

The Flood Risk Management Strategies describe current flood risk, set out the ambition for flood risk management in Scotland and identify specific actions that will reduce risk. This has been based on the best evidence available on the causes and consequences of flooding.

In addition to planned flood protection schemes and works, the Flood Risk Management Strategies identify a suite of detailed flood protection and natural flood management studies covering river, coastal and surface water flood risk. Many of these studies will identify options for future flood protection works or schemes which may then be implemented in the next cycle (2021 to 2027).

Other actions include the development of new and the maintenance of existing flood warning schemes, maintenance of watercourses and existing flood protection schemes, awareness raising, community scale actions, individual property level actions, emergency planning and application of national and local planning policies.

There are 42 prioritised flood protection schemes identified for delivery between 2016 and 2021, subject to the provision of funding by the Scottish Government and local authorities. In addition to these 42, the strategies also identify some additional works which local authorities and other partners plan to progress, but which are unlikely to become formal flood protection schemes.

Further detail on the timing, funding and delivery of all actions is presented in the corresponding Local Flood Risk Management Plans (due to be published June 2016).

Prioritised flood protection schemes (by local authority area)

Local Authority	Location	Next Step
Aberdeenshire Council	Stonehaven	A Flood Order was published in July 2015 with a flood protection scheme undergoing detailed design to reduce flood risk to Stonehaven from the River Carron and Glaslaw Burn. The scheme will include a combination of new culverts and alterations to bridges, removal of weirs and installing trash screens and the construction of direct defences. It is being designed to a 1 in 200 year standard of protection including an allowance for climate change.
Aberdeenshire Council	Huntly	A flood protection scheme has been confirmed and is being progressed to construction on site to reduce flood risk from the River Deveron and the Meadows Burn. The scheme includes a combination of improved conveyance using replacement culverts, construction of embankments and temporary flood water storage and has been designed to a 1 in 200 year standard of protection including an allowance for climate change.

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Angus Council	Arbroath	A flood protection strategy was developed for Arbroath and identified river and coastal actions to reduce flood risk. The proposed river flood protection scheme will address flood risk from the Brothock Water and include improvements to flood defences and the construction of two flood storage areas. The scheme has been put forward as a priority in the first flood risk management cycle. Coastal flood protection works will be phased in by Angus Council. The scheme will provide a 1 in 200 year standard of protection.
Argyll and Bute Council	Campbeltown	A flood protection scheme is to be developed for Campbeltown to reduce flood risk from small watercourses. Feasibility studies indicate that the scheme should include temporary storage of flood water on two burns plus a relief culvert in the town to a standard of 1 in 200 years. There have been a number of floods in Campbeltown in recent years including incidence of sewer flooding which the scheme should contribute to reducing. The detailed design should also include consideration of runoff reduction (woodland planting, land management techniques) and the creation of wetlands and ponds. Other natural flood management actions may also be considered in order to develop the most sustainable solution.
Comhairle nan Eilean Siar	South Fords	Detailed design for a flood protection scheme for the South Fords area is progressing. The South Fords Scheme aims to reduce flood risk on South Uist as well as the southern coast of Benbecula. The scheme will likely include the construction of embankments, beach recharge at Gualan Island, sand dune/machair restoration and may also include property level protection for any residual risk. The flood protection scheme would be constructed to a standard of 1 in 100 years (locally 1 in 200 years) and will include an allowance for climate change. An option to relieve flooding by creating larger openings in the South Fords causeway is also being considered by the local authority with the encouragement of local community groups. The viability and funding for this option is being investigated outwith the flood risk management process.
Dumfries and Galloway Council	Dumfries	It is recommended that the council progress work on the proposed flood protection scheme in Whitesands, Dumfries. Over a number of years Dumfries and Galloway council have commissioned a number of studies to examine and understand the flooding issues along with potential mitigation options. The Whitesands Project (Flood Protection Scheme and Public Realm) identified potential works within Dumfries. Further work on the design of the scheme is still being carried out. The identified design should look to promote the most sustainable combination of actions, enhance the local amenity value of the river while taking account of the local concerns including construction of flood defences along the River Nith in Dumfries.

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Dumfries and Galloway Council	Stranraer	It is recommended that the council progress work on the proposed flood protection scheme in Stranraer. Assessment of the flood risk within Stranraer identified a number of works to reduce flooding to people and properties. The Stranraer Flood Protection Works is split into different items. The two outstanding items of work. The first will help to alleviate flooding to properties in the Ochtrelure area, by increasing hydraulic capacity issues at the head of the system. The favoured option includes diversion of flows. The second item of work is concerned with flooding on the Town Burn mainly downstream of the railway culvert. The preferred option for the Station Road area is to regulate flow passing through the railway culvert and therefore alleviate flood risk in this area.
Dumfries and Galloway Council	Langholm	<p>It is recommended that the council progress work on the proposed flood protection scheme in Langholm. The Langholm Flood Risk Assessment has been completed which identified potential works within Langholm, including construction of flood defences along the River Esk and Wauchope Water.</p> <p>Further work should be carried out to identify the most sustainable combination of actions and further investigation made into the impact of surface water runoff. Design options should take account of the new flood warning scheme and potential use of property level protection.</p>
Dumfries and Galloway Council	Newton Stewart	It is recommended that the council progress work on the proposed flood protection scheme in Newton Stewart. The Newton Stewart Flood Study identified potential works, including construction of direct defences along the River Cree and Penkiln Burn. The study is being further refined to consider actions that increase the level of protection offered. This includes raising of a footbridge over the River Cree in combination with increased direct defences. Other actions may also be considered to select the most sustainable combination of actions.
Dundee City Council	Broughty Ferry	A flood protection scheme has been proposed along the Broughty Ferry coastline. The scheme will include new sea walls and set-back embankments, sand dune replenishment and rock armour. The scheme will provide a 1 in 200 year (plus climate change) standard of protection.
Dundee City Council	Dundee	A flood protection scheme has been proposed for the Dundee coastline. The scheme will include set-back walls and flood defences. The construction work to raise the sea wall at the Central Waterfront is to commence in 2015/16. The scheme will provide a 1 in 200 year (plus climate change) standard of protection.

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East Ayrshire Council	New Cumnock	It is recommended that the council progress work on the proposed flood protection scheme in New Cumnock. Previous flooding and the New Cumnock Flood Study have shown a risk of flooding in the area and identified actions that would help mitigate the risk, including construction of flood defences along the Afton Water and Connel Burn and sediment management along the Afton Water.
East Dunbartonshire Council	Kirkintilloch	<p>It is recommended that the council look to progress flood protection works along the Park Burn. Before the final design of the works the flood modelling in the area should be updated to improve the representation of the River Kelvin. This will help to more accurately represent the risk of flooding downstream. If there is found to be an interaction between the Park Burn and River Kelvin, joint probability analysis should also be carried out. The potential for natural flood management actions to help reduce runoff should also be investigated.</p> <p>The works will include the profiling of the channel and provide scope to improve the ecology and morphology of the river in addition to the flooding benefits. The proposed works could offer protection up to a 1 in 75 year flood; however, it is recommended that additional property level protection options be investigated to improve the overall protection of the scheme.</p> <p>The flood mapping for the Park Burn should be revised to identify the areas protected by the works and any remaining residual risk now and in the future.</p> <p>SEPA will review the study outputs for possible inclusion in the Flood Maps.</p>
East Lothian Council	Musselburgh	A flood protection scheme has been proposed for Musselburgh to reduce flood risk from the River Esk. The scheme would consist of flood defences and earth embankments and would provide a 1 in 200 year standard of protection. Part of this proposed scheme is located in Potentially Vulnerable Area 10/22. The benefits and impacts have been assessed for the whole scheme.
East Lothian Council	Haddington	A flood protection scheme has been proposed for Haddington to reduce flood risk from the River Tyne. The scheme would consist of flood defences, possibly in combination with natural flood management.

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Falkirk Council	Grangemouth	A flood protection scheme has been proposed for the Grangemouth area. It would include the River Carron, Grange Burn, River Avon and the Forth Estuary shoreline. The scheme would consist of flood defences, sediment management, tidal barriers/ gates and natural flood management and would provide a 1 in 200 year standard of protection. Implementation of this scheme is likely to span a 10 year period from 2017-2027.
Fife Council	St Andrews	A flood protection scheme has been proposed for the Kinness Burn in St Andrews. The scheme requires detailed study and design. Part of this proposed flood protection scheme is located in Potentially Vulnerable Area 07/17. The benefits and impacts have been assessed for the whole scheme.
Glasgow City Council	White Cart Water	<p>It is recommended that the council look to progress the flood protection scheme proposed for the White Cart Water. The scheme is an extension of the existing defences, and will increase the level of protection to a number of properties along parts of the Auldhouse Burn and White Cart Water.</p> <p>The proposed scheme includes building flood walls in locations where properties are still identified to be at risk.</p> <p>The flood mapping for the White Cart Water and Auldhouse Burn should be revised to include all defences to understand any remaining residual risk now and in the future.</p>
Glasgow City Council	Camlachie Burn	<p>It is recommended that the council look to progress the flood protection scheme proposed for the Camlachie Burn. The proposed work includes three elements of improvement works linked to the overall strategy to address existing network constraints in the area, which has the potential to contribute to substantial flooding within the wider catchment if not addressed.</p> <p>The work includes diversion of extreme flows and watercourse restoration to remove a substantial network constraint close to Biggar Street.</p> <p>The flood mapping for the Camlachie Burn should be revised to include all elements of the scheme to understand any remaining residual risk now and in the future.</p>
Inverclyde Council	Kilmacolm	<p>It is recommended that the council look to progress the flood protection scheme proposed for the Glenmosston Burn. The works include upgrading a culvert at Market Place and a new overflow pipe at Gowkhouse Road.</p> <p>A separate natural flood management study is being carried out in the area which may identify additional actions that could be included within the flood protection scheme.</p>

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Inverclyde Council	Greenock	It is recommended that the council look to progress the flood protection scheme proposed for the Coves Burn. The work involves a number of conveyance modification actions including: upgrading of culverts, construction of a new connection chamber and tidal valve. The Controlled Activities Regulations licence has been granted for these works.
Inverclyde Council	Port Glasgow	Work should be progressed as per the Greenock Flood Protection Scheme. The work involves a number of conveyance modification actions, along the Bouverie Burn.
Inverclyde Council	Quarrier's Village	<p>It is recommended that Inverclyde Council look to progress the flood protection scheme proposed for the Gotter Water in Quarrier's Village. Inverclyde Council have completed a study which investigated the creation of embankments on the south bank of the watercourse upstream of Quarrier's Village, with flood defence walls downstream of the embankments on both banks along the reach. The study should be progressed to develop a detailed design of the scheme.</p> <p>SEPA will review the output of the study for inclusion in the Flood Maps.</p>
North Ayrshire Council	Millport (coastal)	It is recommended that the council progress work on the proposed coastal flood protection scheme for Millport. A flood risk assessment and economic appraisal have been developed which have identified options to manage flooding in the area. The current option includes the creation of a breakwater with flood walls. These will also protect against wave overtopping and erosion. It is recommended that the options are further developed including an assessment of property level protection included to supplement the primary actions.
North Ayrshire Council	Upper Garnock	<p>It is recommended that the council progress work on the proposed flood protection scheme on the upper River Garnock. detailed modelling and options assessment has been carried out with an economic assessment of action. The proposed scheme consisting of storage and direct defences would provide protection to properties in Kilbirnie and Glengarnock from the River Garnock and Powgree Burn.</p> <p>Once that scheme has been completed the flood mapping for the River Garnock should be revised to identify the areas protected by the scheme and any remaining residual risk now and in the future.</p>

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North Ayrshire Council	Millport (Mill Burn)	It is recommended that the council progress work on the proposed flood protection work on the Mill Burn in Millport. The Mill Burn Flood Risk Assessment has provided information along with an economic appraisal which identifies potential options to mitigate flooding. Initial remedial work has helped to reduce the level of risk in the area however further analysis should be carried out to establish the remaining level of risk and the most sustainable combination of actions to manage this risk.
Orkney Islands Council	Kirkwall	A flood protection scheme is under development for the perimeter of the harbour in Kirkwall. The scheme will complement existing defences to reduce the flood risk in Kirkwall. The scheme includes the construction of direct defences and is being designed to a 1 in 200 year standard of protection including an allowance for climate change.
Perth and Kinross Council	Comrie	A flood protection scheme has been proposed for Comrie to reduce the combined flood risk from the Water of Ruchill, River Earn and River Lednock. The scheme would consist of flood defences and flood storage areas. The scheme would provide a 1 in 100 year standard of protection.
Perth and Kinross Council	Milnathort	A flood protection scheme has been proposed for Milnathort to address surface water flooding. The scheme would consist of pumping stations and provide a 1 in 100 year (plus climate change) standard of protection.
Perth and Kinross Council	South Kinross	A flood protection scheme has been proposed for South Kinross to address flooding from the South Queich, Gelly Burn and Clash Burn. The scheme would consist of flood defence walls and provide a 1 in 200 year (plus climate change) standard of protection.
Perth and Kinross Council	Scone	A flood protection scheme has been proposed for the Annaty Burn in Scone. The preferred option consists of raising existing footbridges and constructing riverside defences. The scheme would provide a 1 in 200 year standard of protection.
Scottish Borders Council	Hawick	A flood protection scheme has been proposed for Hawick. The scheme would consist of flood defence walls and embankments to provide protection to the town from flooding from the River Teviot. Scottish Borders Council is also looking at flood-proofing specific buildings and the provision of storage and pumping of seepage flows. The scheme would provide a 1 in 75 year standard of protection.
Stirling Council	Bridge of Allan	A flood protection scheme has been proposed for Bridge of Allan. The scheme would consist of flood embankments and sheet piling to protect properties from the 1 in 50 year event.

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Stirling Council	Stirling	A flood protection scheme has been proposed for Stirling. The scheme would consist of flood embankments and would provide a 1 in 200 year standard of protection. The scheme has a low benefit-cost ratio, but has been identified as the only option for Stirling. Part of this proposed flood protection scheme is located in PVA 09/05. The benefits and impacts have been assessed for the whole scheme.
Stirling Council	Callander	A flood protection scheme has been proposed for Callander. The scheme would consist of flood embankments and protect the Meadows car park and residential properties from the 1 in 50 year event.
The City of Edinburgh Council	Edinburgh	Flood protection works have been proposed for Edinburgh to further reduce flooding from Water of Leith. The proposed works will likely include Coltbridge, Gorgie and Saughton, subject to the availability of funding.
The Highland Council	Smithton and Culloden	The Smithton and Culloden Flood Protection Scheme is undergoing detailed design and consists of the replacement of culverts, sediment and debris management and temporary flood storage. The scheme will protect communities affected by flooding on a number of occasions in recent years and is being designed to a 1 in 200 year standard of protection including an allowance for climate change.
The Highland Council	Caol	The Caol Flood Protection Scheme is undergoing detailed design work with a 1 in 200 year standard of protection, including an allowance for climate change. The scheme includes sections of embankments, sheet piled and concrete retaining walls, and rock armour revetments along the embankment to reduce wave overtopping and protect against erosion.
The Highland Council	Drumnadrochit	A flood protection scheme in the form of direct defences is under development for Drumnadrochit to reduce flood risk from the River Enrick. The scheme is being designed to a standard of 1 in 200 years. The scheme will be complemented by further investigations of the potential for natural flood management on the tributaries upstream of Drumnadrochit.
The Moray Council	Newmill	A flood protection scheme has been confirmed and is being progressed to construction on site. The scheme includes a network of ditches to the north of Newmill, a cascade, flood walls and a replacement bridge. It has been designed to a 1 in 200 year standard of protection including an allowance for climate change.

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West Dunbartonshire Council	Dumbarton	<p>It is recommended that the council progress preparation work on the proposed flood protection scheme for Gruggies Burn. Further design work is required to refine the preferred option for the scheme, which at present is to maximise upstream flood storage and construct defences from Hunter's Burn to Castle Street, and downstream of Castlegreen Street, to address coastal flooding.</p> <p>In addition to these actions the use of property level protection within the scheme should be investigated. The natural flood management work (action 110720004) will also help to reduce the impact of flooding in this area.</p> <p>SEPA will review the study outputs for possible inclusion to the Flood Maps.</p>
West Lothian Council	Broxburn	<p>A flood protection scheme has been proposed for Broxburn (Liggat Syke) to complete the Broxburn flood prevention scheme. The scheme would consist of two flood storage basins in the catchment of the Liggat Syke and provide a 1 in 100 year standard of protection.</p>