

Flood Risk Management (Scotland) Act

FRM Strategies – Prioritisation of Actions

Flood Protection Schemes and Works v4_DRAFT

Version Date: 10/08/2015

Rows highlighted in green have undergone a notable change since v3. These changes have resulted in some small changes to overall rankings

Location	Objective	Scheme Description	PV Scheme costs - (* indicates capital / undefined)	Economic Benefits	BCR	Non-Monetised Score	Ranking (evidence based)			Ranking (local preference) Reason	Proposed delivery Cycle	Scheme Status	LA Funding identified (if Yes, which years)	Supporting Text
							National	LPD	LA					
Falkirk Council Grangemouth	Reduce economic damages to residential and non-residential properties in Carron/Carronshore caused by flooding from the River Carron and coastal flooding. Reduce economic damages to residential and non-residential properties in Falkirk caused by flooding from the River Carron. Reduce economic damages to residential and non-residential properties in Grangemouth caused by river flooding and coastal flooding.	The Grangemouth Flood Protection Scheme aims to reduce flood risk in the Grangemouth area. It will include the River Carron, Grange Burn, River Avon and the River Forth Estuary shoreline. The works will include combination of new and enhanced defences in the form of flood walls and defences and possible upstream measures to attenuate flow. Standard of Protection: 200yr+CC	*£108m	PV Damages Avoided £6,044,319,668 1261 residential properties and 99 non-residential properties	58	5	1 Of 41	1 Of 7	1 Of 1	-	C1/2+	Preliminary stages Ongoing Flood Study completed in August 2012. Ground Investigation works ongoing. Option appraisal and development of preferred scheme commencing July 2015. Anticipated completion date is early 2018, with construction thereafter.	Yes, £2.4m identified within the Council's approved Three Year Capital Programme. This total includes the £1.7-£2.2m identified against the corresponding study action.	Grangemouth FPS has been evaluated a BCR of 4 with direct damages only, and 53 with the inclusion in indirect damages. This is due to the impact on National Critical Infrastructure (petrochemical / oil) Preliminary works to commence in 2015/16 with the major project spend of c.£108m extending beyond 2017/18. This spend is based on the assumption that substantial Council funding (c.£12m) and Scottish Government grant (c.£86m) will be provided together with TIF funding of (c.£10m).
Dundee City Council Broughty Ferry	Reduce economic damages to residential and non-residential properties and risk to people in Broughty Ferry caused by coastal flooding.	The scheme will include the construction of new sea walls, set back walls, dune replenishment and management and rock armour along the Broughty Ferry coastline. Standard of Protection: 200yr+CC	£9.9m	PV Damages Avoided £96.9m 450 residential and non-residential properties protected	9.8	7	2 Of 41	1 Of 4	1 Of 2	-	C1	Preliminary Stages Ongoing Preliminary stages Completion of the Coastal Study Stage 2 and approval to progress recommendations was reported to City Development Committee on 19/8/13.	Yes DCC Capital Plan 2015-2019 Spread 2015-2019	It is proposed that the Broughty Ferry scheme is implemented in several phases between 2016-2019. Phase 1 - B/Ferry Beach Dunes - implement in 2016/17 Detailed design complete August 2015 Phase 2 - Grassy Beach, Douglas Terrace New Sea Wall to Fisher Street Implement 2017/2018 Detailed design complete April 2016 Phase 3 - Fisher Street / Beach Crescent / Broughty Ferry Castle 2018/2019 Detailed design complete December 2016
Inverclyde Council Inverclyde FPS - Glenmosston Burn	Reduce the risk of Glenmosston Burn flooding to residential properties and non-residential properties in Kilmacolm.	The scheme will include upgrading a culvert at Market Place and a new overflow pipe at Gowkhouse Road. Standard of Protection: 75yr	£0.5m	PV Damages Avoided £5.1m Replacement of the culvert will prevent flooding to business premises and closure of arterial road. The new overflow will prevent the flooding of several residential properties by directing flood water back into watercourse.	10.18	1	3 Of 41	1 Of 7	1 of 4	-	C1 (2016)	Preliminary Stages Ongoing Design Tender Awarded wc 29/6/15 Expected Design programme 13/07/15-16/10/15	Yes 2016/2017	Detail design tender for these projects has just been awarded. Design is due to start 13 July. These are small pieces of work and detail design could be carried out relatively quickly. Glenmosston, Coves and Bouverie Burns were originally assessed as a single scheme, however they are on hydraulically separate watercourse and have since been separated.
Inverclyde Council Inverclyde FPS - Coves Burn	Reduce the risk of river / surface water flooding to residential properties and non-residential properties in Greenock.	The scheme will include a number of conveyance modification actions including: Construction of a new connection chamber and replacement and upgrade of existing culverts. Standard of Protection: 75yr	£0.4m	PV Damages Avoided £3.7m	9.97	2	4 Of 41	2 Of 7	2 Of 4	-	C1 (2016)	Preliminary Stage Ongoing Design Tender Awarded wc 29/6/15 Expected Design programme 13/07/15-16/10/15	Yes 2016/2017	Detail design tender for these projects has just been awarded. Design is due to start 13 July. These are small pieces of work and detail design could be carried out relatively quickly. Glenmosston, Coves and Bouverie Burns were originally assessed as a single scheme, however they are on hydraulically separate watercourse and have since been separated.

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Dundee City Council	Reduce economic damages to residential and non-residential properties in Dundee caused by coastal flooding.	Implementation of the flood protection works along the Dundee coastline.	£6.2m	West of rail bridge to airport BCR 2.2 PVDA £54.8m	8.7	7	5	2	2	-	C1	Preliminary Stages Ongoing	Yes	It is proposed that Dundee scheme is implemented in a single contract in 2016/17.
Dundee		Section 1 from Dundee Airport to Discovery Point includes the construction of setback walls and earth bunds. Section 2 from Camperdown Dock to the Tay Road Bridge includes construction of set back walls and raising of existing walls. Standard of Protection:200yr + CC		East of rail bridge to Stannergate BCR 35.8 PVDA £334m 200 residential and non-residential properties protected (1 in 200)			41	4	2			Completion of the Coastal Study Stage 3 and approval to progress recommendations was reported to City Development Committee on 19/8/13 Detailed design forecast completion October 2015 Scheme to be notified January 2015 Forecast scheme completion September 2017 (March 2018 if valid objections)	DCC Capital Plan 2015-2019 Spread 2015-2017	The raising of the sea wall at the Central Waterfront is to be constructed in financial year 2015/16.
Orkney Islands Council	Reduce risk in Kirkwall from coastal flooding	Flood protection works have been designed to reduce the remaining risk of flooding in Kirkwall not covered by the existing defences. The works include the construction of direct defences to provide protection from medium likelihood floods, including the impacts from climate change. Standard of Protection:200yr + CC	£1.9m	PV Damages Avoided £15.1m Reduction in risk to 383 residential properties 158 non-residential properties currently at risk during 200yr event. Emergency services and utility sites could also benefit.	8.03	10	6	1	1	-	C1 (2016)	Preliminary Stages Detailed design complete, expect to commence with notification in autumn 2015.	Yes 2016/2017 Funding originally allocated in 2015 carried over to allow promotion of a formal flood protection scheme	Scheme involves construction of defences around the perimeter of the harbour to provided 200yr plus climate change level of protection. A scheme with lower wall heights (200yr without cc) already has planning permission but Council seeking to upgrade to include Climate Change allowance. Significant increase in risk with climate change.
Perth & Kinross Council	Reduce economic damages to residential and non-residential properties in Comrie caused by flooding from the River Earn and River Lednock.	A 2010 study by Mouchel considered the combined flood risk from the Water of Ruchill, River Earn and River Lednock and recommended a scheme consisting of flood defences and flood storage areas. Standard of Protection: 100yr	*£11.2m	PV Damages Avoided £30.4m 382 residential properties and 15 non-residential properties at risk	6.7	8	7	1	1	-	C1 (latter half)	Preliminary Stages Ongoing Flood study completed in 2010; Current work (to refine study) to be completed in December 2015; Current forecast completion for outline design development is December 2016. Notification: current forecast for scheme publication is June 2017.	No A business case is being submitted to the Council's Capital Programme for consideration in August 2015)	Emergency works costing just under £1M were completed in May 2013 following two severe flooding events on the Water of Ruchill in August and November 2012. The emergency works provide a 1:100 year standard of protection from the Water of Ruchill only, including an allowance for climate change. The wider flood risk from the River Earn and the River Lednock remains and no flood defences are in place to address this. The proposed scheme would manage this wider risk by providing the same 1:100 year standard of protection.
Fife Council	Reduce economic damages to residential and non-residential properties in St Andrew's caused by flooding from the Kinness Burn. Reduce risk to people cause by flooding from the Kinness Burn.	Standard of Protection: 100yr (joint probability scenario)	£1.8m	PV Damages Avoided £10.6m	5.95	7	8	3	1	-	C1	Preliminary Stages Ongoing Optioneering carried out in 2007 but further study is required to refresh and refine options	Partial Finances identified within the Climate Change budget for additional studies. The Capital Plans are reviewed yearly and it is envisaged funding allocation to be "set aside" within the next review period	Optioneering in 2007 has identified a cost-beneficial option, however subsequent berm works in the channel will require this to be revised and is likely to result in a change to cost and benefits.
Inverclyde Council	Reduce the risk of river / surface water flooding to residential properties and non-residential properties in Greenock.	Work should be progressed as per the Inverclyde Flood Protection Scheme. The work involves a number of conveyance and storage modification actions including: extension of the new bypass pipe; 3m ø pre-cast concrete chamber. Standard of Protection: 75yr	£0.4m	PV Damages Avoided £2.8m	6.25	3	9	3	3	-	C1 (2016-17)	These are small pieces of work and detail design could be carried out relatively quickly.	Yes 2016/2017	Detail design tender for these projects has just been awarded. Design is due to start 13 July 2015

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North Ayrshire Council Millport Coastal	Reduce the risk of coastal flooding to residential properties and non residential properties in Millport.	The Millport Coastal Flood Risk Assessment (2015) has been completed along with an economic appraisal study of the options recommended in the FRA. The scheme is likely to involve creation of a breakwater with flood walls. It is also recommended that the council look at additional property level protection outlined in the study. Standard of Protection: mainly up to 200yr with one location of 25yr	£12.1m	Protection to 728 residential properties and a number of non-residential properties.	5.24	6	10 Of 41	1 Of 3	1 Of 3	2 Further work is required to develop options for this scheme, allowing others to be progressed first.	C1 (2017-2020)	Study has provided options and cost benefits for these options. The preferred option is to be determined.	No A report is currently being prepared for submission to Cabinet (August 2015) for approval to progress project and request appropriate funding.	
East Lothian Council Musselburgh	Reduce economic damages to residential and non-residential properties in Musselburgh caused by flooding from the River Esk and coastal flooding. Reduce risk to people in Musselburgh from flooding from the River Esk. Reduce economic damages to residential and non-residential properties in Musselburgh caused by flooding from the River Esk.	Scheme comprises elements of direct flood defences comprising relatively low (typically 1 to 1.5m) earth embankments and flood walls that would provide a 1:200 year standard of protection against extensive flooding of Musselburgh as a result of the interaction of high river flows in River Esk and high sea levels (due to tides, storm surges and waves). Standard of Protection: 1 in 200yr	£5.6m	PV Damages Avoided £29.6m 1489 residential properties and 417 non-residential properties at risk	5.29	4	11 Of 41	2 Of 7	1 Of 2	-	C1 (2017/2018)	Preliminary Stages Ongoing Flood Study Report to be completed July 2015 Forecast: Notification May 2016 Completion of Scheme March 2018	Yes 2017/2018 Funding available in current approved Capital Budget	A Flood Protection Study for Musselburgh is currently underway and due to report in summer 2015. Draft study outputs have been used to inform the prioritisation. The scheme would be implemented prior to 2021 (proposed for 2017/18 - subject to available funding) Economic appraisal is based only on direct damages to properties. No indirect or social damages calculated, therefore BCR may be under-represented.
North Ayrshire Council Upper Garnock FPS	Reduce the risk of river / surface water flooding to residential properties and non-residential properties in Kilbirnie, Glengarnock and Longbar.	A study on the Upper Garnock Flood Protection Scheme has been carried out which has recommended a cost beneficial preferred action consisting of storage and direct defences based on up to a 100 year standard of protection. North Ayrshire Council is committed to progressing the scheme subject to available funding. Standard of Protection: Kilbirnie 100yr Dalry 50yr	£14.2m	PV Damages Avoided £61m 169 Residential and 32 Non-Residential properties identified as at risk of flooding during the 200 year event, in the Kilbirnie and Dalry scheme elements which will benefit.	4.3	6	12 Of 41	2 Of 3	2 Of 3	1 A priority for the LA due to the potential risk to people due to the depth and velocity of water predicted in the area.	C1 (2016-17)	Preliminary Stages Ongoing Flood study completed September, 2014. Public consultation undertaken in January, 2015. Discussions with affected landowners ongoing. Final amendments and supplementary studies are being completed. Notification documents will be concluded during July, 2015, with formal advertisement of the notice taking place as soon as possible following Council approval (expected on 18 August, 2015) of the finalised scheme.	Yes This scheme is identified in the Council's Capital Plan. The capital funding that has been allocated is adequate to cover the 20% contribution that would be required of North Ayrshire Council if the scheme is approved by the Scottish Government.	The quoted BCR of 4.3 includes a significant proportion of economic of damages attributed to risk to life. The scheme will not remove all risk to life in the area but will greatly reduce the risk. Flood warning is also planned for the area which will also reduce the risk to life. If risk to life is excluded then the BCR is reduced to 1.22

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Comhairle nan Eilean Siar South Fords	Reduce risk to south-west Benbecula from river and coastal flooding. Reduce risk to the area surrounding Loch Bi from river and coastal flooding.	Detailed design for works including embankments and beach management actions are currently progressing. Local authority approval to proceed to detailed design obtained and likely to seek formal approval in 2016. Standard of Protection:100yr+CC, locally 200yr+CC	£2.0m	The flood protection works would reduce risk to 58 properties which are estimated to be at risk during medium likelihood floods. The flood protection works would achieve an estimated £7,800,000 of benefits over 100 years. Note the natural approach to flood management which includes beach recharge and dune management requires high ongoing maintenance costs which are reflected in Present Value Cost used in Benefit / Cost justification	3.97	7	13 Of 41	1 Of 1	1 Of 1	-	C1 (2017 – 2018?)	Preliminary Stages Ongoing Detailed design stage to commence in 2015 with construction expected in 2017	Yes The funds are allocated within the authority's risk pot as a specific year for expenditure has not yet been confirmed.	Scheme involves combination of actions including construction of an embankment and shingle recharge to Gualan Island. Significant flood impacts on rural community including flooding to property, local facilities and transport links. Last major storm in 2005 led to 5 deaths as family attempted to escape flood. Significant increase in risk with climate change The Local Authority have undertaken detailed study and are progressing in parallel with design for a bridge option, creating gaps in the existing causeway. This has been taken forwards in conjunction with local community groups and discussions around viable funding opportunities outwith Flood Risk Management are being progressed with the Scottish Government.
Argyll & Bute Council Campbeltown	Reduce flood risk in Campbeltown from river flooding	Flood protection works in the form of storage on two burns plus a relief culvert to be taken forward for detailed design. Standard of Protection:200yr	£5.2m	The flood protection works would achieve an estimated £18,300,000 of benefits over 100 years.	3.49	10	14 Of 41	1 Of 4	1 Of 1	-	C1	Preliminary Stages Ongoing Detailed design not commenced. The capital costs will need to be increased for construction inflation over past 7 years.	No	Flood storage on two small burns plus a flood relief culvert are proposed. There has been a number of floods in Campbeltown in recent years including incidence of sewer flooding which the scheme partly contributes to reducing.
Scottish Borders Council Hawick	Reduce economic damages to residential, non-residential and community properties and risk to people in Hawick caused by flooding from the River Teviot.	A series of walls (set back where possible) and embankments to provide protection to six flood cells spanning the length of the Teviot within the town, additionally including flood proofing to specific identified buildings and provision for storage and pumping of seepage flows. Preferred option utilises some existing walls: an alternative preferred scheme with new walls / embankments throughout has also been considered. Standard of Protection: 75yr	£29.2m	PV Damages Avoided £45.2m 683 residential and 233 non-residential properties at risk. Cost benefit ratio 1:2.88 to 1:3.03 depending on whether existing walls can be re-used (CBR to be confirmed once detailed design has been carried out).	2.88	10	15 Of 41	1 Of 1	1 Of 1	-	C1 (2018-22)	Preliminary Stages Ongoing The following already undertaken: Option Appraisal and Preferred Scheme Economic Assessment October Ground Investigation Preliminary Ecological Survey Topographical and Geophysical Surveys The following currently ongoing: Environmental Scoping and Screening Project Management Plans The following are forecast: Notification Q2 2017 Confirmed Scheme Q4 2017 Scheme commencement Q4 2019 Scheme completion Q4 2021	Yes Spread 2015-2021	Contract to develop scheme recently awarded: outline design to approval, and assuming approval and funding granted through to construction. Extensive hydrological modelling and option assessment undertaken. The Preferred Scheme was presented at a Public Exhibition in July 2012, and proposals were generally accepted. Hydrological update and environmental screening / scoping commenced. Further stakeholder engagement planned. Proactive invasive species control to begin Two options progressed to account for potential existing wall re-use. The lower BCR has been used in prioritisation, however they are close and using the greater is unlikely to affect ranking significantly.
Angus Council Arbroath	Reduce economic damages to residential and non-residential properties in Arbroath caused by flooding from the Brothock Water. Reduce risk to people in Arbroath from river flooding.	Flood Protection Strategy for Arbroath identified fluvial and coastal actions to reduce flood risk. The proposed fluvial flood protection works will address flood risk from the Brothock Water and include improvements to direct flood defences and the construction of 2 flood storage areas. Standard of Protection: 200yr	*£5.6m	PV Damages Avoided £16.3m	2.89	8	16 Of 41	4 Of 4	1 Of 1	-	C1 (2016)	Preliminary Stages Ongoing The scheme has not completed the notification stage The works/Scheme has been subject to specific approval (reference Report 49/12). The works/Scheme has completed the design stage. Procurement is forecast to be complete by June 2016 and commencement is due in July 2016. The works/Scheme will be 100% completed within the first planning cycle, in 2017.	Yes The works/Scheme has been identified in Angus Council financial plan (reference Report 59/15).	The Arbroath Flood Protection Strategy also identified a coastal risk related to wave overtopping that may result in safety issues to pedestrians, vehicles and property. The identified coastal actions will be implemented in a phased manner by Angus Council.

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Dumfries & Galloway Council Dumfries/ River Nith/ Whitesands FPS	Reduce the risk of river flooding to properties in Dumfries.	Whitesands Project (Flood Protection Scheme and Public Realm) has been completed which identified works that should be completed within Dumfries including construction of flood defences along the River Nith in Dumfries Standard of Protection: 75yr	*£18.9m	PV Damages Avoided £79.4m In the study area there are 59 residential and 107 non-residential properties which flood in the 200 year + climate change event, which all have a reduced impact of flooding and will benefit from the 1 in 75 year scheme.	2.67	8	17 Of 41	1 Of 5	1 Of 4	-	C1 (2017)	The council would be looking to commence the works in the first half of cycle 1. The study has gone through a number of alterations after public consultation and internal council comment from elected members. Further refinement of the design likely.	Yes Capital funding has been identified for the next three financial years, (2015/16, 2016/17, 2017/18)	The Whitesands area of Dumfries has suffered regular flooding which impacts commercial and residential properties in the area. 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 design is looking to enhance the local amenity value of the river while taking account of the local concerns of impact to parking lost. The BCR used in prioritisation was provided by D&G council based on a current draft report prepared for the 1 in 75 year standard of protection Economic damages to properties have been capped at x2 rather than x1 market value. If damages are capped at x1 market value the BCR reduces to 1.8. Risk to life has been economically assessed due to risk from fast flowing deep water. If risk to life is excluded, the BCR reduces to 1.8
Perth & Kinross Council Milnathort	Reduce economic damages and number of residential properties at risk of surface water flooding as far as practical.	The Milnathort Surface Water Investigation study by Atkins recommended a surface water scheme (pumping stations). The scheme would provide 1:100 year + climate change standard of protection. The scheme requires detailed design and subject to funding would be implemented in the latter part of the FRMP cycle (2016 - 2022). Standard of Protection: 100yr + CC	*£1.2m	PV Damages Avoided £4.1m Study report shows 66 RPs and 13 NRPs at risk	3	1	18 Of 41	3 Of 7	2 Of 4	-	C1	Preliminary Stages Flood study completed in January 2011 Current forecast completion for outline design development is December 2016. Current forecast for scheme publication is June 2017	No A business case is being submitted to the Council's Capital Programme for consideration in August 2015).	The Milnathort Flood Prevention Scheme was built in 2006 to provide residents with a 1:100 year standard of protection from river flooding on the Back Burn. A second smaller scheme was carried out in 2010 to replace the flood bund which was overtopped and collapsed during the flooding of December 2006. Surface water flooding occurred again in 2009 and 2012 and so this further scheme has been developed to address this flooding mechanism. The proposed scheme will provide a 1:100 year standard of protection against surface water flooding, and will include an additional allowance for climate change
The Highland Council Smithton and Culloden	Reduce risk from surface water flooding in Smithton and Culloden.	The Proposed Smithton and Culloden FPS consists of Culvert replacement, sediment and debris management and flood storage area. Standard of Protection: 200yr + CC	£7.9m	PV Damages Avoided £19m The action would result in a potential reduction in risk to 132 properties which are currently at risk during medium likelihood floods. Emergency services and utility sites could also benefit.	2.4	6	19 Of 41	2 Of 4	1 Of 3	-	C1 (2018-19)	Preliminary Stages Ongoing Initial public consultation taken place. Currently refining scheme proposals and completing consultations to recommend for formal consultation before the end of the year (2015).	Yes Planning Development and Infrastructure Committee approved committed funding 2015-2018. Following years to be submitted in due course.	Combination of works to remove culverts, replace debris screens and flood storage to protect communities affected by flooding on a number of occasions in recent years. Further detail design will be completed following discussions with the community on current proposals

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Dumfries & Galloway Council Stranraer work item 4 & 6	Reduce the risk of river / surface water flooding to residential and non-residential properties in Stranraer.	Work Item 4 is concerned with alleviating flooding to properties in the Ochtreure area. The flooding in the area is widespread, the main reason being hydraulic capacity issues at the head of the system. The favoured option includes diversion of flows. Work Item 6 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 Standard of Protection: 200yr	£0.4m	PVD Work Item 4 £0.6m PVD Work Item 6 £0.4m There are 160 residential and 31 non-residential properties at risk of flooding during a 200 year river	2.55	2	20 Of 41	2 Of 5	2 Of 4	-	C1 (2017-18)	Currently investigating land purchase and potential framework contractors.	Yes Capital funding has been identified, but is unlikely to fully cover costs of the scheme. Outstanding work items may be promoted as a scheme. Depending on works costs funding may be sought.	The remaining two work packages in Stranraer were identified as part of a larger series of eight works in the area with the other completed work funded by the Council. Work Item 6 may also offer protection to stretches of the A77 and the A717.
City of Edinburgh Council Water of Leith	Reduce risk to community facilities and economic damages to residential and non-residential properties in Edinburgh at Murrayfield / Roseburn (phase 2) and Coltbridge, Gorgie and Saughton. Consideration will be given to provision of PLP in other areas on the water of Leith.	Areas yet to be addressed have been reviewed and it is intended to progress future phase defences at Coltbridge, Gorgie and Saughton Risk to life has been economically evaluated and comprises around 30% of damages avoided in the Gorgie cell	£12.8m	PV Damages Avoided £22.9m BCR Coltbridge area 2.53 BCR Gorgie area 0.98 BCR Saughton 2.45	1.79	9	21 of 41	4 Of 7	1 Of 1	-	C1	1961 Act Scheme Flood study completed 2002. Progressed under 1961 Act and Scheme confirmed following Public Local Inquiry Notice Served April 2003 Planning Consent given to the scheme as modified by Scottish Ministers 2008 08/00606/FUL Dates yet to be set for commencement and forecast completion	No However capital costs have been incurred in developing the Scheme in previous years	The Scottish Government was undertaking a spending review when the tenders for the Water of Leith Flood Prevention Scheme were returned in 2011. It was apparent that there was insufficient funds to award the tender, accordingly the City of Edinburgh Council elected to progress the Scheme in Phases. The Scottish Government made funds available and Phase 1 is now complete. Tenders have been returned for Phase 2 (Roseburn / Murrayfield) and these are currently being assessed. The Council is fully funding Phase 2. Areas yet to be addressed have been reviewed and it is intended to progress future phases at Coltbridge, Gorgie and Saughton and this is subject to funds being made available.
The Highland Council Caol and Lochside	Reduce flood risk in Caol from Loch Linnhe	The proposed Caol Flood Scheme should be progressed to detailed design and construction. The proposed Caol Flood Scheme includes sections of embankments, sheet piled and concrete retaining walls, and rock armour revetment along the embankment to reduce wave overtopping and protect against erosion. Costs updated to reflect slight changes to preferred option. Standard of Protection: 200yr	£6.2m	PV Damages Avoided £12.2m The scheme will reduce flood risk to 274 residential and 23 non-residential properties,	1.97	7	22 Of 41	3 Of 4	2 Of 3	-	C1 (2017-18)	Preliminary Stages Ongoing Initial public consultation taken place. Currently refining scheme proposals and completing consultations to recommend for formal consultation before the end of the year.	Yes Planning Development & Infrastructure Committee approved committed funding 2015-2018. Following years to be submitted in due course.	Rock armour revetment along the embankment to reduce wave overtopping and protect against erosion, sections of embankments, sheet piled and concrete walls.
Dumfries & Galloway Council Langholm	Reduce the risk of river flooding to properties in Langholm.	Langholm Flood Risk Assessment has been completed which identified works that should be completed within Langholm including construction of flood defences along the River Esk and Wauchope Water. The scheme design is being refined to manage potential flood risk from minor watercourses as outlined in the report. Standard of Protection: 200yr	£2m	PV Damages Avoided £4.9m There are 38 residential and 29 non-residential properties at risk during a 25 year river event	2.00	4	23 Of 41	3 Of 5	3 Of 4	4 Additional refinement of the design to incorporate the more prominent risk from smaller watercourses is required.	C1 (2019-2020)	Further refinements to scheme options based on culvert recommendations are being looked at.	No LFRMP Actions including Langholm will be presented to service committee on 14 July 15. Further approval for Capital monies will be required from Policy and Resources Committee.	Flood Warning to be delivered by SEPA. Planned scheme for 2016 on Esk at Langholm This action may also benefit a short section of the primary road A7, but this has not been included in the PVD figure

Location	Objective	Scheme Description	PV Scheme costs - (* indicates)	Economic Benefits	BCR	Non-Monetised Score	Ranking (evidence based)			Ranking (local preference) Reason	Proposed delivery Cycle	Scheme Status	LA Funding identified (if Yes, which)	Supporting Text
Dumfries & Galloway Council Newton Stewart/River Cree	Reduce the risk of river flooding to properties in Newton Stewart.	Newton Stewart Flood Study has identified the benefit of potential works within Newton Stewart including construction of direct defences along the River Cree and Penkiln Burn. Consideration is also being given to the raising of a footbridge over the River Cree in combination with direct defences and property protection to increase the design standard of protection of the works. Standard of Protection: 10yr	£7.5m	PV Damages Avoided £12.3m There are 19 residential and 6 non-residential properties at risk during a 10 year river event, based on strategic mapping. This action may also offer protection to a stretch of the A714 and a number of utilities including an electricity substation and telecommunications	1.64	7	24 Of 41	4 Of 5	4 Of 4	3 Frequency of flooding and flood history.	C1 (2019-2020)	The council are looking to improve the current SoP offered by the scheme including looking at increasing conveyance, NFM actions and council stored and maintained PLP.	No LFRMP Actions including Newton Stewart will be presented to service committee on 14 July 15. Further approval for Capital monies will be required from Policy and Resources Committee.	The Newton Stewart area has a history of flooding which causes disruption and flooding to properties. The design of the scheme is current being revised to incorporate feedback from other scheme designs in the area. Flood Warning to be delivered by SEPA. Planned scheme for 2016 on Cree at Newton Stewart. The current standard of protection of the proposed scheme is 10 years, although higher standards of protection are currently being considered as part of the design refinement. 1 in 50 and 1 in 200yr Standards of protection have also been considered. BCRs are 0.75 and 0.6 respectively. There is a significant jump in scheme cost between the 1 in 10 and 1 in 50yr, but relatively little between the 1 in 50 and 1 in 200. Wall heights in excess of 2m would be required for the 1 in 200yr option, which is unlikely to be locally acceptable. Upstream storage was identified as a possibility, but not economically appraised. This is still under review and may lead to a reduction in defence height / further increased standard of protection.
Glasgow City Council White Cart Water Phase 3	Reduce the risk of river flooding to residential properties and non-residential properties from the White Cart Water.	The White Cart Water Phase 3 includes the building additional direct defences in locations where properties are still identified to be at risk. Standard of Protection:200yr	£6.1m	PVD Avoided £8.9m 87 residential properties; NRPs responsible for 75% of damages.	1.45	7	25 Of 41	4 Of 7	1 Of 2	-	C1 (2016-2017)	Work is being done to identify the benefits from this phase of the works.	Yes 2016-2022	Full cost benefit ration document provided to SEPA 28 May 2015 and these have been used to modify the data included in the prioritisation.
East Ayrshire Council New Cumnock	Reduce risk of river flooding to residential properties and non-residential properties in New Cumnock.	New Cumnock Flood Study has been completed which identified works that should be completed within New Cumnock including construction of flood defences along the Afton Water and Connel Burn. Standard of Protection: 200yr		The standard of protection for the proposed scheme is 200 years. There are 108 properties at risk during a 200 year river event, based on strategic mapping. The PVD is £2,660,761 and the benefit cost ratio is 1.27 (figures taken from the 2014 study). This PVD figure includes road network benefit (A76). This action may also offer protection to a stretch of single track railway and a number of utilities including two electricity substations and a telephone exchange, however these have not been included in the PVD figure	1.27	9	26 Of 41	5 Of 5	1 Of 1	-	C1 (2016)	Full design is currently progressing with a consultant being appointed. Land acquisition is currently being looked at. Protected species and habitat study have started.	Yes 2015 – 2016 funding secured. Further funding for the remainder to be confirmed.	New Cumnock has suffered a number of recent flood which have highlighted the risk of flooding within the local community and surrounding area. The identified flooding impacts residential and commercial properties, agricultural and the main trunk road which connects Kilmarnock and Dumfrie
Perth & Kinross Council South Kinross	Reduce economic damages to residential and non-residential properties caused by river flooding.	Mouchel's Flood Protection Study recommended a flood scheme for the South Queich, Gelly Burn and Clash Burn. The scheme would consist of flood defence walls and provide a 1:200 year + climate change standard of protection. Standard of Protection: 200yr + CC	£3.2m	PV Damages Avoided £5.5m	1.48	6	27 Of 41	5 Of 7	3 Of 4	Agree with evidence - based LA rank	C1 implemented in the latter part of the FRMP cycle	Preliminary Stages Flood study completed in 2010 (minor update required to text within report – this is a matter of presentation only); outline design development to proceed (once funding situation clarified).	No A business case is being submitted to the Council's Capital Programme for consideration in August 2015)	Following flood events in 1993, 1999, 2006 and 2008 the Council has developed a flood scheme to address the risk of river flooding to the South Kinross area from the South Queich, the Gelly Burn and the Clash Burn. The proposed scheme would provide a 1:200 year standard of protection, and will include an additional allowance for climate change. The scheme requires detailed design / refinement

Location	Objective	Scheme Description	PV Scheme costs - (* indicates)	Economic Benefits	BCR	Non-Monetised Score	Ranking (evidence based)			Ranking (local preference) Reason	Proposed delivery Cycle	Scheme Status	LA Funding identified (if Yes, which)	Supporting Text
West Dunbartonshire Council Gruggies Burn	Reduce the risk of the Gruggies Burn / coastal flooding to residential properties, non-residential properties and transport in Dumbarton.	The potential for upstream storage should be further investigated, in isolation or in conjunction with direct defences from Hunter's Burn to Castle Street and the wall downstream of Castlegreen Street. These defences are part of a scheme that also covers works in objective 11075. Standard of Protection: 200yr	*£14.5m	PV Damages Avoided £19.5m There are 567 residential properties and 97 non residential properties within the benefiting area of this scheme. In addition Emergency services community facilities, utilities and a section of primary road also benefit from this protection.	1.34	7	28 Of 41	5 Of 7	1 Of 1	-	C1 (2018-19)	Study has brought the 2004 report up to date and looked at refining costs. Benefits are in the report however further work will be required on option development and benefits.	Yes Funding identified in the approved long term capital plan for 2018/19 with additional funding being provided this current financial year to take forward the development and approval of the scheme	
North Ayrshire Council Mill Burn Millport	Reduce the risk of river flooding to residential properties in Millport along the Mill Burn.	The Millport Burn Flood Risk Assessment has provided information along with an economic appraisal which identifies potential options to mitigate flooding by diverting flows to a separate receiving watercourse. It is recommended that the council seek funding to progress with the development of the works outlined in the study and further look at the potential environmental and social impacts of the identified works including diversion of reservoir flows and control structures. Standard of Protection: 100yr	*£1.1m	PV Damages Avoided £1.9m 31 residential and 9 non residential properties, The preferred action is the diversion of flows and it is uncertain the impact that this will have on the new receiving watercourse. Although there is limited potential impact to properties there may be alteration to the channel and floodplain of the receiving watercourse.	1.8	2	29 Of 41	3 Of 3	3 Of 3		C1			Flood study has completed with cost benefit analysis. Further works on the potential impacts of the options are required to identify the preferred option. A report is currently being prepared for submission to Cabinet (August 2015) for approval to progress project and request appropriate funding.
The Highland Council Drumnadrochit	Reduce flood risk in Drumnadrochit from the River Enrick	Flood protection works in the form of direct defences need to be taken forward to detailed design stage. Standard of Protection: 200yr	£0.7m	PV Damages Avoided £1.0m The flood protection works would reduce risk to 27 properties and reduce disruption and closures to the A831 road	1.44	5	30 Of 41	4 Of 4	3 Of 3	-	C1 (latter half)	Preliminary Stages Ongoing Outline solution developed but further refinement/ consultation needed before formal consultation will take place (anticipating next year)	Planning Development & Infrastructure committee approved committed funding 2015-2018. Following years to be submitted in due course.	Direct defences in Drumnadrochit Significant proportion of damages related to disruption on key transport route.
Aberdeenshire Council Stonehaven	Reduce flood risk in Stonehaven from the River Carron and Glaslaw Burn	Flood protection works are recommended to reduce the likelihood of flooding to Stonehaven from the River Carron and Glaslaw Burn from medium likelihood floods. The flood protection works will include a combination of modifications to conveyance through upsizing of culverts and altering bridges, removing weirs and installing trash screens and the construction of direct defences. Standard of Protection: 200yr + CC	£16.5m	PV Damages Avoided £20.3m The flood protection works would reduce risk to 372 residential properties which are estimated to be at risk during medium likelihood floods.	1.23	6	31 Of 41	1 Of 3	1 Of 2	-	C1 (2017)	Notification of Flood Order Published 3 rd July 2015 Public consultation complete. Publication of Flood Order commenced 3 July 2015 for a period of eight weeks Notification period ends 28 th August 2015	Yes Approved by committee and in Capital Plan. Scheme development 2015/2016. Construction programmed for 30/01/17 - 10/09/18	Long history of flooding with most recent floods in 2009 and 2012 causing significant damage / disruption to the town. Commercial centre of the town, a school / nursery and number of vulnerable residents at risk. The current full capital cost for the scheme has been approved by committee, and is allowed for in the Council's Harbours, Coast Protection and Flooding line in the Capital Plan. However, we would still seek Scottish Government Funding for this scheme and any subsequent non-grant aided costs for the scheme would still have this approval in principle.

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Location	Objective	Scheme Description	PV Scheme costs - (* indicates)	Economic Benefits	BCR	Non-Monetised Score	Ranking (evidence based)			Ranking (local preference) Reason	Proposed delivery Cycle	Scheme Status	LA Funding identified (if Yes, which)	Supporting Text
Aberdeenshire Council Huntly	Reduce flood risk in the Meadows area of Huntly (including A96 and A920, Ski Centre and caravan park) from the River Deveron and Meadows Burn	Flood protection works are recommended to reduce the likelihood of flooding to Huntly from the River Deveron and Meadows Burn from medium likelihood floods. The flood protection works will include a combination of modifications to conveyance through upsizing of culverts, constructing embankments and storage of water. Standard of Protection: 200yr + CC	*£3.6m	PV Damages Avoided £3.4m The flood protection works would reduce risk to 50 residential properties and 13 non-residential properties which are estimated to be at risk during medium likelihood floods.	1.1	7	32 Of 41	2 Of 3	2 Of 2	-	C1 (2016)	Notice of Final Decision Complete 30 th June 2015 Hearing held and final decision made to proceed with the scheme as planned. Under schedule 2 (sections 10 & 11), notification of parties of the final decision to Confirm the scheme without modification, as well as confirming the scheme in a local newspaper & Edinburgh Gazette has commenced (June 2015) Deemed planning permission requested under Section 14(2) June 2015. Commencement of Scheme (Section 11) expected August 2015	Yes 2016/2017	History of flooding to the Meadows area of Huntly including several recent floods. A nursing home is a high risk of flooding and has been affected by flooding / evacuated on numerous occasions. The current full capital cost for the scheme has been approved by committee, and is allowed for in the Council's Harbours, Coast Protection and Flooding line in the Capital Plan. However, we would still seek Scottish Government Funding for this scheme and any subsequent non-grant aided costs for the scheme would still have this approval in principle.
Perth & Kinross Council Scone	Reduce economic damages to residential and non-residential properties caused by river flooding.	The preferred option consists of raising existing footbridges and constructing riverside defences. Standard of Protection: 200yr	£0.6m	PV Damages Avoided £2.5m 35 residential properties and 9 non-residential properties at risk in a 200 year event	1.14	5	33 Of 41	2 Of 2	4 Of 4	-	C1 (latter part)	Preliminary Stages Flood study completed in 2007; outline design development to proceed (once funding situation clarified).	No A business case is being submitted to the Council's Capital Programme for consideration in August 2015)	Following a flood event in 2004, the Council has developed a flood scheme to address the risk of river flooding to the Goshenbank Park and Burnside area in Scone from the Annaty Burn. The proposed scheme would provide a 1:200 year standard of protection. BCR and scheme costs require updating and assessment for a wider range of return periods prior to detailed design
Stirling Council Bridge of Allan	Reduce economic damages to residential and non-residential properties in Bridge of Allan caused by flooding from the Allan Water.	Implementation of flood protection works (flood embankments/sheet piling) in Bridge of Allan to protect properties from 1:50 year event. A recent FP study has indicated that protection to 1:200 would not be economically viable. Standard of Protection: 50yr	£4.4m	Preliminary BCR for 50yr: temporary defences 1.22, permanent defences 0.72.	0.72	9	34 Of 41	1 Of 3	1 Of 3	-	C1 (latter part)	Preliminary Stages Ongoing Optioneering completed 2014, Detailed design underway currently Forecast Notification complete 2019 Deemed planning permission granted 2020 Notice of final decision complete 2019 Commencement of Scheme 2020 Completion of Scheme 2021	No The council are aware of the scheme requirements through regular updates and it is minuted that internal funding from Stirling Council is dependent on being successful in a bid for the 80% Grant, Intention would be to fund the construction phase 2019 onwards, the second half of the FRM cycle	A study indicated that protecting the town to 1:200 year protection would be unviable. The 1:50 scheme has two options - demountable defences (BRC + 1.22) or permanent defences (BCR = 0.72). These are considered the only options, however, demountable defences are not considered practically viable due to the length of such defences and their reliability. The BCR does not consider intangible or indirect benefits. Bridge of Allan is hydrologically linked to Stirling - A Stirling scheme could not be progressed without adversely impacting the Bridge of Allan community unless the Bridge of Allan scheme is constructed. There is also a local perception of protection due to the existing defences which are in a poor state of repair and would only provide 1:20 year protection if they were repaired to provide the full protection capacity Bridge of Allan scheme to be implemented prior to Stirling due to knock-on impact on water levels
West Lothian Council Broxburn Liggat Syke	Reduce economic damages to residential and non-residential properties in Broxburn, West Main Street, caused by flooding from the Brox Burn.	Construction of the outstanding elements of the Broxburn flood prevention scheme relating to 2 flood storage basins in the catchment of the Liggat Syke with adequate storage to provide protection from 1:100 year event. Standard of Protection: 100yr	*£1.6m	BCR 1.22	1.22	4	35 Of 41	6 Of 7	1 Of 1	-	C1	Outstanding element of Broxburn FPS (Liggat Syke separate from rest of scheme already delivered). Scheme was funded but at less than 80:20 contribution.	Yes 2013-2018 Funding for the Flood Prevention Scheme is included in the Council's current capital programme 2013-18	The Broxburn Flood Prevention Scheme was promoted under the 1961 Act and was confirmed by Scottish Ministers. Construction is at an advanced stage but it will not be possible to construct the attenuation structures in the upper catchment without additional funding from the Scottish Government as there is insufficient Council funding due to the unsatisfactory settlement from the Scottish Government at the time which fell far below the 80% of eligible cost. Phase 2 works are currently out to tender and due to be constructed 2015 - 2017.

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Location	Objective	Scheme Description	PV Scheme costs - (* indicates)	Economic Benefits	BCR	Non-Monetised Score	Ranking (evidence based)			Ranking (local preference) Reason	Proposed delivery Cycle	Scheme Status	LA Funding identified (if Yes, which)	Supporting Text
East Lothian Council Haddington	Reduce economic damages to residential and non-residential properties in Haddington caused by flooding from the River Tyne.	A Flood Protection Study for Haddington is currently underway and due to report in summer 2015. The study has identified the need for flood protection actions including direct flood defences and possibly NFM works which will, subject to funding, be implemented prior to 2021 (proposed for 2018/19)	*£7.4m	PV Damages Avoided £8.8m 231 properties at risk	1.19	4	36 Of 41	7 Of 7	2 Of 2	-	C1	Preliminary Stages Ongoing Option Appraisal Report published in July 2015 Forecast: Notification May 2016 April 2018 - Start on site Completion of Scheme March 2019	No Scheme proposed for 2018/19. Capital Budget only approved for 3 years i.e. until 2017/18	A Flood Protection Study for Haddington is currently underway and due to report in summer 2015. Draft findings have been supplied to SEPA for use in the prioritisation. The study has identified the need for flood protection actions including direct flood defences and possibly NFM works which will, subject to funding, be implemented prior to 2021 (proposed for 2018/19)."
Moray Council Newmill	TBC	Scheme consists of a network of ditches to the north of the village, a cascade, flood retaining walls and a replacement bridge. Standard of Protection: 200yr + CC	£1.4m	PV Damages Avoided £1.9m 13 Residential and 5 Non-Residential properties at risk	1.32	2	37 Of 41	3 Of 3	1 Of 1	-	C1	Preliminary Stages Ongoing Detailed design underway	Yes 2015/2016	Most recent flooding was in 2009 when flooding occurred in September and November causing damage to a number of residential and commercial properties as well as local infrastructure. Funding for this scheme has been allowed for in the Council's 10 year capital plan. Note this scheme was not included in the strategies and prioritised list as was originally expected to be complete pre-strategy publication
Glasgow City Council Camlachie Burn	Reduce the risk of Tollcross Burn and Camlachie Burn flooding to residential properties and non residential properties in Shettleston.	Series of culvert capacity / restriction improvements, including opening urban watercourses. Standard of Protection: 200yr intended however modelling still shows residual risk at lower return periods in some places – work is underway to mitigate	£1.01m	PV Damages Avoided £0.99m	0.9	6	38 Of 41	7 Of 7	2 Of 2	-	C1	Preliminary Stages Ongoing		This is a strategically important scheme which would help to deal with surface water issues in the north of the city. Glasgow City Council are seeking only 25% of the capital cost for this project as it is linked to the city deals, which will provide further funding. *Due to late availability of scheme data it has not been possible to assess non-monetary scores and a total score of '0' has been used. It is likely that this would be greater had assessment been possible, and the ranking position may therefore be an underrepresentation.
Stirling Council Stirling	Reduce economic damages to residential and non-residential properties in Stirling caused by flooding from the River Forth. Reduce risk to people in Stirling caused by flooding from the River Forth. Reduce economic damages to residential and non-residential properties in Stirling, Riverside and Raploch caused by flooding from the River Forth.	A recent FP study by Mouchel investigated options to protect Stirling against 1:200 year event. None of the options considered were economically feasible. Further investigation into Lower SOP found lower level protection (1:50) would only be a viable option in Riverside due to low damages at lower thresholds. BCR for the 1:200 year options was revisited 2015 but changes to this would be unlikely to allow significant enough increases to allow the BCR to reach unity. Standard of Protection: 200yr	Total £26.2m Riverside £11.1m; Raploch £4.3m; Cornton/Causeway-head £10.8m; North Cornton £2.2m	PV Damages Avoided £17.7m (total) BCRs (200yr): Riverside 0.69, Raploch, 0.57, Cornton/Causewayhead 0.39, North Cornton 0.03.	0.7	7	39 Of 41	2 Of 3	2 Of 3	-	C1	Preliminary Stages Ongoing Optioneering completed 2014, outline design to be commissioned 2016 if Scottish Government indicate this scheme is viable for funding Forecast dates Notification 2018 Commencement 2020 Completion 2021 Intention would be to profile funding from 2016 onwards, detailed design to be completed end of 2018 when statutory process would begin with intention to start construction start of 2020.	No The council are aware of the scheme requirements through regular updates and it is minuted that internal funding from Stirling Council is dependent on being successful in a bid for the 80% Grant,	Flooding in Stirling is considered strategically significant with a large number of properties and infrastructure affected at low return periods. Stirling Council have considered a range of options for this area and direct defences were identified as the only viable option but have a marginal BCR. The depth of flooding associated with the 200 year event is well in excess of the ability of PLP products to protect. A lower SoP would only offer limited protection to the 50 year level in one small area and would not safeguard any major infrastructure. Bridge of Allan scheme to be implemented prior to Stirling due to knock-on impact on water levels
Inverclyde Quarrier's Village	Reduce the risk of Gotter Water / River Gryfe flooding to residential properties in Quarriers Village.	Flood embankments creating offline storage with control. Standard of Protection: 50yr	£0.24m	PV Damages Avoided £0.27m	1.11	1	40 Of 41	6 Of 7	4 Of 4	-	C1	Preliminary Stages Ongoing Design Tender Awarded wc 29/6/15 Expected Design programme 13/07/15-16/10/15	Yes 2016/2017	Detail design tender for these projects has just been awarded. Design is due to start 13 July 2015

Location	Objective	Scheme Description	PV Scheme costs - (* indicates)	Economic Benefits	BCR	Non-Monetised Score	Ranking (evidence based)			Ranking (local preference) Reason	Proposed delivery Cycle	Scheme Status	LA Funding identified (if Yes, which)	Supporting Text
Stirling Council Callander	Reduce economic damages to residential and non-residential properties caused by river flooding.	Implementation of flood protection works (flood embankments) in Callander to protect Meadows car park and residential properties from 1:50 year event. Stirling council are keen to implement these works despite the low BCR (0.09). The works would require detailed design and would be implemented in the latter half of the FRMP cycle. Standard of Protection: 50yr	£2.4m	PV Damages Avoided £0.2m BCR = 0.09; 15 residential properties and 15 non-residential properties, Meadows car park and trunk road (A84).	0.09	4	41 41	3 3	3 3	-	C1	Preliminary Stages Ongoing Optioneering completed 2014, Detailed design underway, brief issued May 2015 Forecast Notification 2018 Commencement of Scheme 2019 Completion of Scheme 2019 Intention would be to profile funding from 2017 onwards, detailed design to be completed end 2017 when statutory process would begin with intention to start construction in 2019	No The council are aware of the scheme requirements through regular updates and it is minuted that internal funding from Stirling Council is dependent on being successful in a bid for the 80% Grant,	Due to flooding mechanism in this area (the onset of fluvial flooding in Callander is relatively infrequent and as a result, damages are relatively limited) the CBR for 1:200 scheme is very low. It is considered that protecting parts of town to 50 year levels was more technically and practically feasible. 50 year protection is the maximum level of protection that can be provided that will not adversely impact other areas within Callander and also maintains access along the Trunk Road. Through consultation with Callander community the decision has been reached to progress the 50 year scheme rather than a greater level of protection and to concentrate other efforts on surface water flooding.

Description of the non-monetised scoring elements can be found in Paper 3 – Method (available via Huddle). It comprises a range of community and environmental criteria that are generally poorly represented within economic appraisal.

Draft - NPWG Reference Only

Flood Protection Schemes and Works v4_DRAFT

Version Date: 10/08/2015

Intended Flood Protection Works

The following have been identified by the relevant LA to be progressed as flood protection works rather than as a FP Scheme

Location	Objective	Works Description	Works Whole Life Cost	Economic Benefits	BCR	Non-monetised score	Delivery Cycle	Supporting Text
East Dunbartonshire Council Park Burn	Reduce the risk of Park Burn /surface water flooding to residential properties in Kirkintilloch.	<p>The Park Burn Flood Risk Assessment has been extended to provide options for the mitigation of flooding from the Park Burn. The study identified cost beneficial works which included re-grading of the channel which would offer protection up to the 1 in 75 year flood. It is recommended that additional PLP options and NFM options are looked at to potentially complement the proposed works. The report noted that a significant proportion of the costs are due to the maintenance that will be required with a small capital cost. This should be factored in by the council.</p> <p>Standard of Protection: 75yr</p>	£0.4m	<p>PV Damages Avoided £1.5m</p> <p>(This option could potentially increase to a SOP of 200 year by adopting individual property level protection. This scheme would benefit by itself circa 70 residential properties.</p>	4.1	6	C1 (2018-19)	<p>Works has been identified in the capital programme and there is capacity to accommodate the 20% contribution towards its delivery. In terms of what year this is flexible as we have an approved 10 year capital programme for the Roads Service and there's always an option to bid for more.</p> <p>Preliminary stages Completed – FRA / Optioneering studies, Dec 2014 including Cost Benefit Analysis April 2015. Currently progressing with producing Tender doc / Spec and Technical drawings for project work will complete this financial year 15/16.</p> <p>Agreements in place - Will to consult all major stakeholder (i.e. SEPA and Scottish Canals)</p> <p>Planning permission granted (if required) - EDC Planning will be consulted as a Consultee to see if planning will be required for the above works.</p> <p>Environmental approvals granted (if required) – CAR Licence / Agreements discussions to be had and any further study required to protect habitat will be undertaken prior to work, only if required.</p> <p>Commencement of works - We would undertake this work in the first cycle hopefully within the first 3 year period.</p> <p>Completion of works - As above however would be between 2016 – 2019</p>
Stirling Council Aberfoyle	Reduce economic damages to residential and non-residential properties in Aberfoyle caused by flooding from the River Forth (9002)	<p>Implementation of flood protection works (flood embankments) in Aberfoyle to protect residential and local business properties from 1:5 year event. Stirling council are keen to implement these works despite the low BCR (0.16) to protect property, to maintain access to the school and to maintain emergency service access beyond Aberfoyle. The works depend on the provision of flood warning by SEPA. The works would be carried out simultaneously with flood warning provisions, ideally in first part of FRMP cycle.</p> <p>Standard of Protection: 5yr</p>	Detailed design of 5yr scheme £135K + GI £60K. Scheme construction costs TBC once detailed design complete.	BCR for 200yr = 0.16 (BCR for 5yr not developed will be revised once detailed design complete). 7 residential and 13 non-residential properties, 3 utilities and 1 road (single access to school and villages for 14 miles).	0.16	9	C1	<p>The scheme would be funded by LA.</p> <p>Council do not wish to pursue scheme prior to installation of Flood Warning</p>
Perth & Kinross Bridgend Perth	Reduce economic damages and number of residential properties at risk of surface water flooding as far as practical.	Capita completed a study into surface water flooding at Bridgend Perth which recommended a high capacity drainage channel and outfall to the River Tay.	£241k (LA Funded)	The economic impacts have not been defined at this stage.	-		C1	The scheme would be LA funded

Draft - Not for Distribution

The following schemes (listed in alphabetical order by location) were assigned a BCR robustness category 'C' and therefore were not ranked:

Local Authority	Selected Action	Location	Notes
Aberdeen City	6019010006	Culter Burn	Details of scheme to be finalised but likely to include direct defences and improvements to conveyance. Detailed design work to commence in 2015 – likely to be ready for construction second half of cycle 1. Outline approval to progress with the scheme has been granted by the Community Housing and Infrastructure Committee. Detailed modelling complete and optioneering / design underway.
Argyll & Bute	110030006	Helensburgh	Further study is required to identify the wider benefits of the proposed actions.
Argyll & Bute	110841006	Kilcreggan	Surface water – study ongoing. Problem identified but options not yet identified.
West Lothian		Livingston, Broxburn (SUDS legacy project)	Early SWMP outputs – There is currently no defined funding mechanism for surface water management
West Lothian		Livingston, Broxburn (SWMP actions)	Early SWMP outputs – There is currently no defined funding mechanism for surface water management
Highland	1021030006	Mill Burn Inverness	Scheme will be a combination of flood walls and sheet piling, embankments and a culvert upgrading. Study is due to report by late August 2015 – if a viable option is identified, Highland Council will seek to progress during Cycle 1 Preliminary Stages Ongoing Outline design completed, some detail design completed. Economic appraisal underway.

NFM Works – these works are unprioritised but will be progressed by LAs in Cycle 1 unless otherwise stated.

Selected Action	Location	Objective	Indicators	Next-Step	Cost of Next Step
NFM Works (70110003) (70120003)	(07/05)	Reduce economic damages to residential and non-residential properties in Brechin caused by flooding from the River South Esk. Reduce the number of properties at risk of flooding by 230 (1:100yr). (7011) Reduce risk to people from in Brechin caused by flooding from the River South Esk. (7012)	£97,707 Annual Average Damages (Residential Properties) £264,139 Annual Average Damages (Non-Residential Properties). 191 People at Risk (1 in 200 year event). 191 People at Risk (1 in 200 year event)	Natural Flood Management works are continuing following completion of the Brechin Flood Protection Scheme. It includes upland reforestation.	£20k to £50k
NFM Scheme (110720004)	Loch Lomond and Vale of Leven (11/01)	Reduce the risk of the Gruggies Burn / coastal flooding to residential properties, non residential properties and transport in Dumbarton.	1281 Residential properties; 112 Non-Residential properties; 1.1 km of Road, Annual average damages of £5,862,636.	Currently there are plans for native woodland planting in one of the areas identified, this should be progressed. A natural flood management study to further investigate in detail the remainder of the areas of potential benefit for runoff control to Dumbarton should be considered. Land use management.	
NFM Scheme (120200004)	Irvine to Troon (12/07)	Reduce the risk of coastal / surface water flooding to non residential properties in Troon.	414 Non-Residential properties, Annual average damages of £84,674.	The sand dune propagation in Troon should continue. Ongoing action not looking for funding.	To be provided by South Ayrshire Council
NFM Scheme (120240004)	Prestwick / Ayr (12/09)	Reduce the risk of coastal / surface water flooding to residential properties and non residential properties in Ayr.	227 Residential properties; 116 Non-Residential properties; Annual average damages of £165,612.	The sand dune propagation in Ayr should continue. Ongoing works - allowance of natural processes.	To be provided by South Ayrshire Council.