilience and resistance measures	Existing and new buildings can be adapted to reduce damages from flooding. Resistance measures to prevent water entering the property (e.g. demountable barriers). Resilience measures to reduce the damage caused by water within the property (e.g. raising electrics, solid floors).	All residential and commercial properties that are shown in the modelled surface water flood extents could have property level flood protection measures.	These are relatively simple to implement although the type of flood protection suitable for each property would need to be determined following a structural survey.	1	It is considered that this measure would not have an impact on the environment. Although it is possible that flood risk to neighbouring properties could be increased which would need to be ascertained through modelling.	0	Depending on the willingness of uptake by the residents this could have a positive or negative social impact. Although, it is considered that if residents have experienced flooding before, they may be happy to install property level flood protection.	1	These measures are typically low-cost and would prevent flooding to the individual properties.	1	This measure will help achieve the objectives.	1	4
		Social change, education and awareness	Increase activities of local flood groups to educate the community e.g. holding flood awareness events, leaflet dropping.	Where not already implemented, Milton Keynes Council could work with local community flood groups to develop community flood plans and raise awareness of flooding.	This option is technically feasible, and should require little in the way of further investigation.	2	This option would likely have a neutral impact on the environment.	0	The community would benefit from this option, and could lead to positive feelings towards schemes if they are involved in formulating plans for flood risk areas.	1	The benefits from this option should outweigh the costs involved.	1	This measure should assist with meeting the objectives.	1	5
		Other 'Receptor' Measures													

				CATEGORY (BASED ON SWMP Guidance (2010) Table 8-2)								
				CRITERIA	TECHNICAL		ENVIRONMENTAL		SOCIAL		ECONOMIC		OBJECTIVES	
				Description / examples	Is the option buildable? Will it be robust and reliable?		Will the environment benefit or suffer from implementation of the measure?		Will the community benefit or suffer from implementation of the measure?		Will benefits exceed costs?		Will it help to achieve the objectives?	
				Scoring	-2 - the measure is not technically feasible without being coupled with another measure.		-2 - the measure is likely to have a significant adverse effect on the environment e.g. increase flood risk downstream, alter the WFD status of a water body or compromise an environmental designation.		-2 - the measure will have a significant negative effect one the community e.g. it will remove an existing amenity and recreation area.		-2 - the costs of the measure are likely to significantly outweigh the benefits.		-2 - the measure will detriment the objectives.	
					-1 - it is uncertain whether this measure is feasible and further investigations are required.		-1 - the measure will have a moderate adverse impact on the environment.		-1 - the measure will have a moderate negative effect on the community e.g. it will temporarily remove an existing amenity and recreation area.		-1 - the costs of the measure are likely to moderately outweigh the benefits		-1 - the measure will not help achieve any objectives	
					1 - the measure is slightly more complex to implement, some investigations will need to be carried out and there are many construction issues which will need to be overcome.		1 - the measure will improve the environment e.g. encourage wildlife to an existing area of open space.		1 - the measure would moderately benefit the community on a local scale e.g. small scale attenuation SuDS would provide amenity to a small number of people.		1 - the benefits of the measure are likely to moderately outweigh the costs.		1 - the measure will help achieve some of the objectives.	
					2 - the measure is simple to implement, no further investigations are required and there are few construction issues to overcome.		2 - the measure will have a significant improvement on the environment e.g. alter the WFD status of a water body for the better or create new habitats.		2 - the measure would significantly benefit the wider community e.g. a wetland area would provide opportunities for amenity and recreation.		2 - the benefits of the measure are likely to significantly outweigh the costs.		2 - the measure will help achieve all of the objectives.	
Hotspot		**Measure**	**Measure description**	**Potential Measure and Location within CDC**	0 - neutral impact	0	0 - neutral impact	0	0 - neutral impact	0	0 - neutral impact	0	0 - neutral impact	0	**OVERALL SCORE**
Source control measures		Do Nothing	Make no intervention / maintenance	Throughout the CDC.	No effort to implement.	2	By doing nothing, surface water flood risk is predicted to become more frequent with the effects of climate change.	-2	Doing nothing is likely to create opposition from the community and negative feelings.	-2	There would be no benefit from this measure.	-2	Doing nothing would not achieve the objectives.	-2	-6
		Do Minimum	Continue existing maintenance regime, update surface water management policies in line with national guidance and react to flood events and subsequent damage.	Throughout the CDC.	Minimal effort to implement.	2	By doing minimum, surface water flood risk is likely to become more frequent with the effects of climate change.	-1	Doing minimum could create opposition from the community and negative feelings.	-1	There would be few benefits from this measure.	-1	Doing minimum would not achieve the objectives.	-2	-3
		Green / living roofs, rain gardens	Installing layers of planting onto buildings (green roofs) or reprofiling gardens (rain gardens). It also helps to slow runoff from the building in lower return period rainfall events. Rain gardens should be designed to overflow into areas in which it is safe to do so, such as existing surface water sewers.	Green roofs could be retrofit onto a number of buildings within Brinklow industrial estate and Kingston Centre.	Green roofs are relatively simple to install. Handrails will need to be incorporated into any green roof design.	2	Green roofs create new habitats as well as having an insulating effect, improving the building's energy efficiency.	2	The most suitable buildings to host green roofs within this CDC are a school and commercial buildings. If installed onto the roof of the school it could be used as an educational tool, which would be a moderate benefit to the local community.	1	Green roofs are only likely to provide benefit to the buildings they have been installed on in very low return periods. Generally, the cost of a green roof is offset by the amount of saving in energy bills.	0	A green roof would only provide a small amount of local flood risk alleviation in very low return periods.	-1	4
				Rain gardens could be incorporated into private gardens in the most at-risk residential areas of Monkston and Brinklow.	Rain gardens are good for lower return period storms. However, the design of these areas will need to take into consideration the routes which overflow paths will follow to ensure there is no increased flood risk to properties downstream.	1	As this option requires private gardens to be reprofiled, it is expected that disruption to existing planting and the spoil which may arise from such works would have a negative environmental impact. In the long-term, the environmental impact will be neutral providing the areas used for rain gardens remain as private gardens.	-1	The works involved in constructing rain gardens in private gardens will likely be an inconvenience in the short term. Long-term, it is expected that these areas will have a neutral social impact.	0	Rain gardens are only likely to provide benefit during very low return periods. The cost to construct, remove spoil and connect overflows into existing surface water sewers is likely to outweigh the benefits.	-1	Rain gardens would only provide a small amount of local flood risk alleviation in very low return periods.	1	0
		Infiltration SuDS	E.g. permeable paving, soakaways, filter strips that provide a pathway for rainwater to infiltrate into the ground at a restricted rate. Infiltration SuDS are easier and more economical to install on new developments but can be retrofitted. All methods of infiltration can silt up over time, which will lead to the volume of storage for surface water runoff decreasing.	The geological strata which the Brinklow CDC is underlain by is the Peterborough Member. This is formed of mudstone, which is not typically permeable enough to make infiltration SuDS feasible.	N/A		N/A		N/A		N/A		N/A		
		Attenuation SuDS	E.g. storage basins, tanked permeable paving, rainwater harvesting and swales. All methods store surface water before discharging at a restricted flow rate. All methods of attenuation can silt up over time, which will lead to the volume of storage for surface water runoff decreasing.	Tanked permeable paving or tanked geocellular storage could be retrofit across the vehicle parking areas in Brinklow industrial estate and the Kingston Centre. Attenuated stormwater would then discharge to public surface water sewers at a restricted rate. Permeable paving would not be suitable in areas used by heavy goods vehicles. Attenuation SuDS could also be implemented at the Monkston Primary School's Playing Field.	Retrofitting tanked permeable paving or tanked geocellular storage is technically feasible. However, this option will require further investigation and detailed design.	1	Below ground storage of surface water runoff is likely to have a neutral impact on the environment.	1	This option may raise opposition from members of the local community who are directly affected by the works. However, overall there would be a reduced risk of surface water flooding to the community.	1	The construction costs for this measure are likely to be moderate in comparison to the benefits achieved. Ongoing maintenance costs are also expected to be moderate. Therefore, it is considered that for this measure the costs are likely to equal the benefits.	0	Stormwater attenuation through the use of tanked below ground storage would help to meet the objectives.	1	4
		Other source measures	None identified		N/A		N/A		N/A		N/A		N/A		

Pathway control measures	Brinklow	Increasing capacity and/or conveyance of drainage systems (e.g.. Ditches or sewers)	Increasing conveyance could be achieved by clearing ditches, upsizing sewers, increasing the number of gullies or by incorporating new ditches, sewers and drains. However, increasing conveyance can often lead to an increase in flood risk downstream.	Extra gullies in the road around the roundabout north of the Kingston Centre, in Chippenham Drive, could assist with conveying surface water flood flows away from the roundabout and into the surface water sewer at an increased rate.	Installation of extra gullies in this area technically feasible. However, further investigation will be required as the installation of new gullies will need to take into consideration the capacity existing drainage network, buried services and traffic management.	1	Increasing the number of gullies at this roundabout is likely to have a neutral impact on the environment.	0	This option may raise opposition from frequent visitors to the Kingston Centre and from local businesses within the commercial areas close to the roundabout in question. However, the installation of new gullies is unlikely to have a prolonged construction period. In the long term, the alleviated flood risk to this roundabout would be of benefit to businesses and visitors to the area.	1	The construction cost for this option, providing there are no adverse conditions experienced during construction, is relatively low. Maintenance costs should also be low if gullies are installed in easily accessible areas.	1	Increasing the number of gullies would help to meet the objectives.	1	4
		Separation of foul and surface water sewers	Where the hotspot is served by a combined drainage network, separation of the surface water from the combined system should be considered. In growth areas separation creates capacity for new connections.	The foul and surface water sewers within this CDC are separate. Therefore, this is not an option for this area.	N/A		N/A		N/A		N/A		N/A	
		Improved maintenance regimes	Target improved maintenance to critical points in the system and ensure the resources are available to deliver past and existing maintenance regimes. Where ditches, gullies and drains are prone to blockages, quick win measures such as clearance and maintenance can reduce flood risk.	Maintenance plans should be drawn up for areas where there are records of surface water flooding from block drains, gullies and ditches.	Maintenance plans are technically feasible, some investigation will be required before maintenance plans can be drawn up.	1	Maintenance plans for flood hotspots is likely to have a neutral impact on the environment.	0	This option will likely have a positive social impact, as regular maintenance should lead to the number of flood events due to blocked or damaged assets reduce.	1	The benefits from regular maintenance of assets should outweigh the costs associated with maintenance works.	1	Maintenance plans would help to meet objectives.	1	4
		Managing overland flows	Intercepting known flow pathways and diverting away from receptors. Creating flood routes, e.g. use highway network to keep flood water away from property in all but the most extreme events. This can be achieved through changes to profiling of roads, kerb heights, the use of speed bumps etc.	In the residential areas of Monkston, surface water flood flow routes tend to follow highways before building up behind the embankments forming the main A roads in the area. Therefore, this option is not practical for this CDC.	N/A		N/A		N/A		N/A		N/A	
				The surface water flooding is indicated to impact on the hardstanding areas surrounding the buildings forming the business areas of Brinklow and Kingston. These areas could be reprofiled to direct flows away from access and egress routes from these buildings.	Uncertainty over whether this option would be feasible. Further investigation would be required.	-1	This option is likely to have a neutral impact on the environment.	0	Reprofiling existing areas of hardstanding is likely to have a neutral impact on the community.	0	This cost of this option will likely be equal to the benefits.	0	This option would help to meet objectives.	1	0
		Land management practices	This can include increased tree coverage, perpendicular ploughing and more sustainable agricultural practices in order to slow down the surface water runoff and potentially assist in removing diffuse pollution from runoff arising from agricultural land. Land management is easy to implement and requires little technological input. However, this will require continuous management.	There Are no areas within this CDC where this option could be implemented.	N/A		N/A		N/A		N/A		N/A	
		Deculverting watercourse(s)	Deculverting watercourses can improve conveyance of water, as culverts can restrict flow rates.	There are no culverts suitable for this option within this CDC.	N/A		N/A		N/A		N/A		N/A	
		Other 'pathway' measures	None identified											
Receptor control measures		Planning policies to influence development	Use forthcoming development control policies to direct development away from areas of surface water flood risk or implement flood risk reduction measures. The policies could be borough wide or area specific, e.g. Basement dwellings are not permitted in areas of known surface water flooding, or a reduction in surface water runoff from a new development is required to be demonstrated in an area of known surface water flooding.	There are a number of areas across the CDC earmarked for residential development. Attenuation SuDS such as basins, dry ponds, swales with outfalls to local sewers or other forms of attenuation SuDS should be required of developments. Any flows discharged from attenuation features should be restricted to Q_{BAR}.	Attenuation ponds, swales and blue-green corridors are widely used in new developments and would be relatively simple to incorporate as part of the construction of a new development.	2	This option could lead to increased biodiversity and habitat creation at a local scale.	2	This measure could provide a local amenity area and raise awareness of flooding locally.	2	As this measure should be constructed as part of the new developments, there is a potential to maximise economies of scale. In addition, develop contributions to assist in flood alleviation that benefit the wider community could be sought. Given the location of these proposed developments and their interaction with overland flood flow pathways, there is a potential that this could alleviate flooding to many properties and therefore it is considered that this measure would be cost beneficial.	2	This measure will help in achieving the objectives.	1	9
		Improved resilience and resistance measures	Existing and new buildings can be adapted to reduce damages from flooding. Resistance measures to prevent water entering the property (e.g. demountable barriers). Resilience measures to reduce the damage caused by water within the property (e.g. raising electrics, solid floors).	All residential and commercial properties that are shown in the modelled surface water flood extents could have property level flood protection measures.	These are relatively simple to implement although the type of flood protection suitable for each property would need to be determined following a structural survey.	1	It is considered that this measure would not have an impact on the environment. Although it is possible that flood risk to neighbouring properties could be increased which would need to be ascertained through modelling.	0	Depending on the willingness of uptake by the residents this could have a positive or negative social impact. Although, it is considered that if residents have experienced flooding before, they may be happy to install property level flood protection.	1	These measures are typically low-cost and would prevent flooding to the individual properties.	1	This measure will help achieve the objectives.	1	4
		Social change, education and awareness	Increase activities of local flood groups to educate the community e.g. holding flood awareness events, leaflet dropping.	Where not already implemented, Milton Keynes Council could work with local community flood groups to develop community flood plans and raise awareness of flooding.	This option is technically feasible, and should require little in the way of further investigation.	2	This option would likely have a neutral impact on the environment.	0	The community would benefit from this option, and could lead to positive feelings towards schemes if they are involved in formulating plans for flood risk areas.	1	The benefits from this option should outweigh the costs involved.	1	This measure should assist with meeting the objectives.	1	5
		Other 'Receptor' Measures	None identified											

				CATEGORY (BASED ON SWMP Guidance (2010) Table 8-2)									
				CRITERIA	TECHNICAL		ENVIRONMENTAL		SOCIAL		ECONOMIC		OBJECTIVES
				Description / examples	Is the option buildable? Will it be robust and reliable?		Will the environment benefit or suffer from implementation of the measure?		Will the community benefit or suffer from implementation of the measure?		Will benefits exceed costs?		Will it help to achieve the objectives?
				Scoring	-2 - the measure is not technically feasible without being coupled with another measure.		-2 - the measure is likely to have a significant adverse effect on the environment e.g. increase flood risk downstream, alter the WFD status of a water body or compromise an environmental designation.		-2 - the measure will have a significant negative effect one the community e.g. it will remove an existing amenity and recreation area.		-2 - the costs of the measure are likely to significantly outweigh the benefits.		-2 - the measure will detriment the objectives.
					-1 - it is uncertain whether this measure is feasible and further investigations are required.		-1 - the measure will have a moderate adverse impact on the environment.		-1 - the measure will have a moderate negative effect on the community e.g. it will temporarily remove an existing amenity and recreation area.		-1 - the costs of the measure are likely to moderately outweigh the benefits		-1 - the measure will not help achieve any objectives
					1 - the measure is slightly more complex to implement, some investigations will need to be carried out and there are many construction issues which will need to be overcome.		1 - the measure will improve the environment e.g. encourage wildlife to an existing area of open space.		1 - the measure would moderately benefit the community on a local scale e.g. small scale attenuation SuDS would provide amenity to a small number of people.		1 - the benefits of the measure are likely to moderately outweigh the costs.		1 - the measure will help achieve some of the objectives.
					2 - the measure is simple to implement, no further investigations are required and there are few construction issues to overcome.		2 - the measure will have a significant improvement on the environment e.g. alter the WFD status of a water body for the better or create new habitats.		2 - the measure would significantly benefit the wider community e.g. a wetland area would provide opportunities for amenity and recreation.		2 - the benefits of the measure are likely to significantly outweigh the costs.		2 - the measure will help achieve all of the objectives.
Hotspot		**Measure**	**Measure description**	**Potential Measure and Location within CDC**	0 - neutral impact	0	0 - neutral impact	0	0 - neutral impact	0	0 - neutral impact	0	0 - neutral impact	0	**OVERALL SCORE**
	Source control measures	Do Nothing	Make no intervention / maintenance	Throughout the CDC.	No effort to implement.	-2	By doing nothing, surface water flood risk is predicted to become more frequent with the effects of climate change.	-2	Doing nothing is likely to create opposition from the community and negative feelings.	-2	There would be no benefit from this measure.	-2	Doing nothing would not achieve the objectives.	-2	-6
		Do Minimum	Continue existing maintenance regime, update surface water management policies in line with national guidance and react to flood events and subsequent damage.	Throughout the CDC.	Minimal effort to implement.	-2	By doing minimum, surface water flood risk is likely to become more frequent with the effects of climate change.	-1	Doing minimum could create opposition from the community and negative feelings.	-1	There would be few benefits from this measure.	-1	Doing minimum would not achieve the objectives.	-2	-3
		Green / living roofs, rain gardens	Installing layers of planting onto buildings (green roofs) or reprofiling gardens (rain gardens). It also helps to slow runoff from the building in lower return period rainfall events. Rain gardens should be designed to overflow into areas in which it is safe to do so, such as existing surface water sewers.	Green roofs could be retrofit onto a number of buildings within the commercial area or Winterhill Retail Park, to the west of the CDC	Green roofs are relatively simple to install. Handrails will need to be incorporated into any green roof design.	2	Green roofs create new habitats as well as having an insulating effect, improving the building's energy efficiency.	2	The most suitable buildings to host green roofs within this CDC are a school and commercial buildings. If installed onto the roof of the school it could be used as an educational tool, which would be a moderate benefit to the local community.	1	Green roofs are only likely to provide benefit to the buildings they have been installed on in very low return periods. Generally, the cost of a green roof is offset by the amount of saving in energy bills.	0	A green roof would only provide a small amount of local flood risk alleviation in very low return periods.	-1	4
				Rain gardens could be incorporated into private gardens in the most at-risk residential areas of Oldbrook and Fishermead.	Rain gardens are good for lower return period storms. However, the design of these areas will need to take into consideration the routes which overflow paths will follow to ensure there is no increased flood risk to properties downstream.	1	As this option requires private gardens to be reprofiled, it is expected that disruption to existing planting and the spoil which may arise from such works would have a negative environmental impact. In the long-term, the environmental impact will be neutral providing the areas used for rain gardens remain as private gardens.	-1	The works involved in constructing rain gardens in private gardens will likely be an inconvenience in the short term. Long-term, it is expected that these areas will have a neutral social impact.	0	Rain gardens are only likely to provide benefit during very low return periods. The cost to construct, remove spoil and connect overflows into existing surface water sewers is likely to outweigh the benefits.	-1	Rain gardens would only provide a small amount of local flood risk alleviation in very low return periods.	1	0
		Infiltration SuDS	E.g. permeable paving, soakaways, filter strips that provide a pathway for rainwater to infiltrate into the ground at a restricted rate. Infiltration SuDS are easier and more economical to install on new developments but can be retrofitted. All methods of infiltration can silt up over time, which will lead to the volume of storage for surface water runoff decreasing.	The bedrock which the Oldbrook CDC is underlain by is the Peterborough Member. This is formed of mudstone, which is not typically permeable enough to make infiltration SuDS feasible. Therefore this is not an option for this CDC.	N/A		N/A		N/A		N/A		N/A		
		Attenuation SuDS	E.g. storage basins, tanked permeable paving, rainwater harvesting and swales. All methods store surface water before discharging at a restricted flow rate. All methods of attenuation can silt up over time, which will lead to the volume of storage for surface water runoff decreasing.	Tanked permeable paving or tanked geocellular storage could be retrofit across the vehicle parking areas in Winterhill Retail Park and the playing field of the Jubilee Wood Primary School. Attenuated stormwater would then discharge to existing public surface water sewers at a restricted rate. Permeable paving would not be suitable in areas used by heavy goods vehicles.	Retrofitting tanked permeable paving or tanked geocellular storage is technically feasible. However, this option will require further investigation and detailed design.	1	Below ground storage of surface water runoff is likely to have a neutral impact on the environment.	1	This option may raise opposition from members of the local community who are directly affected by the works. However, overall there would be a reduced risk of surface water flooding to the community.	1	The construction costs for this measure are likely to be moderate in comparison to the benefits achieved. Ongoing maintenance costs are also expected to be moderate. Therefore, it is considered that for this measure the costs are likely to equal the benefits.	0	Stormwater attenuation through the use of tanked below ground storage would help to meet the objectives.	1	4
		Other source measures	None identified		N/A		N/A		N/A		N/A		N/A		

Pathway control measures	Oldbrook	Increasing capacity and/or conveyance of drainage systems (e.g.. Ditches or sewers)	Increasing conveyance could be achieved by clearing ditches, upsizing sewers, increasing the number of gullies or by incorporating new ditches, sewers and drains. However, increasing conveyance can often lead to an increase in flood risk downstream.	There are gullies present in the areas forming the flood flow pathways. However, upsizing the existing surface water sewer network in flood hotspots, possibly compiled with increasing the number of gullies or installing channel drains which outfall into upsized sewers, could assist in alleviating the surface water flood risk across this CDC. The residential areas surrounding the Oldbrook Cricket Ground would be likely to benefit from this measure.	Upsizing sewers with increased gullies or installation of channel drains in this area is technically feasible. However, further investigation will be required as the installation of new gullies will need to take into consideration the capacity of the existing drainage network, buried services and traffic management.	1	Increasing the capacity and the conveyance of the existing surface water and stormwater sewer network is likely to have a neutral environmental impact.	0	This option may raise opposition from visitors and from local businesses in the area. However, this option is unlikely to have a prolonged construction period. In the long term, the alleviated flood risk to the High Street would be of benefit to businesses and visitors to the area.	1	The construction cost for this option, providing there are no adverse conditions experienced during construction, is moderate. Maintenance costs should be low if gullies or channel drains are installed in easily accessible areas.	0	Increasing the capacity and conveyance of the existing system would help to meet the objectives.	1	3
		Separation of foul and surface water sewers	Where the hotspot is served by a combined drainage network, separation of the surface water from the combined system should be considered. In growth areas separation creates capacity for new connections.	The foul and surface water sewers within this CDC are separate. Therefore, this is not an option for this area.	N/A		N/A		N/A		N/A		N/A		
		Improved maintenance regimes	Target improved maintenance to critical points in the system and ensure the resources are available to deliver past and existing maintenance regimes. Where ditches, gullies and drains are prone to blockages, quick win measures such as clearance and maintenance can reduce flood risk.	Maintenance plans should be drawn up for areas where there are records of surface water flooding from block drains, gullies and ditches.	Maintenance plans are technically feasible, some investigation will be required before maintenance plans can be drawn up.	1	Maintenance plans for flood hotspots is likely to have a neutral impact on the environment.	0	This option will likely have a positive social impact, as regular maintenance should lead to the number of flood events due to blocked or damaged assets reduce.	1	The benefits from regular maintenance of assets should outweigh the costs associated with maintenance works.	1	Maintenance plans would help to meet objectives.	1	4
		Managing overland flows	Intercepting known flow pathways and diverting away from receptors. Creating flood routes, e.g. use highway network to keep flood water away from property in all but the most extreme events. This can be achieved through changes to profiling of roads, kerb heights, the use of speed bumps etc.	In the most at-risk residential areas within Oldbrook and Fishermead, surface water flood flow routes tend to follow highways before building up behind the embankments forming the main A roads in the area. Whilst there are a number of areas which may benefit from kerb raising such as Grace Avenue, Douglas Place and Wardle Place, the potential for kerb raising in	N/A		N/A		N/A		N/A		N/A		
				Surface water flooding is indicated to impact on the hardstanding areas surrounding some of the commercial buildings in Winterhill Retail Park. These areas could be reprofiled to direct flows away from access and egress routes from these buildings.	Uncertainty over whether this option would be feasible. Further investigation would be required.	-1	This option is likely to have a neutral impact on the environment.	0	Reprofiling existing areas of hardstanding is likely to have a neutral impact on the community.	0	This cost of this option will likely be equal to the benefits.	0	This option would help to meet objectives.	1	0
		Land management practices	This can include increased tree coverage, perpendicular ploughing and more sustainable agricultural practices in order to slow down the surface water runoff and potentially assist in removing diffuse pollution from runoff arising from agricultural land. Land management is easy to implement and requires little technological input. However, this will require continuous management.	There Are no areas within this CDC where this option could be implemented.	N/A		N/A		N/A		N/A		N/A		
		Deculverting watercourse(s)	Deculverting watercourses can improve conveyance of water, as culverts can restrict flow rates.	There are no known culverts suitable for this option within this CDC.	N/A		N/A		N/A		N/A		N/A		
		Other 'pathway' measures	None identified												
Receptor control measures		Planning policies to influence development	Use forthcoming development control policies to direct development away from areas of surface water flood risk or implement flood risk reduction measures. The policies could be borough wide or area specific, e.g. Basement dwellings are not permitted in areas of known surface water flooding, or a reduction in surface water runoff from a new development is required to be demonstrated in an area of known surface water flooding.	There are a number of areas across the CDC earmarked for residential development. Attenuation SuDS such as basins, dry ponds, swales with outfalls to local sewers or other forms of attenuation SuDS should be required of developments. Any flows discharged from attenuation features should be restricted to Q_{BAR}.	Attenuation ponds, swales and blue-green corridors are widely used in new developments and would be relatively simple to incorporate as part of the construction of a new development.	2	This option could lead to increased biodiversity and habitat creation at a local scale.	2	This measure could provide a local amenity area and raise awareness of flooding locally.	2	As this measure should be constructed as part of the new developments, there is a potential to maximise economies of scale. In addition, develop contributions to assist in flood alleviation that benefit the wider community could be sought. Given the location of these proposed developments and their interaction with overland flood flow pathways, there is a potential that this could alleviate flooding to many properties and therefore it is considered that this measure would be cost beneficial.	2	This measure will help in achieving the objectives.	1	9
		Improved resilience and resistance measures	Existing and new buildings can be adapted to reduce damages from flooding. Resistance measures to prevent water entering the property (e.g. demountable barriers). Resilience measures to reduce the damage caused by water within the property (e.g. raising electrics, solid floors).	All residential and commercial properties that are shown in the modelled surface water flood extents could have property level flood protection measures.	These are relatively simple to implement although the type of flood protection suitable for each property would need to be determined following a structural survey.	1	It is considered that this measure would not have an impact on the environment. Although it is possible that flood risk to neighbouring properties could be increased which would need to be ascertained through modelling.	0	Depending on the willingness of uptake by the residents this could have a positive or negative social impact. Although, it is considered that if residents have experienced flooding before, they may be happy to install property level flood protection.	1	These measures are typically low-cost and would prevent flooding to the individual properties.	1	This measure will help achieve the objectives.	1	4
		Social change, education and awareness	Increase activities of local flood groups to educate the community e.g. holding flood awareness events, leaflet dropping.	Where not already implemented, Milton Keynes Council could work with local community flood groups to develop community flood plans and raise awareness of flooding.	This option is technically feasible, and should require little in the way of further investigation.	2	This option would likely have a neutral impact on the environment.	0	The community would benefit from this option, and could lead to positive feelings towards schemes if they are involved in formulating plans for flood risk areas.	1	The benefits from this option should outweigh the costs involved.	1	This measure should assist with meeting the objectives.	1	5
		Other 'Receptor' Measures	None identified												

				CATEGORY (BASED ON SWMP Guidance (2010) Table 8-2)									
			CRITERIA	TECHNICAL		ENVIRONMENTAL		SOCIAL		ECONOMIC		OBJECTIVES	
			Description / examples	Is the option buildable? Will it be robust and reliable?		Will the environment benefit or suffer from implementation of the measure?		Will the community benefit or suffer from implementation of the measure?		Will benefits exceed costs?		Will it help to achieve the objectives?	
			Scoring	-2 - the measure is not technically feasible without being coupled with another measure.		-2 - the measure is likely to have a significant adverse effect on the environment e.g. increase flood risk downstream, alter the WFD status of a water body or compromise an environmental designation.		-2 - the measure will have a significant negative effect one the community e.g. it will remove an existing amenity and recreation area.		-2 - the costs of the measure are likely to significantly outweigh the benefits.		-2 - the measure will detriment the objectives.	
				-1 - it is uncertain whether this measure is feasible and further investigations are required.		-1 - the measure will have a moderate adverse impact on the environment.		-1 - the measure will have a moderate negative effect on the community e.g. it will temporarily remove an existing amenity and recreation area.		-1 - the costs of the measure are likely to moderately outweigh the benefits		-1 - the measure will not help achieve any objectives	
				1 - the measure is slightly more complex to implement, some investigations will need to be carried out and there are many construction issues which will need to be overcome.		1 - the measure will improve the environment e.g. encourage wildlife to an existing area of open space.		1 - the measure would moderately benefit the community on a local scale e.g. small scale attenuation SuDS would provide amenity to a small number of people.		1 - the benefits of the measure are likely to moderately outweigh the costs.		1 - the measure will help achieve some of the objectives.	
				2 - the measure is simple to implement, no further investigations are required and there are few construction issues to overcome.		2 - the measure will have a significant improvement on the environment e.g. alter the WFD status of a water body for the better or create new habitats.		2 - the measure would significantly benefit the wider community e.g. a wetland area would provide opportunities for amenity and recreation.		2 - the benefits of the measure are likely to significantly outweigh the costs.		2 - the measure will help achieve all of the objectives.	
Hotspot		Measure	Measure description	Potential Measure and Location within CDC	0 - neutral impact	0	0 - neutral impact	0	0 - neutral impact	0	0 - neutral impact	0	0 - neutral impact	0	OVERALL SCORE
Source control measures		Do Nothing	Make no intervention / maintenance	Throughout the CDC.	No effort to implement.	-2	By doing nothing, surface water flood risk is predicted to become more frequent with the effects of climate change.	-2	Doing nothing is likely to create opposition from the community and negative feelings.	-2	There would be no benefit from this measure.	-2	Doing nothing would not achieve the objectives.	-2	-6
		Do Minimum	Continue existing maintenance regime, update surface water management policies in line with national guidance and react to flood events and subsequent damage.	Throughout the CDC.	Minimal effort to implement.	-2	By doing minimum, surface water flood risk is likely to become more frequent with the effects of climate change.	-1	Doing minimum could create opposition from the community and negative feelings.	-1	There would be few benefits from this measure.	-1	Doing minimum would not achieve the objectives.	-2	-3
		Green / living roofs, rain gardens	Installing layers of planting onto buildings (green roofs) or reprofiling gardens (rain gardens). It also helps to slow runoff from the building in lower return period rainfall events. Rain gardens should be designed to overflow into areas in which it is safe to do so, such as existing surface water sewers.	Green roofs could be retrofit onto flat roofs within Bradville Industrial Estate, towards the south-east of this CDC.	Green roofs are relatively simple to install. Handrails will need to be incorporated into any green roof design.	2	Green roofs create new habitats as well as having an insulating effect, improving the building's energy efficiency.	2	The most suitable buildings to host green roofs within this CDC are a school and commercial buildings. If installed onto the roof of the school it could be used as an educational tool, which would be a moderate benefit to the local community.	1	Green roofs are only likely to provide benefit to the buildings they have been installed on in very low return periods. Generally, the cost of a green roof is offset by the amount of saving in energy bills.	0	A green roof would only provide a small amount of local flood risk alleviation in very low return periods.	-1	4
				Rain gardens could be incorporated into private gardens in the most at-risk residential areas within the Bradwell CDC.	Rain gardens are good for lower return period storms. However, the design of these areas will need to take into consideration the routes which overflow paths will follow to ensure there is no increased flood risk to properties downstream.	1	As this option requires private gardens to be reprofiled, it is expected that disruption to existing planting and the spoil which may arise from such works would have a negative environmental impact. In the long-term, the environmental impact will be neutral providing the areas used for rain gardens remain as private gardens.	-1	The works involved in constructing rain gardens in private gardens will likely be an inconvenience in the short term. Long-term, it is expected that these areas will have a neutral social impact.	0	Rain gardens are only likely to provide benefit during very low return periods. The cost to construct, remove spoil and connect overflows into existing surface water sewers is likely to outweigh the benefits.	-1	Rain gardens would only provide a small amount of local flood risk alleviation in very low return periods.	1	0
		Infiltration SuDS	E.g. permeable paving, soakaways, filter strips that provide a pathway for rainwater to infiltrate into the ground at a restricted rate. Infiltration SuDS are easier and more economical to install on new developments but can be retrofitted. All methods of infiltration can silt up over time, which will lead to the volume of storage for surface water runoff decreasing.	According to BGS mapping, the bedrock beneath the Bradwell CDC is formed from a number of different strata including the Whitby Mudstone Formation, Blisworth Limestone Formation, Blisworth Clay Formation, Stamford Member, Rutland Formation, Peterborough Member and the Kellaways Formation. The superficial deposits across this CDC are formed from Alluvium, Glaciofluvial Deposits, the Oadby Member and Head Deposits. The Environment Agency's groundwater mapping indicates that the bedrock beneath this CDC mostly has no designation, with small areas of Principal, Secondary A and Secondary B designations present from the north-east to the south-west of the CDC. The Superficial deposits across this CDC mostly have no designation, with a small area to the north-west designated a Secondary A Aquifer. The combined information suggests that the permeability of the ground beneath this CDC is variable, and potentially unreliable for the purpose of infiltration SuDS. Further investigation is required to establish if infiltration SuDS is a feasible option.	N/A		N/A		N/A		N/A		N/A		
		Attenuation SuDS	E.g. storage basins, tanked permeable paving, rainwater harvesting and swales. All methods store surface water before discharging at a restricted flow rate. All methods of attenuation can silt up over time, which will lead to the volume of storage for surface water runoff decreasing.	Tanked permeable paving or tanked geocellular storage could be retrofitted across the vehicle parking areas of the Bradville Industrial Estate, Stantonbury School, Pepper Hill School and the industrial estate surrounding Fingle Drive. Where these areas also comprise green space i.e. Stanton School and Pepperhill School attenuation SuDS such as bunds etc. should be considered Attenuated stormwater would then discharge to existing public surface water sewers at a restricted rate. Permeable paving would not be suitable in areas used by heavy goods vehicles. The development of the local centre may provide an opportunity for the installation of such measures.	Retrofitting tanked permeable paving or tanked geocellular storage is technically feasible. However, this option will require further investigation and detailed design.	1	Below ground storage of surface water runoff is likely to have a neutral impact on the environment.	1	This option may raise opposition from members of the local community who are directly affected by the works. However, overall there would be a reduced risk of surface water flooding to the community.	1	The construction costs for this measure are likely to be moderate in comparison to the benefits achieved. Ongoing maintenance costs are also expected to be moderate. Therefore, it is considered that for this measure the costs are likely to equal the benefits.	0	Stormwater attenuation through the use of tanked below ground storage would help to meet the objectives.	1	4
		Other source measures	None identified		N/A		N/A		N/A		N/A		N/A		

Pathway control measures	Bradwell	Increasing capacity and/or conveyance of drainage systems (e.g.. Ditches or sewers)	Increasing conveyance could be achieved by clearing ditches, upsizing sewers, increasing the number of gullies or by incorporating new ditches, sewers and drains. However, increasing conveyance can often lead to an increase in flood risk downstream.	Upsizing the existing surface water sewer network in flood hotspots, possibly compiled with increasing the number of gullies or installing channel drains which outfall into upsized sewers, could assist in alleviating the surface water flood risk across this CDC. The junction between Monks Way and Grafton Street is likely to benefit from this measure.	Upsizing sewers with increased gullies or installation of channel drains in this area is technically feasible. However, further investigation will be required as the installation of new gullies will need to take into consideration the capacity of the existing drainage network, buried services and traffic management.	1	Increasing the capacity and the conveyance of the existing surface water and stormwater sewer network is likely to have a neutral environmental impact.	0	This option may raise opposition from frequent visitors and from local businesses. However, this option is unlikely to have a prolonged construction period. In the long term, the alleviated flood risk to the High Street would be of benefit to businesses and visitors to the area.	1	The construction cost for this option, providing there are no adverse conditions experienced during construction, is moderate. Maintenance costs should be low if gullies or channel drains are installed in easily accessible areas.	0	Increasing the capacity and conveyance of the existing system would help to meet the objectives.	1	3
		Separation of foul and surface water sewers	Where the hotspot is served by a combined drainage network, separation of the surface water from the combined system should be considered. In growth areas separation creates capacity for new connections.	The foul and surface water sewers within this CDC are separate. Therefore, this is not an option for this area.	N/A		N/A		N/A		N/A		N/A		
		Improved maintenance regimes	Target improved maintenance to critical points in the system and ensure the resources are available to deliver past and existing maintenance regimes. Where ditches, gullies and drains are prone to blockages, quick win measures such as clearance and maintenance can reduce flood risk.	Maintenance plans should be drawn up for areas where there are records of surface water flooding from block drains, gullies and ditches.	Maintenance plans are technically feasible, some investigation will be required before maintenance plans can be drawn up.	1	Maintenance plans for flood hotspots is likely to have a neutral impact on the environment.	0	This option will likely have a positive social impact, as regular maintenance should lead to the number of flood events due to blocked or damaged assets reduce.	1	The benefits from regular maintenance of assets should outweigh the costs associated with maintenance works.	1	Maintenance plans would help to meet objectives.	1	4
		Managing overland flows	Intercepting known flow pathways and diverting away from receptors. Creating flood routes, e.g. use highway network to keep flood water away from property in all but the most extreme events. This can be achieved through changes to profiling of roads, kerb heights, the use of speed bumps etc.	In the most at-risk residential areas within the Bradwell CDC, surface water flood flow routes tend to follow highways before building up behind the embankments forming the main A roads in the area, which is the case north of Bancroft Roundabout. The residential properties around St Peters Way, to the north of the CDC, lie within a natural valley which may have a watercourse culverted through the flood risk area. Therefore, this option is not practical for this CDC without further investigation.	N/A		N/A		N/A		N/A		N/A		
		Land management practices	This can include increased tree coverage, perpendicular ploughing and more sustainable agricultural practices in order to slow down the surface water runoff and potentially assist in removing diffuse pollution from runoff arising from agricultural land. Land management is easy to implement and requires little technological input. However, this will require continuous management.	There are no areas within this CDC where this option could be implemented.	N/A		N/A		N/A		N/A		N/A		
		Deculverting watercourse(s)	Deculverting watercourses can improve conveyance of water, as culverts can restrict flow rates.	There are no known culverts suitable for this option within this CDC.	N/A		N/A		N/A		N/A		N/A		
		Other 'pathway' measures	None identified												
Receptor control measures		Planning policies to influence development	Use forthcoming development control policies to direct development away from areas of surface water flood risk or implement flood risk reduction measures. The policies could be borough wide or area specific, e.g. Basement dwellings are not permitted in areas of known surface water flooding, or a reduction in surface water runoff from a new development is required to be demonstrated in an area of known surface water flooding.	There are a number of areas across the CDC earmarked for residential development. Attenuation SuDS such as basins, dry ponds, swales with outfalls to local sewers or other forms of attenuation SuDS should be required of developments. Any flows discharged from attenuation features should be restricted to Q_{BAR}.	Attenuation ponds, swales and blue-green corridors are widely used in new developments and would be relatively simple to incorporate as part of the construction of a new development.	2	This option could lead to increased biodiversity and habitat creation at a local scale.	2	This measure could provide a local amenity area and raise awareness of flooding locally.	2	As this measure should be constructed as part of the new developments, there is a potential to maximise economies of scale. In addition, develop contributions to assist in flood alleviation that benefit the wider community could be sought. Given the location of these proposed developments and their interaction with overland flood flow pathways, there is a potential that this could alleviate flooding to many properties and therefore it is considered that this measure would be cost beneficial.	2	This measure will help in achieving the objectives.	1	9
		Improved resilience and resistance measures	Existing and new buildings can be adapted to reduce damages from flooding. Resistance measures to prevent water entering the property (e.g. demountable barriers). Resilience measures to reduce the damage caused by water within the property (e.g. raising electrics, solid floors).	All residential and commercial properties that are shown in the modelled surface water flood extents could have property level flood protection measures.	These are relatively simple to implement although the type of flood protection suitable for each property would need to be determined following a structural survey.	1	It is considered that this measure would not have an impact on the environment. Although it is possible that flood risk to neighbouring properties could be increased which would need to be ascertained through modelling.	0	Depending on the willingness of uptake by the residents this could have a positive or negative social impact. Although, it is considered that if residents have experienced flooding before, they may be happy to install property level flood protection.	1	These measures are typically low-cost and would prevent flooding to the individual properties.	2	This measure will help achieve the objectives.	1	5
		Social change, education and awareness	Increase activities of local flood groups to educate the community e.g. holding flood awareness events, leaflet dropping.	Where not already implemented, Milton Keynes Council could work with local community flood groups to develop community flood plans and raise awareness of flooding.	This option is technically feasible, and should require little in the way of further investigation.	2	This option would likely have a neutral impact on the environment.	0	The community would benefit from this option, and could lead to positive feelings towards schemes if they are involved in formulating plans for flood risk areas.	1	The benefits from this option should outweigh the costs involved.	1	This measure should assist with meeting the objectives.	1	5
		Other 'Receptor' Measures	None identified												

				CATEGORY (BASED ON SWMP Guidance (2010) Table 8-2)									
				CRITERIA	TECHNICAL		ENVIRONMENTAL		SOCIAL		ECONOMIC		OBJECTIVES	
				Description / examples	Is the option buildable? Will it be robust and reliable?		Will the environment benefit or suffer from implementation of the measure?		Will the community benefit or suffer from implementation of the measure?		Will benefits exceed costs?		Will it help to achieve the objectives?	
				Scoring	-2 - the measure is not technically feasible without being coupled with another measure.		-2 - the measure is likely to have a significant adverse effect on the environment e.g. increase flood risk downstream, alter the WFD status of a water body or compromise an environmental designation.		-2 - the measure will have a significant negative effect one the community e.g. it will remove an existing amenity and recreation area.		-2 - the costs of the measure are likely to significantly outweigh the benefits.		-2 - the measure will detriment the objectives.	
					-1 - it is uncertain whether this measure is feasible and further investigations are required.		-1 - the measure will have a moderate adverse impact on the environment.		-1 - the measure will have a moderate negative effect on the community e.g. it will temporarily remove an existing amenity and recreation area.		-1 - the costs of the measure are likely to moderately outweigh the benefits		-1 - the measure will not help achieve any objectives	
					1 - the measure is slightly more complex to implement, some investigations will need to be carried out and there are many construction issues which will need to be overcome.		1 - the measure will improve the environment e.g. encourage wildlife to an existing area of open space.		1 - the measure would moderately benefit the community on a local scale e.g. small scale attenuation SuDS would provide amenity to a small number of people.		1 - the benefits of the measure are likely to moderately outweigh the costs.		1 - the measure will help achieve some of the objectives.	
					2 - the measure is simple to implement, no further investigations are required and there are few construction issues to overcome.		2 - the measure will have a significant improvement on the environment e.g. alter the WFD status of a water body for the better or create new habitats.		2 - the measure would significantly benefit the wider community e.g. a wetland area would provide opportunities for amenity and recreation.		2 - the benefits of the measure are likely to significantly outweigh the costs.		2 - the measure will help achieve all of the objectives.	
Hotspot		Measure	Measure description	Potential Measure and Location within CDC	0 - neutral impact	0	0 - neutral impact	0	0 - neutral impact	0	0 - neutral impact	0	0 - neutral impact	0	OVERALL SCORE
Source control measures		Do Nothing	Make no intervention / maintenance	Throughout the CDC.	No effort to implement.	2	By doing nothing, surface water flood risk is predicted to become more frequent with the effects of climate change.	-2	Doing nothing is likely to create opposition from the community and negative feelings.	-2	There would be no benefit from this measure.	-2	Doing nothing would not achieve the objectives.	-2	-6
		Do Minimum	Continue existing maintenance regime, update surface water management policies in line with national guidance and react to flood events and subsequent damage.	Throughout the CDC.	Minimal effort to implement.	2	By doing minimum, surface water flood risk is likely to become more frequent with the effects of climate change.	-1	Doing minimum could create opposition from the community and negative feelings.	-1	There would be few benefits from this measure.	-1	Doing minimum would not achieve the objectives.	-2	-3
		Green / living roofs, rain gardens	Installing layers of planting onto buildings (green roofs) or reprofiling gardens (rain gardens). It also helps to slow runoff from the building in lower return period rainfall events. Rain gardens should be designed to overflow into areas in which it is safe to do so, such as existing surface water sewers.	None of the properties or commercial premises within this CDC are suitable for the installation of green roofs.	N/A		N/A		N/A		N/A		N/A		
				Rain gardens could be incorporated into private gardens in the most at-risk residential areas of this CDC.	Rain gardens are good for lower return period storms. However, the design of these areas will need to take into consideration the routes which overflow paths will follow to ensure there is no increased flood risk to properties downstream.	1	As this option requires private gardens to be reprofiled, it is expected that disruption to existing planting and the spoil which may arise from such works would have a negative environmental impact. In the long-term, the environmental impact will be neutral providing the areas used for rain gardens remain as private gardens.	-1	The works involved in constructing rain gardens in private gardens will likely be an inconvenience in the short term. Long-term, it is expected that these areas will have a neutral social impact.	0	Rain gardens are only likely to provide benefit during very low return periods. The cost to construct, remove spoil and connect overflows into existing surface water sewers is likely to outweigh the benefits.	-1	Rain gardens would only provide a small amount of local flood risk alleviation in very low return periods.	1	0
		Infiltration SuDS	E.g. permeable paving, soakaways, filter strips that provide a pathway for rainwater to infiltrate into the ground at a restricted rate. Infiltration SuDS are easier and more economical to install on new developments but can be retrofitted. All methods of infiltration can silt up over time, which will lead to the volume of storage for surface water runoff decreasing.	The geological strata which the Downs Barn and Conniburrow CDC is underlain by is predominantly the Peterborough Member Formation. This is formed of mudstone, which is not typically permeable enough to make infiltration SuDS feasible. Therefore this is not a measure which can be considered for this CDC.	N/A		N/A		N/A		N/A		N/A		
		Attenuation SuDS	E.g. storage basins, tanked permeable paving, rainwater harvesting and swales. All methods store surface water before discharging at a restricted flow rate. All methods of attenuation can silt up over time, which will lead to the volume of storage for surface water runoff decreasing.	There are a number of opportunities for attenuation SuDS in the Downs Barn and Conniburrow CDC including three separate areas across land south of Dansteed Way. These three areas include the land to the west of Capel Drive, land west of Overstreet and land to the west of the Grand Union Canal. All three of these areas could be used for flood storage.	The development of attenuation areas is technically feasible to implement. However, further modelling and investigations will be required.	1	The areas of proposed attenuation SuDS are vegetated and therefore there may be a loss of habitat and biodiversity locally in the short term. In the long term it is expected that this option would have a positive impact on the environment through planting regimes and the potential removal of pollutants from surface water runoff.	1	Residents of Downs Barn and Conniburrow are likely to benefit from the implementation of attenuation SuDS, as a result of a reduction in flood risk which directly impacts the health and wellbeing of residents and through the 'peace of mind' offered by the measure.	1	This measure is likely to be relatively low cost to implement and is likely to reduce the impacts of surface water flooding within Downs Barn and Conniburrow. However, attenuation SuDS are prone to silting and therefore regular maintenance is required.	1	This measure would help to achieve objectives.	2	6
		Other source measures	None identified		N/A		N/A		N/A		N/A		N/A		

Pathway control measures	Downs Barn and Conniburrow	Increasing capacity and/or conveyance of drainage systems (e.g.. Ditches or sewers)	Increasing conveyance could be achieved by clearing ditches, upsizing sewers, increasing the number of gullies or by incorporating new ditches, sewers and drains. However, increasing conveyance can often lead to an increase in flood risk downstream.	Throughout land south of Dansteed Way there is an opportunity for enhanced ditch maintenance and initial clearing. The ditch runs through the vegetated embankments and is heavily overgrown with signs of heavy silting.	This measure is simple to implement, it is unlikely that further investigations will be required and there should be no construction issues to overcome.	2	Appropriate monitoring and management of ditches is likely to significantly improve the water environment, potentially providing a new habitat and enhancing WFD status of reportable water bodies downstream. However, increasing conveyance may lead to an increase in flood risk downstream.	1	Local residents are likely to benefit from these measures as a result of a reduction in flood events which directly impacts the health and wellbeing of residents and through the 'peace of mind' offered by the measure.	1	Ditch clearance is likely to be a relatively low-cost measure. The benefits derived from clearance and maintenance should moderately outweigh the costs.	2	The implementation of ditch clearance is likely to help meet the objectives.	1	7
		Separation of foul and surface water sewers	Where the hotspot is served by a combined drainage network, separation of the surface water from the combined system should be considered. In growth areas separation creates capacity for new connections.	The foul and surface water sewers within this CDC are separate. Therefore, this is not an option for this area.	N/A		N/A		N/A		N/A		N/A		
		Improved maintenance regimes	Target improved maintenance to critical points in the system and ensure the resources are available to deliver past and existing maintenance regimes. Where ditches, gullies and drains are prone to blockages, quick win measures such as clearance and maintenance can reduce flood risk.	Maintenance plans should be drawn up for areas where there are records of surface water flooding from block drains, gullies and ditches.	Maintenance plans are technically feasible, some investigation will be required before maintenance plans can be drawn up.	1	Maintenance plans for flood hotspots is likely to have a neutral impact on the environment.	0	This option will likely have a positive social impact, as regular maintenance should lead to the number of flood events due to blocked or damaged assets reduce.	1	The benefits from regular maintenance of assets should outweigh the costs associated with maintenance works.	1	Maintenance plans would help to meet objectives.	1	4
		Managing overland flows	Intercepting known flow pathways and diverting away from receptors. Creating flood routes, e.g. use highway network to keep flood water away from property in all but the most extreme events. This can be achieved through changes to profiling of roads, kerb heights, the use of speed bumps etc.	In the most at-risk residential areas within Downs Barn and Conniburrow, surface water flow routes tend to follow highways before building up behind the embankments forming the main A roads in the area. Therefore, this option is not practicable for this CDC.	N/A		N/A		N/A		N/A		N/A		
		Land management practices	This can include increased tree coverage, perpendicular ploughing and more sustainable agricultural practices in order to slow down the surface water runoff and potentially assist in removing diffuse pollution from runoff arising from agricultural land. Land management is easy to implement and requires little technological input. However, this will require continuous management.	There are no areas within this CDC where this option could be implemented.	N/A		N/A		N/A		N/A		N/A		
		Deculverting watercourse(s)	Deculverting watercourses can improve conveyance of water, as culverts can restrict flow rates.	There are no culverts suitable for this measure within this CDC.	N/A		N/A		N/A		N/A		N/A		
		Other 'pathway' measures	None identified												
Receptor control measures		Planning policies to influence development	Use forthcoming development control policies to direct development away from areas of surface water flood risk or implement flood risk reduction measures. The policies could be borough wide or area specific, e.g. Basement dwellings are not permitted in areas of known surface water flooding, or a reduction in surface water runoff from a new development is required to be demonstrated in an area of known surface water flooding.	There are a limited number of areas across the CDC earmarked for residential development, the areas specified are also considerably small. Attenuation SuDS such as small scale permeable paving areas or geocellular storage would be best suited to developments of this size. Any flows discharged from attenuation features should be restricted to Q_{BAR}.	Small scale attenuation would be relatively simple to incorporate as part of the construction of a new development.	2	This option is likely to have a neutral environmental impact.	0	This measure is likely to have a neutral social impact.	0	As this measure should be constructed as part of the new developments, there is a potential to maximise economies of scale. In addition, develop contributions to assist in flood alleviation that benefit the wider community could be sought. This could lead to benefits outweighing costs.	2	This measure will help in achieving the objectives.	1	5
		Improved resilience and resistance measures	Existing and new buildings can be adapted to reduce damages from flooding. Resistance measures to prevent water entering the property (e.g. demountable barriers). Resilience measures to reduce the damage caused by water within the property (e.g. raising electrics, solid floors).	Residential and commercial properties that are shown in the modelled surface water flood extents could have property level flood protection measures installed.	These are relatively simple to implement although the type of flood protection suitable for each property would need to be determined following a structural survey.	1	It is considered that this measure would not have an impact on the environment. Although it is possible that flood risk to neighbouring properties could be increased which would need to be ascertained through modelling.	0	Depending on the willingness of uptake by the residents this could have a positive or negative social impact. Although, it is considered that if residents have experienced flooding before, they may be happy to install property level flood protection.	1	These measures are typically low-cost and would prevent flooding to the individual properties.	2	This measure will help achieve the objectives.	1	5
		Social change, education and awareness	Increase activities of local flood groups to educate the community e.g. holding flood awareness events, leaflet dropping.	Where not already implemented, Milton Keynes Council could work with local community flood groups to develop community flood plans and raise awareness of flooding.	This option is technically feasible, and should require little in the way of further investigation.	2	This option would likely have a neutral impact on the environment.	0	The community would benefit from this option, and could lead to positive feelings towards schemes if they are involved in formulating plans for flood risk areas.	1	The benefits from this option should outweigh the costs involved.	1	This measure should assist with meeting the objectives.	1	5
		Other 'Receptor' Measures													