

# Flood Risk Management (Scotland) Act 2009:

## INTERIM PROGRESS REPORT Local Flood Risk Management Plan

### Ayrshire Local Plan District



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## Foreword

This Interim Report to the Local Flood Risk Management Plan shows the progress made in delivering the actions to avoid and reduce the risk of flooding and to prepare and protect ourselves and our communities across the local plan district.

*“The impacts of flooding experienced by individuals, communities and businesses can be devastating and long lasting. It is vital that we continue to reduce the risk of any such future events and improve Scotland’s ability to manage and recover from any events which do occur.”*

(Ayrshire Local Flood Risk Management Plan, June 2016)

The publication of the Interim Report shows that the coordinated and collaborative efforts of public bodies can be brought together to deliver sustainable outcomes.

The Interim Report is published by North Ayrshire Council on behalf of a partnership comprising three local authorities - North Ayrshire Council, East Ayrshire Council and South Ayrshire Council - as well as Scottish Water, SEPA and Forestry Commission Scotland.

Individuals are the first line of defence against flooding and have responsibilities to protect themselves from flooding. Through self-help and property level protection, awareness raising and signing up to Floodline ([www.floodlinescotland.org.uk](http://www.floodlinescotland.org.uk)), individuals, businesses and communities can and have made key contributions to the delivery of the actions in the LFRMP (the ‘Plan’), which are detailed in this Interim Report.

Since the publication of the Plan in June 2016, public sector finances in Scotland have continued to be under considerable pressure. This has placed an even greater responsibility on SEPA, local authorities, Scottish Water and other responsible authorities to deliver their flood risk management responsibilities and, in particular, the actions identified by the Plan to manage flooding in a sustainable way.

SEPA, local authorities, Scottish Water and other responsible authorities will continue to work collaboratively to implement the actions in the Plan to its conclusion in June 2022.

## 1. Background

The Interim Report is a legal requirement of the Flood Risk Management (Scotland) Act 2009 (Section 37). The Interim Report is required to be published between July 2018 and June 2019. The Interim Report includes the conclusions of a review of the Ayrshire Local Flood Risk Management Plan ('the Ayrshire Local FRM Plan'), published in June 2016 and includes information on the progress that has been made towards implementing the actions identified in the Plan.

A copy of the Plan can be found at the follow link.

<https://www.north-ayrshire.gov.uk/community-safety/flooding/flood-risk-management-plan.aspx>

## 2. Review of the Ayrshire Local FRM Plan

This section presents the review of the Ayrshire Local FRM Plan including progress highlights, a statement on the currency of the Plan, the significant challenges faced, the prioritisation of actions for the next planning cycle, arrangements to complete the remaining actions and the next steps.

### Progress Highlights

A selection of progress highlights since publication of the Plan in June 2016 are noted below to give a flavor of the work being undertaken across the Ayrshire Local Plan District to reduce flood risk. A summary of progress against every action in the Plan is presented in Section 4.

- The Upper Garnock Flood Protection Scheme has progressed to the Detailed Design Phase;
- River Garnock Flood Warning scheme has been completed;
- The Millport Coastal Flood Protection Scheme is nearing the end of Outline Design Phase;
- The Upper and Lower Irvine Valley Flood Risk Assessments and the Option Appraisal is completed for the Lower Irvine Valley;
- The Mill Burn Scheme started in 2018 - ahead of schedule;
- The Ayrshire Shoreline Management Plan is completed and adopted by Both North and South Ayrshire Councils;
- The Girvan Flood Risk Assessment Study has been completed and the Option Appraisal phase is progressing;
- The scoping phase has started for the Troon Flood Risk Assessment Study;
- The scoping phase Pow Burn Flood Risk Assessment Study started in 2019 - ahead of schedule;
- The Model Build and Verification stages of the Meadowhead Integrated Catchment Study are complete and the Option Appraisal phase is progressing;
- The Model Build stage of the Stevenston Point Integrated Catchment Study is complete;

- The Strategic Mapping and Modelling dataset for Largs, Cartineholm, Girvan, Underwood Cumnock and the Meadowhead Catchment completed by Scottish Water.
- The Brodick and Lamlash Flood Risk Assessments are complete and the Option Appraisal is nearing to completion;
- The Ayrshire-wide Surface Water Management Plans are progressing according to the Ayrshire Local FRM Plan delivery commitments,
- Beach nourishment actions in Ayr and Troon continue to be successful in the propagation of natural sand dunes.

### How current is the Local FRM Plan?

The Plan was published in June 2016 supplementing the Flood Risk Management Strategy published by SEPA in December 2015, and available here - <https://www.north-ayrshire.gov.uk/community-safety/flooding/flooding.aspx>. The Ayrshire Local FRM Plan details how the actions identified in the Strategy were to be implemented over the period 2016 to 2022. The Ayrshire Local FRM Strategy and Plan are based on the National Flood Risk Assessment and the designated Potentially Vulnerable Areas at that time.

Since the identification of the actions in the Ayrshire Local FRM Plan, there have been, and continue to be, advancements in our knowledge and development of assessment techniques. These include the publication by SEPA of a new National Flood Risk Assessment and a revision to the designated Potentially Vulnerable Areas, which was completed in December 2018. These advancements may inform the delivery of the actions in this Plan and will be used in the development of future Strategies and Plans.

The planned delivery and actual delivery of actions has changed for some actions as detailed in the 'Assessment of the progress of actions'.

The data summarised in this report was compiled in January 2018, and some actions may have progressed since then.

### Significant issues

Based on a review of the 'Assessment of the Progress of Actions' detailed in this Interim Report, the following key themes and issues have been identified that have had, or may have, an impact on the delivery of actions to manage flood risk. Arrangements planned to deliver the remaining actions of the plan are also described below.

### **Significant weather events**

East and South Ayrshire were adversely affected by significant weather events in late 2015 and early 2016, which had impact on for the delivery of actions in the Ayrshire Local FRM Plan from June 2016 onwards. For example, East and South Ayrshire Council's resources were deployed to respond to emergency events as well as the follow up activities and necessary works. This has had consequential delays to the planned delivery of

actions as staff, who would normally have been engaged in delivering the planned actions, were required to respond to the emergency events and associated follow-up activities and works.

Arrangements planned to deliver the remaining actions affected by significant weather events are described below and detailed in the 'Assessment of the Progress of Actions' section of this Interim Report.

On the 31st of December 2013 and December 2015 an equivalent of 1 in 100 year flood event occurred, causing significant flooding to the area. The first event triggered the New Cumnock flood scheme and the second event verified the model outputs. These events had a galvanizing affect to develop the flood scheme for the New Cumnock area.

## Funding

The actions in the Ayrshire Local FRM Plan to meet agreed goals and objectives in the first six-year cycle considered what would be achievable assuming a similar level of funding for flood risk management activities from The Scottish Government. However, given the timing of spending reviews and annualised financial settlements for local government, the actual ability to deliver all the actions set in the Strategies in December 2015 and detailed in this Plan will be dependent on the availability of the necessary funding in each year of the six year Plan', (Ayrshire Local FRM Plan, June 2016).

The level of funding from Scottish Government for flood risk activities for the first years of the six year Plan has been at the levels anticipated. As per the principals of financial settlements for local government, the funding is not 'ring fenced' and local authorities may have allocated these funds to the delivery of other priorities.

In South Ayrshire Council, access to previously allocated Scottish Government funding requires the submission of an individual capital business case for each proposed action as funding is not 'ring fenced'; therefore, considerable resources are required to secure funding.

## Allocation of Resources

The impact on the level of funding from the Scottish Government in general settlements for local government may also have had an effect on the availability and allocation of resources within local authorities.

The budgets directly available for delivering flood risk actions has been a limiting factor in some areas. This has caused consequential delays in the planned delivery of actions.

The availability and retention of skilled staff to deliver flood risk actions has been a limiting factor in some areas. This has caused consequential delays in the planned delivery of actions.

Arrangements planned to deliver the remaining actions affected by allocation of resource issues are described below and detailed in the 'Assessment of the Progress of Actions' section of this Interim Report.

## Use of Consultants

The availability and performance of consultants and professional advisors has not been a limiting factor in Ayrshire LPD.

## Cost increases

Cost increases as actions are detailed and developed have also been a limiting factor in some areas. This has also caused consequential delays in the planned delivery of actions.

In North Ayrshire, the Upper Garnock FPS development was delayed significantly due to objections. The process to remove these objections added to the overall project cost and subsequently will have an effect on the completion of the scheme. The Millport Coastal FPS cost increased significantly due to the changing scope and design parameters. The justification of the increased scheme cost to Scottish Government required significant resourcing and caused delays.

Arrangements planned to deliver the remaining actions affected by cost increase issues are described below and detailed in the 'Assessment of the Progress of Actions' section of this Interim Report.

## Other actions

North Ayrshire Council carried out the Lower Irvine Valley Catchment Study and re-evaluated the fluvial flood risk. The River Irvine and Annick Water fluvial modelling is completed including the regional climate change sensitivity assessment and approved by SEPA in July 2018. The option appraisal is completed according to programme and submitted to SEPA for review.

If feasible option identified that will be submitted to the National Prioritisation process to seek fund from Scottish Government for implementation.

## Prioritisation of actions for next plan cycle

At this stage there are no significant number of actions anticipated to be moved to the next FRM delivery cycle 2022-2028 apart from SEPA's strategic mapping and modelling work.

SEPA are developing new surface water and coastal hazard maps which affect multiple PVA's within the Ayrshire Local Plan District. These two projects are currently assessed to be at red status.

The improvements to the surface water hazard map provided by the new rainfall dataset will reflect a significant shift in the understanding of rainfall amounts. The new national surface water flood hazard maps will be completed over the remainder of Cycle 1. It is anticipated that updated flood mapping from this revised action will be available early in Cycle 2, however the new rainfall dataset is already shared with Responsible Authorities to progress with local projects.

Alongside this, SEPA will investigate the feasibility of developing an interim approach to assess the change in surface water hazard (and risk) associated with FEH13, such that we could consider it in the development of the 2021 FRM Strategies.

For the coastal improvements, the new datasets represent a significant change in our understanding and it was deemed necessary to wait until these data were available nationally.

Following the establishment of a coastal flood hazard map development framework and characterisation of the coastline, several projects are currently underway, including:

- The development of a national coastal joint probability dataset, and;
- An update to the UK design extreme sea level dataset.

It is anticipated that this action will progress to a study prior to the end of Cycle 1 however completion is likely to be in early Cycle 2 due to both the geographical extent and technical complexity of the mapping improvements required.

### Arrangements planned to deliver the remaining actions

The actions in the Ayrshire Local FRM Plan will continue to be delivered over the remainder of the 2016 to 2022 period, with any variations to the planned approach noted in Sections 4 and 5 of this Interim Report.

### Final Report

A Final Report on the Ayrshire Local FRM Plan will be published between July 2021 and June 2022. This will include an updated assessment of the progress made towards implementing the current actions, a summary of the current measures that were not implemented (with reasons for their non-implementation) and a description of any other measures implemented since the plan was finalized, which the lead authority considers have contributed to the achievement of the flood risk objectives.



## Conclusions

North, East and South Ayrshire Councils along with SEPA, Scottish Water and other responsible authorities have worked together successfully to progress delivery of all actions contained within the Ayrshire Local FRM Plan. It is predicted that all actions will be delivered in accordance with the original programme with the exception of the Doon Valley Flood study which has been rescheduled as a result of resource demand issues, however this study is still planned to be completed within the 1st Cycle of the Ayrshire Local FRM Plan and as such it is anticipated that this will not impact on the planned timings for the 2nd Cycle of the Ayrshire Local FRM Plan.

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Scottish Water is making good progress on all actions. A number of Section 16 assessments are complete with the remainder due to complete within this cycle. Good progress is also being made in relation to the Meadowhead and Stevenston Integrated Catchment Studies.

Implementation of the Ayrshire Local FRM Plan has and will continue to reduce flood risk for communities across Ayrshire and gives strategic direction for the management of flood risk in Ayrshire now and in the future.

### 3. Assessment of Progress

This section sets out an assessment of the progress towards implementing the actions set out in the LOCAL FRMP.

There are actions that apply across the whole of the Ayrshire LPD and actions that are specific to each of the 19 Potentially Vulnerable Areas (as defined under Section 13 of the Act) in the Ayrshire LPD, which are shown below in Figure 1.



Figure 1: The Ayrshire Local Plan District with Potentially Vulnerable Areas identified

Reproduced from Ayrshire Local Plan District Flood Risk Management Strategy, SEPA (December 2015)

The actions that apply to an individual PVA across the Ayrshire LPD are shown overleaf in Figure 2. The summary of the assessment of progress is shown using the traffic light system, where each item is marked as Red, Amber or Green (RAG) and where:

- **GREEN** – Action is on programme and within budget;
- **AMBER** – Action is behind programme and / or over budget but the key dates are anticipated still to be met.
- **RED** – Action is behind programme and / or over budget with key dates unlikely to be met and / or the outputs are unlikely to achieve what was anticipated by the Local FRM Plan.

Clarification was sought on the meaning of these definitions, see below:

- What is meant by 'programme'?

It was agreed that this is the Local FRM Plan dates.

- What is meant by 'key dates'?

It was agreed that this is the FRM cycle dates namely prioritisation December 2019 and end of cycle. For SEPA actions only the end of cycle will apply.

- What is the 'Budget'?

It was agreed that the delivery to programme was more important for this report and 'Budget' means the budget an organisation has set aside for this work not any rough budget proposed in the Local FRM Plan.

- Will awareness raising actions have RAG?

Status for all generic actions is to be produced. This discussion moved away from the RAG guidance below. There was a consensus that if awareness raising was supporting an action that was Amber or Red then the awareness raising itself would likely be Amber or Red.

Further detail on specific actions can be found in the relevant Potentially Vulnerable Area within Section4.

Potentially Vulnerable Areas by actions	Flood protections schemes /works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan / study	Strategic mapping and modeling Scottish Water	Strategic mapping and modeling SEPA	Maintain flood protection scheme	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Emergency plans / response	Planning policies
12/01 Noddsdale Water				✓			✓		N/A	N/A	✓		✓	✓	✓	✓	✓	✓
12/02 Great Cumbrae Island	✓			✓					✓	✓	✓			✓	✓	✓	✓	✓
12/03 Largs to Stevenston	✓			✓		✓			✓	✓	✓		✓	✓	✓	✓	✓	✓
12/04 Upper Garnock Catchment	✓		✓		✓		✓		N/A	N/A	✓			✓	✓	✓	✓	✓
12/05 Kilwinning			✓	✓		✓	✓		N/A	N/A	✓			✓	✓	✓	✓	✓
12/06 River Irvine and Annick Water				✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓
12/07 Irvine to Troon		✓		✓		✓	✓		✓	✓	✓			✓	✓	✓	✓	✓
12/08 Isle of Arran				✓					✓	✓	✓			✓	✓	✓	✓	✓
12/09 Prestwick to Ayr		✓		✓		✓			✓	✓	✓			✓	✓	✓	✓	✓
12/10 Pow Burn Catchment			✓			✓			N/A	N/A	✓			✓	✓	✓	✓	✓
12/11 River Ayr						✓			N/A	N/A	✓			✓	✓	✓	✓	✓
12/12 Ayr east									N/A	N/A	✓			✓	✓	✓	✓	✓
12/13 Ayr south							✓		N/A	N/A	✓			✓	✓	✓	✓	✓
12/14 Cumnock and Catrine				✓			✓		N/A	N/A	✓	✓		✓	✓	✓	✓	✓
12/15 Dalrymple and Patna									✓	N/A	✓			✓	✓	✓	✓	✓
12/16 Straiton									N/A	N/A	✓			✓	✓	✓	✓	✓
12/17 Dailly									N/A	N/A	✓			✓	✓	✓	✓	✓
12/18 Girvan				✓			✓		✓	✓	✓			✓	✓	✓	✓	✓
12/19c Dalmellington									N/A	N/A	✓			✓	✓	✓	✓	✓

Figure 2: Summary of progress of actions to manage flood risk in the Potentially Vulnerable Areas of the Ayrshire LDP

## 4. Progress with PVA-specific Actions

This section sets out an assessment of the progress towards implementing actions that are specific to each of the 19 Potentially Vulnerable Areas (PVA) as shown in Figure 2. Assessments of the progress of actions within each PVA are presented.

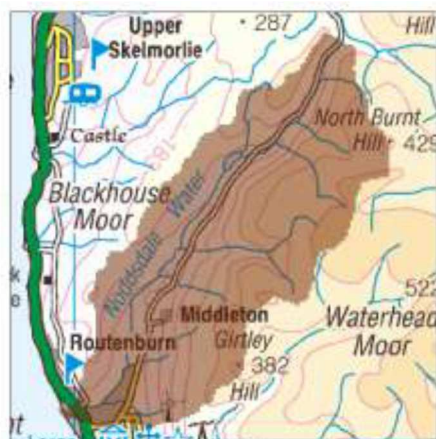
Some flood risk management objectives and actions apply to all areas, whether designated as a Potentially Vulnerable Area or not. For example, flood risk can be managed through national planning policy or as part of ongoing statutory duties discharged by local authorities.

The background information sets the scene for the planned actions to manage flooding that have been prioritised for delivery between 2016 and 2022. The Potentially Vulnerable Area level action tables set out the flood management objective that is to be achieved, provide a description of the action, identify who will be responsible for the delivery and implementation and a timetable of when the actions will be undertaken.

The flood management objectives are the shared aims for managing flooding. Actions describe where and how flood risk will be managed. Objectives and actions have been set by SEPA and agreed by the flood risk management responsible authorities following consultation.

## 4.1 Noddsdale Water (Potentially Vulnerable Area 12/01)

Local Plan District	Local authority	Main catchment
Ayrshire	North Ayrshire Council	Noddsdale Water



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### Summary of Progress for Noddsdale Water

There are approximately 30 residential properties at risk of flooding. The Annual Average Damages are approximately £68,000. Further information can be found in the Ayrshire Local FRMP under PVA 12/01 please click [here](#).

Progress has been made with the completion of the Flood Study for the Brisbane Glen Culvert, including natural flood management options and the viability of property level protection, the findings of which are currently under consideration. Largs has not been exposed to any significant recent weather events.

### Overview of actions to manage flooding in Noddsdale Water

PVA	Flood protections scheme/works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Strategic mapping and modelling SEPA	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Emergency plans/response	Planning policies
12/01				G			G				G		G	G	G	G	G	G



## Summary of progress of actions to manage flood risk in the Noddsdale Water (PVA 12/01)

Action	Status	Description	Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
Flood protection study	G	The Council will assess the flood mitigation options identified by the study completed in early 2016 in order to determine the outline design work for a flood protection scheme.	01/01/2016-31/12/2016	A flood study with option appraisal for the culvert realignment was completed in early 2016, which investigated the feasibility of a flood protection scheme focussing on realigning culverts in the Brisbane Glen Road area and property level protection. This study also considered the potential for natural flood management to reduce runoff to the small burns in the area and other actions to select the most sustainable combination of actions. The Cost Benefit Ratio is around 0.43	Action completed but because of the low Cost Benefit Ratio, the Council need to consider it in the wider prioritisation. The next step is to inform the Council's Local Planning Partnership. The project is unlikely to progress to the next stage. PLP option to be investigated further.
Strategic mapping and modelling - Section 16 assessment		Scottish Water will undertake further investigation and modelling in the Largs sewer catchment to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.	01/01/2018-31/12/2020	The Scottish Water assessment of flood risk within the sewer catchment has been completed.	The assessment is now completed and to be shared with Local Authority.
Flood forecasting	G	The Scottish Flood Forecasting Service is a joint initiative between	22/12/2015-22/06/2022	SEPA has continued to operate the Scottish Flood Forecasting Service	SEPA will continue and improve the Scottish Flood Forecasting Service

		SEPA and the Met Office that produces daily, national flood guidance statements which are issued to Category 1 and 2 Responders. The service also provides information which allows SEPA to issue flood warnings, giving people a better chance of reducing the impact of flooding on their home or business. For more information please visit SEPA's website.		(SFFS) Partnership with the Met Office with daily, national Flood Guidance Statements issued to Category 1 and 2 agencies (such as emergency responders, local authorities and other organisations with flooding management duties) and regional Flood Alerts issued to the public. Each daily statement gives an assessment of the risk of flooding for the next five days to enable these organisations to put preparations in place to reduce the impact of flooding. SEPA's Flood Alert service is freely available to everyone and enables communities to be aware and prepared to reduce the impacts of flooding.	(SFFS) with the Met Office, with daily Flood Guidance Statements and regional Flood Alerts issued as required to enable communities and responders to reduce the impacts of flooding. SEPA is currently exploring options to develop a public version of the daily Flood Guidance Statement to provide better and earlier information to the public.
Self help	G	Everyone is responsible for protecting themselves and their property from flooding. Property and business owners can take simple steps to reduce damage and disruption to their homes and businesses should flooding happen. This includes preparing a flood plan and flood kit, installing property level protection, signing up to Floodline	01/06/2016-22/06/2022	Community Engagement includes, PLP exhibitions, selection, surveys and appropriate and relevant information to enable clients to make the right decisions.	Ongoing community PLP training, Flood Warden and resilience group promotion.



		The Councils, SEPA and Scottish Water will continue to engage with responsible Authorities and all other stakeholders, including community groups and the public, to raise awareness of flood risk and how those affected can be better prepared. Further detail can be found in the Council's and Scottish Flood Forum websites.			
Community flood action groups	G	Although not part of a community flood action group the public take an active interest in flooding issues within Largs and inform the Council about debris in the watercourse. North Ayrshire Council will liaise with the group through Community Council meetings and directly to the public.	01/06/2016-22/06/2022	North Ayrshire Council, SEPA and Scottish Water will continue to engage with responsible authorities and all other stakeholders, including community groups and the public to raise awareness of flood risk and how those affected can be better prepared.	NAC will continue the ongoing support for the Community Flood Group.
Awareness raising	G	North Ayrshire Council, SEPA and Scottish Water collectively work to raise awareness of flood risk and how those affected can be better prepared. Through the continued development of flood schemes and studies at higher risk locations, officers from the Council's Flood	22/12/2015-22/06/2022	SEPA's principle awareness raising approaches have been through: 1. Direct campaigning and general awareness raising; 2. Education and tools, and 3. Partnership delivery development. North Ayrshire Council's general awareness raising is a continuous	SEPA will continue to raise awareness of flood risk through direct campaigning, general awareness raising, developing education and engagement tools, creating new partnerships and improving its flood forecasting and warning services (e.g. Scottish

		<p>Risk Management Team attend community council events to discuss elements of flood risk management. Across Scotland, SEPA will create and share communication and education resources with other responsible authorities. These resources will include awareness campaigns, media and marketing activity and promotion of SEPA's flood forecasting and warning services (Floodline). Scottish Water will provide targeted flooding communications for Scottish Water specific activities and raise awareness by producing and supplying targeted information to the public on large capital projects and detailed local studies.</p>		<p>activity via the NAC website for all Ayrshire.</p> <p>Supporting Local Flood Emergency Groups is an occasional activity in Largs,</p> <p>Project related public consultations affecting Largs are being carried out.</p>	<p>Flood Forecasting Service and Floodline). This will continue with many of the actions reported for the interim progress summary. Further information is contained within SEPA's Flood Warning Development Framework, published in 2017 and for the period 2017 to 2021.</p> <p>Raising Awareness will form part of each of the 3 key themes identified:</p> <ul style="list-style-type: none"> <li>• Aim 1: Maintenance of existing and delivery of new flood warning schemes.</li> <li>• Aim 2: Development and innovation.</li> <li>• Aim 3: Engagement with partners and customers</li> </ul> <p>Campaign Calendar for 2018/19 in March/April 2019 Proposed for North Ayrshire;</p> <p>Focus weeks - on flooding proposed in 2018/19 for North Ayrshire;</p>
Maintenance	G	<p>Local authorities have a duty to assess watercourses and carry out clearance and repair works where</p>	01/06/2016-01/06/2022	<p>NAC has a 4 weekly maintenance regime for 50 trash screens, biennially we carry out 35km length watercourse</p>	<p>The schedules of clearance and repair works to be periodically updated and more awareness</p>

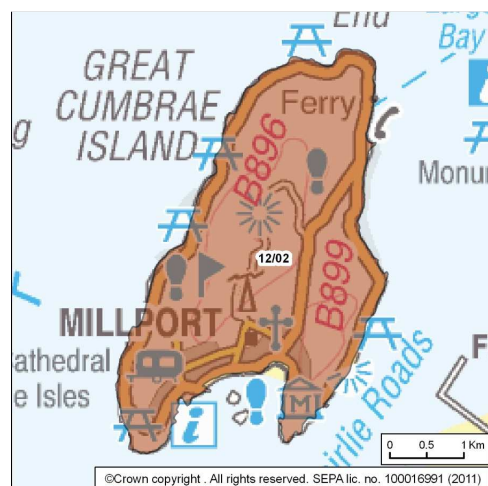
		such works would substantially reduce flood risk. They produce schedules of clearance and repair works and make these available for public inspection. Scottish Water undertake risk based inspection, maintenance and repair on the public sewer network. Asset owners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk.		inspections within the mainland and Arran. NAC have 225km coastline which has just under 300 identified coastal flood protection structures. The regularity of coastal inspections are risk based and varies between 6 month and 3 years.	raising required with asset owners and riparian landowners who are responsible for the maintenance and management of their own assets. The Council will continue to inspect and maintain watercourses, screens and other relevant Council assets.
Emergency plans/response	G	Providing an emergency response to flooding is the responsibility of many organisations, including local authorities, the emergency services and SEPA. Effective management of an emergency response relies on emergency plans that are prepared under the Civil Contingencies Act 2004 by Category 1 and 2 Responders. Scottish Water are a Category 2 responder under the Civil Contingencies Act 2004 and will support regional and local resilience partnerships as required.	01/06/2016-01/06/2022	NAC is in the last stage of reviewing the newly developed town by town based Emergency Plans.	The Ayrshire Civil Contingencies team is responsible for producing the Civil Contingencies Plan, which outlines the management and operational arrangements that the Councils will follow in the event of an emergency as well as encouraging other agencies to prepare for their role. The Councils will contribute to the production and review of the Civil Contingencies Plan and the Emergency Plan for Severe Weather and Flooding, as required. This response may be

		The emergency response by these organisations is coordinated through regional and local resilience partnerships. This response may be supported by the work of voluntary organisations.			supported by the work of voluntary organisations. Completion of the town by town Emergency Plan for North Ayrshire is expected in 2019
Planning policies	G	Scottish Planning Policy and accompanying Planning Advice Notes set out Scottish Ministers' priorities for the operation of the planning system and for the development and use of land. In terms of flood risk management, the policy supports a catchment-scale approach to sustainable flood risk management and aims to build the resilience of our cities and towns, encourage sustainable land management in our rural areas, and to address the long-term vulnerability of parts of our coasts and islands. Under this approach, new development in areas with	01/06/2016-01/06/2022	The Proposed Local Development Plan (LDP) 2, which was subject to public consultation in 2017/18, was approved by the Council on the 17 April 2018. The next step towards the adoption of LDP 2 is the examination stage by Scottish Ministers. The Council completed a Strategic Flood Risk Assessment for the proposed LDP2. In addition, we are developing (in partnership with South Ayrshire Council) an Ayrshire Shoreline Management Plan (SMP). This study will prompt land use and policy changes and recommend further studies to allow physical protective measures to take place in the future.	The proposed LPD2 to be examined by Scottish Ministers before adoption of the plan. The Ayrshire Shoreline Management Plan adopted by both NAC and SAC in September 2018. The Council's planning policies will be reviewed periodically to ensure that all current national policies are implemented and that the recommendations of strategic studies, such as the Ayrshire Shoreline Management Plan, Surface Water Management Plans etc., are considered.

		medium to high likelihood of flooding should be avoided.			
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## 4.2 Great Cumbrae Island (Potentially Vulnerable Area 12/02)

Local Plan District	Local authority	Main catchment
Ayrshire	North Ayrshire Council	Great Cumbrae coastal



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### Summary of Progress for Great Cumbrae Island

Local studies have shown approximately 800 properties to be at risk. The Annual Average Damages are approximately £2.2 million. Further information can be found in Ayrshire Local FRMP under PVA 12/02, please click [here](#).

Key progress has been made in Millport with the start of Millport Coastal Flood Protection Scheme with the option appraisal phase now been completed. The Scheme Recommendation Report supported Option 2, in which an offshore breakwater connecting up two small islands with flood walls along the shoreline; no works are undertaken to timber section of Millport Pier. Community consultation completed in February 2019, which showed strong community support to the preferred option. The Ayrshire Shoreline Management Plan was adopted by both North and South Ayrshire Councils in September/October 2018.

The Mill Burn scheme is currently in the option appraisal stage and is planned to be completed within the 1 FRM Cycle delivery timescale.

### Overview of actions to manage flooding in Great Cumbrae Island

PVA	Flood protections scheme/works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Strategic mapping and modelling SEPA	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Emergency plans/response	Planning policies
12/02	G			G				R	G	G	G			G	G	G	G	G

## Summary of progress of actions to manage flood risk in the Great Cumbrae Island (PVA 12/02)

Action	Status	Description	Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
Flood protections scheme/works	G	Future investigations will look to identify the most sustainable flood mitigation option to manage coastal flooding in Millport. The current option includes the creation of a breakwater with flood walls. It is recommended that the options are further developed, including an assessment of property level protection to supplement the primary actions.	01/06/2016-01/06/2022	The Millport Coastal FPS is nearing the completion of the Optioneering stage. The Option Recommendation Report supports Option 2, which is a combination of measures of offshore breakwater connecting up two small islands with flood walls along the shoreline protection up to a 1 in 200year return period event. The estimated value is £27,5M. Community consultation completed in February 2019, which showed strong community support to the preferred option.	A geo-environmental survey is programmed for Spring/early summer 2019.
	G	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	01/06/2016-01/06/2022	The Mill Burn Flood Outline Options are currently under review and the option appraisal stage will follow to establish the remaining level of risk and the most sustainable combination of actions to manage this risk.	The Mill Burn Scheme is progressing well and planned to be completed within the 1 FRM Cycle delivery timescale as outlined in the Ayrshire Local Flood Risk Management Plan.

Flood protections scheme/works		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.			
Flood protection study	G	A shoreline management plan is recommended, this study is not limited to Potentially Vulnerable Areas but should cover the whole of the Ayrshire coastline and any areas beyond this which may be influenced by changes in coastal processes. The study should investigate flooding and coastal erosion, wave overtopping and the current coastal protection offered. The study will help to develop an understanding of coastal issues and identify where further work may be required to mitigate against flooding.		The Ayrshire Shoreline Management Plan is completed and adopted by both North and South Ayrshire Councils in September/October 2018.	The Ayrshire Shoreline Management Plan will be reviewed in every 6 years.
Strategic mapping and modelling	R	SEPA will update strategic surface water mapping in some parts of this	01/01/2016-31/12/2016	SEPA's current Surface water hazard maps use design rainfall estimates based on FEH99 methodology, this	This action will not be taken forwards as described. SEPA will develop new Surface water flood



		catchment to improve understanding of flood risk.		has now been superseded by FEH13 methodology. The FEH13 dataset contains the latest science and understanding of rainfall across Scotland and represents a significant change in rainfall amounts compared to FEH99 dataset, as such it is no longer consider appropriate to deliver this action as originally intended.	hazard maps over the remainder of Cycle 1. It is anticipated that updated flood mapping from this revised action will be available early in Cycle 2. Alongside this SEPA is investigating the feasibility of developing an interim approach to assess the change in Surface water hazard (and risk) associated with FEH13, such that we could consider it in the development of the 2021 FRM Strategies.
Maintain flood protection scheme*	G	North Ayrshire Council to continue to inspect and maintain the existing Millport Coastal Flood defences, which will continue to manage flooding according to the design standard at the time of construction.	01/06/2016-01/02/2022	The Millport Flood defences have an annual inspection regime along with a principal inspection every 3 years, to ensure integrity and peak efficiency.	The sea defences are maintained as part of the Council's coastal asset management programme. The Council will continue to inspect and maintain the flood protection structures within the catchment.
Maintain flood warning Millport Seafront flood warning area	G	SEPA will continue to maintain the Millport Seafront flood warning area, which is part of the Firth of Clyde coastal flood warning scheme. When flood events occur in an area with a flood warning service, SEPA will seek to verify and validate the	22/12/2015-22/06/2022	SEPA has recently reviewed and recalibrated the Firth of Clyde flood forecasting model. SEPA has updated the Millport Seafront flood warning area (part of the Firth of Clyde coastal flood warning scheme) renaming this to 'Millport'.	SEPA will continue to operate the flood warning service

		warning service. SEPA will use feedback and post-event data to ensure that our flood warning service is timely and accurate.			
Flood forecasting	G	<p>SEPA will continue to maintain the the Millport Seafront flood warning area, which is part of the Firth of Clyde coastal flood warning scheme. When flood events occur in an area with a flood warning service, SEPA will seek to verify and validate the warning service.</p> <p>SEPA will use feedback and post-event data to ensure that our flood warning service is timely and accurate.</p>	22/12/2015-22/06/2022	SEPA has continued to operate the Scottish Flood Forecasting Service (SFFS) Partnership with the Met Office with daily, national Flood Guidance Statements issued to Category 1 and 2 agencies (such as emergency responders, local authorities and other organisations with flooding management duties) and regional Flood Alerts issued to the public. Each daily statement gives an assessment of the risk of flooding for the next five days to enable these organisations to put preparations in place to reduce the impact of flooding. SEPA's Flood Alert service is freely available to everyone and enables communities to be aware and prepared to reduce the impacts of flooding.	SEPA will continue and improve the Scottish Flood Forecasting Service (SFFS) with the Met Office, with daily Flood Guidance Statements and regional Flood Alerts issued as required to enable communities and responders to reduce the impacts of flooding. SEPA is currently exploring options to develop a public version of the daily Flood Guidance Statement to provide better and earlier information to the public.
Self help	G	Everyone is responsible for protecting themselves and their property from flooding. Property and business owners can take simple	01/06/2016-22/06/2022	Community Engagement includes, PLP exhibitions, selection, surveys and appropriate and relevant	

		<p>steps to reduce damage and disruption to their homes and businesses should flooding happen. This includes preparing a flood plan and flood kit, installing property level protection, signing up to Floodline The Councils, SEPA and Scottish Water will continue to engage with responsible Authorities and all other stakeholders, including community groups and the public to raise awareness of flood risk and how those affected can be better prepared. Further detail can be found in the Councils and Scottish Flood Forum websites.</p>		<p>information to enable clients to make the right decisions.</p>	
Awareness raising	G	<p>North Ayrshire Council, SEPA and Scottish Water collectively work to raise awareness of flood risk and how those affected can be better prepared. Through the continued development of flood schemes and studies at higher risk locations, officers from the Council's Flood Risk Management Team attend community council events to discuss elements of flood risk management.</p>	22/12/2015-22/06/2022	<p>SEPA's principle awareness raising approaches have been through:</p> <ol style="list-style-type: none"> <li>1. Direct campaigning and general awareness raising</li> <li>2. Education and tools</li> <li>3. Partnership delivery development</li> </ol> <p>North Ayrshire Council general awareness raising is a continuous activity via NAC website for all Ayrshire,</p>	<p>SEPA will continue to raise awareness of flood risk through direct campaigning, general awareness raising, developing education and engagement tools, creating new partnerships and improving its flood forecasting and warning services (e.g. Scottish Flood Forecasting Service and Floodline). This will continue with many of the actions reported for</p>

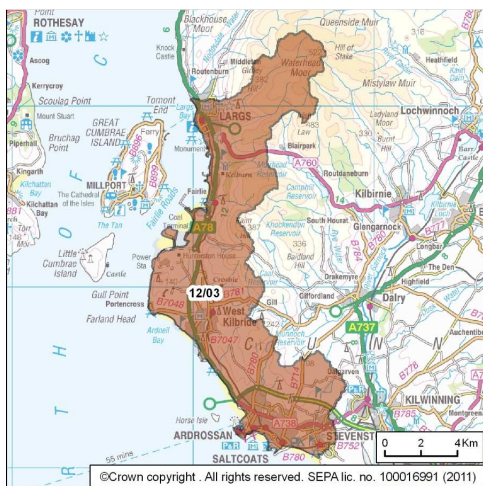
		<p>Across Scotland, SEPA will create and share communication and education resources with other responsible authorities. These resources will include awareness campaigns, media and marketing activity and promotion of SEPA's flood forecasting and warning services (Floodline). Scottish Water will provide targeted flooding communications for Scottish Water specific activities and raise awareness by producing and supplying targeted information to the public on large capital projects and detailed local studies.</p>		<p>Supporting Local Flood Emergency Groups is an occasional activity, Project related public consultations affecting Largs carried out.</p>	<p>the interim progress summary. Further information is contained within SEPA's Flood Warning Development Framework, published in 2017 and for the period 2017 to 2021. Raising Awareness will form part of each of the 3 key themes identified:</p> <ul style="list-style-type: none"> <li>• Aim 1: Maintenance of existing and delivery of new flood warning schemes.</li> <li>• Aim 2: Development and innovation.</li> <li>• Aim 3: Engagement with partners and customers</li> </ul> <p>Campaign Calendar for 2018/19 in March/April 2019 Proposed for North Ayrshire; Focus weeks - on flooding proposed in 2018/19 for North Ayrshire;</p>
Maintenance	G	<p>Local authorities have a duty to assess watercourses and carry out clearance and repair works where such works would substantially reduce flood risk. They produce</p>	01/06/2016-01/06/2022	<p>NAC is inspecting and monitoring the Local Authority owned coastal flood protection structures in Great Cumbrae. The regularity of coastal</p>	<p>The Council will continue to inspect and maintain watercourse screens and other relevant Council assets.</p>

		schedules of clearance and repair works and make these available for public inspection. Scottish Water undertake risk based inspection, maintenance and repair on the public sewer network. Asset owners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk.		inspections are risk based and varies between 6 month and 3 years.	
Emergency plans/response	G	Providing an emergency response to flooding is the responsibility of many organisations, including local authorities, the emergency services and SEPA. Effective management of an emergency response relies on emergency plans that are prepared under the Civil Contingencies Act 2004 by Category 1 and 2 Responders. Scottish Water are a Category 2 responder under the Civil Contingencies Act 2004 and will support regional and local resilience partnerships as required. The emergency response by these organisations is coordinated through	01/06/2016-01/06/2022	NAC is in the last stage to review the newly developed town by town-based Emergency Plans,	The Ayrshire Civil Contingencies team is responsible for producing the Civil Contingencies Plan, which outlines the management and operational arrangements that the Councils will follow in the event of an emergency as well as encouraging other agencies to prepare for their role. The Councils will contribute to the production and review of the Civil Contingencies Plan and the Emergency Plan for Severe Weather and Flooding, as required. This response may be supported by the work of

		regional and local resilience partnerships. This response may be supported by the work of voluntary organisations.			voluntary organisations. Completion of the town by town Emergency Plan for North Ayrshire is expected in 2019
Planning policies	G	Scottish Planning Policy and accompanying Planning Advice Notes set out Scottish Ministers' priorities for the operation of the planning system and for the development and use of land. In terms of flood risk management, the policy supports a catchment-scale approach to sustainable flood risk management and aims to build the resilience of our cities and towns, encourage sustainable land management in our rural areas, and to address the long-term vulnerability of parts of our coasts and islands. Under this approach, new development in areas with medium to high likelihood of flooding should be avoided.	01/06/2016-01/06/2022	The Proposed Local Development Plan (LDP) 2 has gone through public Consultation in 2017/18 approved by the Council on the 17 April 2018. The next stage is the examination stage by Scottish Minister. The Council completed a Strategic Flood Risk Assessment for the proposed LDP2. In addition, we are developing (in partnership with South Ayrshire Council) an Ayrshire Shoreline Management Plan (SMP). This study will prompt land use and policy changes and recommend further studies to allow physical protective measures to take place in the future.	The Council's planning policies will be reviewed periodically to ensure that all current national policies are implemented and that the recommendations of strategic studies, such as the Ayrshire Shoreline Management Plan, Surface Water Management Plans etc., are considered.

## 4.3 Largs to Stevenston (Potentially Vulnerable Area 12/03)

Local Plan District	Local authority	Main catchment
Ayrshire	North Ayrshire Council	Saltcoats to Largs coastal



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### Summary of Progress for Largs to Stevenston

There are approximately 960 residential properties at risk of flooding. The Annual Average Damages are approximately £1.2 million. Further information can be found in the Ayrshire Local FRMP under PVA 12/03, please click [here](#).

Key progress has been made with the start of the Stevenston Point ICS Study, which will be followed by the Surface Water Management Plan for the Three Towns and Kilwinning. The Ayrshire Shoreline Management Plan is completed and adopted by both North and South Ayrshire Councils in September/October 2018.

The detailed design is complete for the Keppen Burn, Fairlie Project and will be submitted for National Prioritisation.

### Overview of actions to manage flooding in Largs to Stevenston

PVA	Flood protections scheme/works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Strategic mapping and modelling SEPA	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Emergency plans/response	Planning policies
12/03	G			G		G		R	G	G	G		G	G	G	G	G	G

## Summary of progress of actions to manage flood risk in the Largs to Stevenston (PVA 12/03)

Action	Status	Description	Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
Flood protections scheme/works		North Ayrshire Council, Transport Scotland and Network Rail are all working in partnership on the Keppen Burn Culvert upgrade. All three organisations have an approved prioritises worklist for the next 3-5 years based on the organisations own objectives and funding availability. The Keppen Burn Culvert upgrade will be assessed by all three organisations separately and will fit into the already prioritised worklist.	01/06/2016-01/06/2022	The Keppen Burn Culvert Detailed design is completed with economic assessment.	Additional hydraulic checks needs to be carried prior to submitting the scheme to SEPAs National Prioritisation process to seek Government fund.
Flood protections scheme/works	G	Network Rail will carry out civil engineering work which will reduce flood risk to identified sections of the rail network within this PVA, including work to Saltcoats Coastal Defence.	01/01/2019-31/12/2024	Saltcoats Coastal Defence (CD 200/433). Works completed in 2016 included filling voids, wall toe protection and concrete repairs along 700m length of wall to prevent water ingress.	Scheme completed.



Flood protection study		A study is planned to further investigate the river and coastal flood risk in Largs and if there is significant interaction between the two. The study will look at updating the existing modelling on the Gogo Water, and further investigate enhancing and extending the existing coastal defences.	01/06/2016-01/06/2022	Gogo Water model upgrade with NFM consideration is completed.	The Study completed.
Flood protection study	G	A shoreline management plan is recommended, this study is not limited to Potentially Vulnerable Areas but should cover the whole of the Ayrshire coastline and any areas beyond this which may be influenced by changes in coastal processes. The study should investigate flooding and coastal erosion, wave overtopping and the current coastal protection offered. The study will help to develop an understanding of coastal issues and identify where further work may be required to mitigate against flooding.	01/06/2016-01/06/2022	The Ayrshire Shoreline Management Plan is completed and adopted by both North and South Ayrshire Councils in September/October 2018.	The Ayrshire Shoreline Management Plan will be reviewed in every 6 years.
Surface water plan/study	G	An integrated catchment study covering the Stevenston Point catchment will be carried out. This	01/06/2016-01/06/2022	Flow surveys, manhole surveys and ancillary surveys have been completed. The Integrated Catchment	Model verification and Catchment Flood Assessment to be completed.

		study will help support the surface water management planning process in Kilwinning, Saltcoats, Ardrossan and Stevenston. The study will improve knowledge and understanding of the interactions between the above ground and below ground drainage network e.g. with the sewer network, watercourses and the sea.		Model has been built and the verification is ongoing.	On track to deliver within agreed LOCAL FRMP timescales.
Surface water plan/study		North Ayrshire Council will develop a surface water management plan or plans to cover Kilwinning, Saltcoats, Ardrossan and Stevenston which set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives. Scottish Water will provide local knowledge and understanding of the sewer network. This includes Scottish Water corporate data (as applicable) and outputs of the Stevenston Point integrated catchment study and Section 16 modelling, to assist with	01/06/2016-01/06/2022	The Surface Water Management Plan for the three Town Area and Kiwinning is started in June 2018.	The initial data gathering and review is ongoing. The Stevenston Point ICS Needs Report will assist in producing this plan when available.

		the surface water management planning process.			
Strategic mapping and modelling	R	<p>SEPA will seek to develop flood mapping in the Ayr to Ardrossan area to improve understanding of coastal flood risk. The extent and timing of improvements will depend on detailed scoping and data availability. Where this work coincides with local authority studies, SEPA will work collaboratively to ensure consistent modelling approaches are applied. The coastal mapping and modelling process will start in 2016, with early work focussing on methodology development and data collection. Once this stage has been completed a thorough review will be carried out to identify the final mapping improvements that can be made in the area.</p>	22/12/2015-22/06/2022	<p>Following the establishment of a coastal flood hazard map development framework and characterisation of the coastline, several projects are currently underway at this location:</p> <ul style="list-style-type: none"> <li>• Development of a national coastal joint probability dataset;</li> <li>• Update to the UK design extreme sea level dataset These projects/ datasets will inform a future coastal modelling and mapping project for the Firth of Clyde.</li> </ul>	It is anticipated that this action will progress to a study prior to the end of Cycle 1 however completion is likely to be in early Cycle 2. Topographic survey will be necessary prior to any modelling study.
Strategic mapping and modelling - Section 16 assessment		Scottish Water will undertake further investigation and modelling in the Three Town sewer catchment to improve knowledge and understanding of flood risk in this	01/01/2018-31/12/2020	The Scottish Water assessment of flood risk within the sewer catchment has been completed.	The assessment is now completed and to be shared with Local Authority.

		area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.			
Maintain flood protection scheme*	G	Largs Flood Protection Scheme was constructed in 2002 and consists of a concrete seawall from Old Fish Quay to Gogo Water. This scheme built to provide protection to the area up to a 200-year flood.  The Gogo Street Flood Protection Scheme was completed in 2013.	01/06/2016-01/06/2022	North Ayrshire Council will continue to inspect and maintain these schemes. The Largs Flood Protection Scheme has an annual inspection regime and in every 3 years a principal inspection will be carried. The defences will be maintained as part of the Council's asset management programme.	Review of asset performance and maintenance work is ongoing for Largs Sea wall. The Council will continue to inspect and maintain the flood protection structures within the catchment.
Maintain flood protection scheme*		Saltcoats Flood Protection Scheme was constructed in 2006 and consists of breakwaters, seawalls and flood banks at Outer Nebbock. This scheme provides protection to the area up to a 200-year flood.	01/06/2016-01/06/2022	North Ayrshire Council will continue to inspect and maintain these schemes. The Largs Flood Protection Scheme has an annual inspection regime and in every 3 years a principal inspection will be carried. The defences will be maintained as part of the Council's asset management programme.	Review of asset performance is ongoing for Saltcoats Sea wall. The Council will continue to inspect and maintain the flood protection structures within the catchment.
Maintain flood warning Largs Fort Street, Largs Seafront and Saltcoats Harbour flood warning areas	G	SEPA will continue to maintain the Largs Fort Street, Largs Seafront and Saltcoats Harbour flood warning areas, which are part of the Firth of Clyde coastal flood warning scheme. When flood events occur in an area with a flood warning service,	22/12/2015-22/06/2022	SEPA has recently reviewed and recalibrated the Firth of Clyde flood forecasting model. SEPA has merged the Largs Seafront and the Largs Fort Street flood warning areas (part of the Firth of Clyde coastal flood warning scheme) to create a new flood warning	SEPA will continue to operate the flood warning service.

		SEPA will seek to verify and validate the warning service. SEPA will use feedback and post-event data to ensure that our flood warning service is timely and accurate.		area for 'Largs'. SEPA will continue to maintain the Saltcoats Harbour flood warning area.	
Flood forecasting	G	The Scottish Flood Forecasting Service is a joint initiative between SEPA and the Met Office that produces daily, national flood guidance statements which are issued to Category 1 and 2 Responders. The service also provides information which allows SEPA to issue flood warnings, giving people a better chance of reducing the impact of flooding on their home or business. For more information please visit SEPA's website.	22/12/2015-22/06/2022	SEPA has continued to operate the Scottish Flood Forecasting Service (SFFS) Partnership with the Met Office with daily, national Flood Guidance Statements issued to Category 1 and 2 agencies (such as emergency responders, local authorities and other organisations with flooding management duties) and regional Flood Alerts issued to the public. Each daily statement gives an assessment of the risk of flooding for the next five days to enable these organisations to put preparations in place to reduce the impact of flooding. SEPA's Flood Alert service is freely available to everyone and enables communities to be aware and prepared to reduce the impacts of flooding.	SEPA will continue and improve the Scottish Flood Forecasting Service (SFFS) with the Met Office, with daily Flood Guidance Statements and regional Flood Alerts issued as required to enable communities and responders to reduce the impacts of flooding. SEPA is currently exploring options to develop a public version of the daily Flood Guidance Statement to provide better and earlier information to the public.
Self help	G	Everyone is responsible for protecting themselves and their property from flooding. Property and	01/04/2016-22/06/2022	Community Engagement includes, PLP exhibitions, selection, surveys and appropriate and relevant	Ongoing community PLP training, Flood Warden and resilience group promotion.

		business owners can take simple steps to reduce damage and disruption to their homes and businesses should flooding happen. This includes preparing a flood plan and flood kit, installing property level protection, signing up to Floodline The Councils, SEPA and Scottish Water will continue to engage with responsible Authorities and all other stakeholders, including community groups and the public to raise awareness of flood risk and how those affected can be better prepared. Further detail can be found in the Councils and Scottish Flood Forum websites.		information to enable clients to make the right decisions.	
Community flood action groups	G	Although not part of a community flood action group the public take an active interest in flooding issues within Largs and inform the Council about debris in the watercourse. North Ayrshire Council will liaise with the group through Community Council meetings and directly to the public.	01/06/2016-22/06/2022	North Ayrshire Council, SEPA and Scottish Water will continue to engage with responsible authorities and all other stakeholders, including community groups and the public to raise awareness of flood risk and how those affected can be better prepared.	NAC will continue the ongoing support for the Community Flood Group.

Maintenance	G	Local authorities have a duty to assess watercourses and carry out clearance and repair works where such works would substantially reduce flood risk. They produce schedules of clearance and repair works and make these available for public inspection. Scottish Water undertake risk based inspection, maintenance and repair on the public sewer network. Asset owners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk.	01/06/2016-01/06/2022	NAC has a 4 weekly maintenance regime for 50 trash screens, biennially we carry out 35km length watercourse inspections within the mainland and Arran. NAC have 225km coastline which has just under 300 identified coastal flood protection structures. The regularity of coastal inspections are risk based and varies between 6 month and 3 years.	The Council will continue to inspect and maintain watercourses, screens and other relevant Council assets.
Emergency plans/response	G	Providing an emergency response to flooding is the responsibility of many organisations, including local authorities, the emergency services and SEPA. Effective management of an emergency response relies on emergency plans that are prepared under the Civil Contingencies Act 2004 by Category 1 and 2 Responders. Scottish Water are a Category 2 responder under the	01/06/2016-01/06/2022	NAC is in the last stage to review the newly developed town by town based Emergency Plans,	The Ayrshire Civil Contingencies team is responsible for producing the Civil Contingencies Plan, which outlines the management and operational arrangements that the Councils will follow in the event of an emergency as well as encouraging other agencies to prepare for their role. The Councils will contribute to the production and review of the Civil

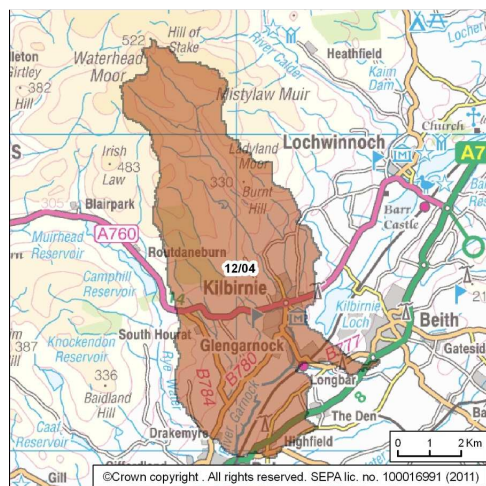
		Civil Contingencies Act 2004 and will support regional and local resilience partnerships as required. The emergency response by these organisations is coordinated through regional and local resilience partnerships. This response may be supported by the work of voluntary organisations.			Contingencies Plan and the Emergency Plan for Severe Weather and Flooding, as required. This response may be supported by the work of voluntary organisations. Completion of the town by town Emergency Plan for North Ayrshire is expected in 2019
Planning policies	G	Scottish Planning Policy and accompanying Planning Advice Notes set out Scottish Ministers' priorities for the operation of the planning system and for the development and use of land. In terms of flood risk management, the policy supports a catchment-scale approach to sustainable flood risk management and aims to build the resilience of our cities and towns, encourage sustainable land management in our rural areas, and to address the long-term vulnerability of parts of our coasts and islands. Under this approach, new development in areas with	01/06/2016-01/06/2022	The Proposed Local Development Plan (LDP) 2 has gone through public Consultation in 2017/18 approved by the Council on the 17 April 2018. The next stage is the examination stage by Scottish Minister. The Council completed a Strategic Flood Risk Assessment for the proposed LDP2. In addition, we are developing (in partnership with South Ayrshire Council) an Ayrshire Shoreline Management Plan (SMP). This study will prompt land use and policy changes and recommend further studies to allow physical protective measures to take place in the future.	The Council's planning policies will be reviewed periodically to ensure that all current national policies are implemented and that the recommendations of strategic studies, such as the Ayrshire Shoreline Management Plan, Surface Water Management Plans etc., are considered.



		medium to high likelihood of flooding should be avoided.			
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## 4.4 Upper Garnock Catchment (Potentially Vulnerable Area 12/04)

Local Plan District	Local authority	Main catchment
Ayrshire	North Ayrshire Council, Renfrewshire Council	River Garnock Catchment



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### Summary of Progress for Upper Garnock Catchment

There are approximately 810 residential properties at risk of flooding. The Annual Average Damages are approximately £790,000. Further information can be found in the Ayrshire Local FRMP under PVA 12/04, please click [here](#).

Key progress has been made with the Upper Garnock Flood Protection Scheme. An outline design was reached after extensive modelling and public consultation which includes creation of a dam and upstream reservoir north of Kilbirnie and some limited flood walls throughout Glengarnock and Dalry will protect over 200 properties and businesses in the Garnock Valley. The objections to the scheme are now resolved and the project is progressed to the detailed design stage.

The Garnock Valley has not been exposed to any significant recent weather events.

### Overview of actions to manage flooding in Upper Garnock Catchment

PVA	Flood protections scheme/works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Strategic mapping and modelling SEPA	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Emergency plans/response	Planning policies
12/04	G		G		G		G				G			G	G	G	G	G

## Summary of progress of actions to manage flood risk in the Upper Garnock Catchment (PVA 12/04)

Action	Status	Description	Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
Flood protections scheme/works	G	Council are progressing work on the proposed flood protection scheme on the upper River Garnock. The Outline design of the Upper Garnock Flood Protection Scheme and notification period completed in October 2015. A total of five objections were received during this period and the Council is currently trying to resolve these objections with the individuals before making a decision to confirm the scheme either with or without an unresolved objection.	01/06/2016-01/06/2022	An outline design was reached after extensive modelling and public consultation which includes creation of a dam and upstream reservoir north of Kilbirnie and some limited flood walls throughout Glengarnock and Dalry will protect over 200 properties and businesses in the Garnock Valley. The objections to the scheme are now resolved and the project is progressed to the detailed design stage. Deemed Planning Permissions Application is being granted by Scottish Government in January 2019.	Complete detailed design, construction work planned to begin in Summer 2020.
New flood warning River Garnock	G	SEPA will continue with the development and implementation of a flood warning scheme on the River Garnock. Detail of communities that will benefit from the	22/12/2015-31/12/2016	SEPA has completed development of a flood forecasting model for the River Garnock and has worked with	SEPA will continue to operate the flood warning service.

		warnings will be determined during scheme development.		local authorities to develop procedures for the new flood warning service. A new flood warning area has been introduced.	
Natural Flood Management Study	G	Further investigations will be undertaken which will focus on the potential benefits of natural flood management, including runoff control and sediment, to the tributaries of the River Garnock, and how these combined actions may reduce flood risk on the River Garnock.	01/06/2016-01/06/2022	The NFM Study will be considered in the second half of the delivery period starting 2020.	The work will be completed with close cooperation with SEPA.
Strategic mapping and modelling	G	Scottish Water will undertake further investigation and modelling in the Stevenson Point sewer catchment to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.	01/01/16-31/12/2020	The Scottish Water assessment of flood risk within the sewer catchment has started.	The assessment is on track to deliver within agreed LOCAL FRMP timescales.
Flood forecasting	G	SEPA will continue with the development and implementation of a flood warning scheme on the River Garnock. Detail of communities that will benefit from the warnings will be determined during scheme development.	22/12/2015-22/12/2022	SEPA has continued to operate the Scottish Flood Forecasting Service (SFFS) Partnership with the Met Office with daily, national Flood Guidance Statements issued to Category 1 and 2 agencies (such as emergency responders, local authorities and	SEPA will continue and improve the Scottish Flood Forecasting Service (SFFS) with the Met Office, with daily Flood Guidance Statements and regional Flood Alerts issued as required to enable communities and responders to reduce the impacts of flooding. SEPA is

				other organisations with flooding management duties) and regional Flood Alerts issued to the public. Each daily statement gives an assessment of the risk of flooding for the next five days to enable these organisations to put preparations in place to reduce the impact of flooding. SEPA's Flood Alert service is freely available to everyone and enables communities to be aware and prepared to reduce the impacts of flooding.	currently exploring options to develop a public version of the daily Flood Guidance Statement to provide better and earlier information to the public.
Self help	G	Everyone is responsible for protecting themselves and their property from flooding. Property and business owners can take simple steps to reduce damage and disruption to their homes and businesses should flooding happen. This includes preparing a flood plan and flood kit, installing property level protection, signing up to Floodline The Councils, SEPA and Scottish Water will continue to engage with responsible Authorities and all other stakeholders, including community groups and the	01/04/2016-22/06/2022	Community Engagement includes, PLP exhibitions, selection, surveys and appropriate and relevant information to enable clients to make the right decisions.	Ongoing community PLP training, Flood Warden and resilience group promotion.

		public to raise awareness of flood risk and how those affected can be better prepared. Further detail can be found in the Councils and Scottish Flood Forum websites.			
Awareness raising	G	<p>North Ayrshire Council, SEPA and Scottish Water collectively work to raise awareness of flood risk and how those affected can be better prepared. Through the continued development of flood schemes and studies at higher risk locations, officers from the Council's Flood Risk Management Team attend community council events to discuss elements of flood risk management. Across Scotland, SEPA will create and share communication and education resources with other responsible authorities. These resources will include awareness campaigns, media and marketing activity and promotion of SEPA's flood forecasting and warning services (Floodline). Scottish Water will provide targeted flooding communications for Scottish Water specific activities and raise awareness by producing and supplying targeted</p>	22/12/2015-22/06/2022	<p>SEPA's principle awareness raising approaches have been through:</p> <ol style="list-style-type: none"> <li>1. Direct campaigning and general awareness raising</li> <li>2. Education and tools</li> <li>3. Partnership delivery development</li> </ol> <p>North Ayrshire Council general awareness raising is a continuous activity via NAC website for all Ayrshire,</p> <p>Supporting Local Flood Emergency Groups is an occasional activity in Largs, Project related public consultations affecting Largs carried out.</p>	<p>SEPA will continue to raise awareness of flood risk through direct campaigning, general awareness raising, developing education and engagement tools, creating new partnerships and improving its flood forecasting and warning services (e.g. Scottish Flood Forecasting Service and Floodline). This will continue with many of the actions reported for the interim progress summary. Further information is contained within SEPA's Flood Warning Development Framework, published in 2017 and for the period 2017 to 2021. Raising Awareness will form part of each of the 3 key themes identified:</p> <ul style="list-style-type: none"> <li>• Aim 1: Maintenance of existing and delivery of new flood warning schemes.</li> </ul>

		information to the public on large capital projects and detailed local studies.			<ul style="list-style-type: none"> <li>• Aim 2: Development and innovation.</li> <li>• Aim 3: Engagement with partners and customers</li> </ul> <p>Campaign Calendar for 2018/19 in March/April 2019 Proposed for North Ayrshire; Focus weeks - on flooding proposed in 2018/19 for North Ayrshire;</p>
Maintenance	G	Local authorities have a duty to assess watercourses and carry out clearance and repair works where such works would substantially reduce flood risk. They produce schedules of clearance and repair works and make these available for public inspection. Scottish Water undertake risk-based inspection, maintenance and repair on the public sewer network. Asset owners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk.	01/06/2016-01/06/2022	NAC has a 4 weekly maintenance regime for trash screens, biennially we carry out watercourse inspections within the catchment.	The Council will continue to inspect and maintain watercourses, screens and other relevant Council assets.
Emergency plans/response	G	Providing an emergency response to flooding is the responsibility of many organisations, including local authorities,	01/06/2016-01/06/2022	NAC is in the last stage to review the newly developed town by town-based Emergency Plans,	The Ayrshire Civil Contingencies team is responsible for producing the Civil Contingencies Plan, which

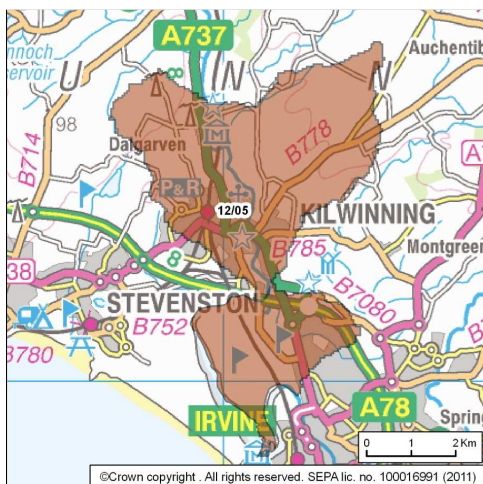
		<p>the emergency services and SEPA. Effective management of an emergency response relies on emergency plans that are prepared under the Civil Contingencies Act 2004 by Category 1 and 2 Responders. Scottish Water are a Category 2 responder under the Civil Contingencies Act 2004 and will support regional and local resilience partnerships as required. The emergency response by these organisations is coordinated through regional and local resilience partnerships. This response may be supported by the work of voluntary organisations.</p>			<p>outlines the management and operational arrangements that the Councils will follow in the event of an emergency as well as encouraging other agencies to prepare for their role. The Councils will contribute to the production and review of the Civil Contingencies Plan and the Emergency Plan for Severe Weather and Flooding, as required. This response may be supported by the work of voluntary organisations. Completion of the town by town Emergency Plan for North Ayrshire is expected in 2019</p>
Planning policies	G	<p>Scottish Planning Policy and accompanying Planning Advice Notes set out Scottish Ministers' priorities for the operation of the planning system and for the development and use of land. In terms of flood risk management, the policy supports a catchment-scale approach to sustainable flood risk management and aims to build the resilience of our cities and towns, encourage sustainable land management in our rural areas, and to address the</p>	01/06/2016-01/06/2022	<p>The Proposed Local Development Plan (LDP) 2 has gone through public Consultation in 2017/18 approved by the Council on the 17 April 2018. The next stage is the examination stage by Scottish Minister. The Council completed a Strategic Flood Risk Assessment for the proposed LDP2. In addition, we are developing (in partnership with South Ayrshire Council) an</p>	<p>The Council's planning policies will be reviewed periodically to ensure that all current national policies are implemented and that the recommendations of strategic studies, such as the Ayrshire Shoreline Management Plan, Surface Water Management Plans etc., are considered.</p>



		long-term vulnerability of parts of our coasts and islands. Under this approach, new development in areas with medium to high likelihood of flooding should be avoided.		Ayrshire Shoreline Management Plan (SMP). This study will prompt land use and policy changes and recommend further studies to allow physical protective measures to take place in the future.	
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## 4.5 Kilwinning (Potentially Vulnerable Area 12/05)

Local Plan District	Local authority	Main catchment
Ayrshire	North Ayrshire Council	River Garnock



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### Summary of Progress for Kilwinning

There are approximately 170 residential properties at risk of flooding. The Annual Average Damages is approximately £400,000. Further information can be found in the Ayrshire Local FRMP under PVA 12/05, please click [here](#).

Key progress has been made with the start of the Stevenston Point Integrated Catchment Study being developed in partnership with Scottish Water and the Surface Water Management Plan, which is due to be completed by 2019.

### Overview of actions to manage flooding in Kilwinning

PVA	Flood protections scheme/works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Strategic mapping and modelling SEPA	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Emergency plans/response	Planning policies
12/05			G	G		G	G				G			G	G	G	G	G

## Summary of progress of actions to manage flood risk in the Kilwinning (PVA 12/05)

Action	Status	Description	Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
New flood warning	G	<p>SEPA will continue with the development and implementation of a flood warning scheme on the River Garnock. Detail of communities that will benefit from the warnings will be determined during scheme development.</p> <p>Once implemented SEPA will continue to maintain the flood warning scheme. When flood events occur in an area with a flood warning service, SEPA will seek to verify and validate the warning service.</p> <p>SEPA will use feedback and post-event data to ensure that our flood warning service is timely and accurate.</p>	22/12/2015-22/06/2022	SEPA has completed development of a flood forecasting model for the River Garnock and has worked with local authorities to develop procedures for the new flood warning service. A new flood warning area has been introduced.	SEPA will continue to operate the flood warning service
Surface water plan/study		An integrated catchment study covering the Meadowhead catchment was carried out in SR10 2010-2015 to support the surface	22/12/2015-31/12/2021	Pre-Optioneering Catchment Plan and prioritisation stages completed.	Optioneering Stages of study to be completed.

		water management planning process in Kilmarnock, Greenholme, Irvine, Prestwick and Ayr. The study will improve knowledge and understanding of the interactions between the above ground and below ground drainage network e.g. with the sewer network, watercourses and the sea.			
Surface water plan/study	G	North Ayrshire Council will develop a surface water management plan or plans to cover Irvine and Kilwinning which set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives.	01/06/2016-01/06/2022	The Surface Water Management Plan for the Irvine, Meadowhead catchment is progressing. The initial data gathering and review is ongoing and planned to be completed by late spring 2019.	The implementation of the findings will be considered in the next cycle of FRM Plan.
Surface water plan/study	G	An integrated catchment study covering the Stevenston Point catchment will be carried out to support the surface water management planning process in Kilwinning, Saltcoats, Ardrossan and Stevenston. The study will improve knowledge and understanding of the interactions between the above ground and below ground drainage	01/06/2016-01/06/2022	Flow surveys, manhole surveys and ancillary surveys have been completed. The Integrated Catchment Model has been built and the verification is ongoing.	Model verification and Catchment Flood Assessment to be completed. On track to deliver within agreed LOCAL FRMP timescales.

		network e.g. with the sewer network, watercourses and the sea.			
Surface water plan/study	G	North Ayrshire Council will develop a surface water management plan or plans to cover Kilwinning, Saltcoats, Ardrossan and Stevenston which set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives. Scottish Water will provide local knowledge and understanding of the sewer network. This includes Scottish Water corporate data (as applicable) and outputs of the Stevenston Point integrated catchment study and Section 16 modelling, to assist with the surface water management planning process.	01/06/2016-01/06/2022	The Surface Water Management Plan for the three Town Area and Kilwinning is started in June 2018.	The initial data gathering and review is ongoing. The Stevenston Point ICS Needs Report will assist in producing this plan when available.
Strategic mapping and modelling - Section 16 assessment	G	Scottish Water will undertake further investigation and modelling in the Three Town sewer catchment to improve knowledge and understanding of flood risk in this area as required under Section 16 of	01/01/2016-31/12/2020	The Scottish Water assessment of flood risk within the sewer catchment has been completed.	The assessment is now completed and shared with Local Authority.

		the Flood Risk Management (Scotland) Act 2009.			
Flood forecasting	G	SEPA has continued to operate the Scottish Flood Forecasting Service (SFFS) Partnership with the Met Office with daily, national flood guidance statements issued to Category 1 and 2 agencies (such as emergency responders, local authorities and other organisations with flooding management duties). Each daily statement gives an assessment of the risk of flooding for the next five days to help enable these organisations to put preparations in place to reduce the impact of flooding. SEPA's Flood Alert service is freely available to everyone and helps enable communities to be aware and prepared to reduce the impacts of flooding.	22/12/2015-22/06/2022	SEPA has continued to operate the Scottish Flood Forecasting Service (SFFS) Partnership with the Met Office with daily, national Flood Guidance Statements issued to Category 1 and 2 agencies (such as emergency responders, local authorities and other organisations with flooding management duties) and regional Flood Alerts issued to the public. Each daily statement gives an assessment of the risk of flooding for the next five days to enable these organisations to put preparations in place to reduce the impact of flooding. SEPA's Flood Alert service is freely available to everyone and enables communities to be aware and prepared to reduce the impacts of flooding.	SEPA will continue and improve the Scottish Flood Forecasting Service (SFFS) with the Met Office, with daily Flood Guidance Statements and regional Flood Alerts issued as required to enable communities and responders to reduce the impacts of flooding. SEPA is currently exploring options to develop a public version of the daily Flood Guidance Statement to provide better and earlier information to the public.
Self help	G	Everyone is responsible for protecting themselves and their property from flooding. Property and business owners can take simple steps to reduce damage and	01/04/2016-22/06/2022	Community Engagement includes, PLP exhibitions, selection, surveys and appropriate and relevant information to enable clients to make the right decisions.	Ongoing community PLP training, Flood Warden and resilience group promotion.

		<p>disruption to their homes and businesses should flooding happen. This includes preparing a flood plan and flood kit, installing property level protection, signing up to Floodline</p> <p>The Councils, SEPA and Scottish Water will continue to engage with responsible Authorities and all other stakeholders, including community groups and the public to raise awareness of flood risk and how those affected can be better prepared. Further detail can be found in the Councils and Scottish Flood Forum websites.</p>			
Awareness raising	G	<p>North Ayrshire Council, SEPA and Scottish Water collectively work to raise awareness of flood risk and how those affected can be better prepared. Through the continued development of flood schemes and studies at higher risk locations, officers from the Council's Flood Risk Management Team attend community council events to discuss elements of flood risk management. Across Scotland, SEPA will create</p>	22/12/2015-22/06/2022	<p>SEPA's principle awareness raising approaches have been through:</p> <ol style="list-style-type: none"> <li>1. Direct campaigning and general awareness raising</li> <li>2. Education and tools</li> <li>3. Partnership delivery development</li> </ol> <p>North Ayrshire Council general awareness raising is a continuous activity via NAC website for all Ayrshire,</p>	<p>SEPA will continue to raise awareness of flood risk through direct campaigning, general awareness raising, developing education and engagement tools, creating new partnerships and improving its flood forecasting and warning services (e.g. Scottish Flood Forecasting Service and Floodline). This will continue with many of the actions reported for the interim progress summary. Further</p>

		and share communication and education resources with other responsible authorities. These resources will include awareness campaigns, media and marketing activity and promotion of SEPA's flood forecasting and warning services (Floodline). Scottish Water will provide targeted flooding communications for Scottish Water specific activities and raise awareness by producing and supplying targeted information to the public on large capital projects and detailed local studies.		Supporting Local Flood Emergency Groups is an occasional activity in Largs, Project related public consultations affecting Largs carried out.	information is contained within SEPA's Flood Warning Development Framework, published in 2017 and for the period 2017 to 2021. Raising Awareness will form part of each of the 3 key themes identified: <ul style="list-style-type: none"> <li>• Aim 1: Maintenance of existing and delivery of new flood warning schemes.</li> <li>• Aim 2: Development and innovation.</li> <li>• Aim 3: Engagement with partners and customers</li> </ul> Campaign Calendar for 2018/19 in March/April 2019 Proposed for North Ayrshire; Focus weeks - on flooding proposed in 2018/19 for North Ayrshire;
Maintenance	G	Local authorities have a duty to assess watercourses and carry out clearance and repair works where such works would substantially reduce flood risk. They produce schedules of clearance and repair works and make these available for	01/06/2016-01/06/2022	NAC has a 4 weekly maintenance regime for 50 trash screens, biennially we carry out 35km length watercourse inspections within the mainland and Arran. NAC have 225km coastline which has just under 300 identified coastal flood protection structures. The	The Council will continue to inspect and maintain watercourses, screens and other relevant Council assets.



		public inspection. Scottish Water undertake risk based inspection, maintenance and repair on the public sewer network. Asset owners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk.		regularity of coastal inspections are risk based and varies between 6 month and 3 years.	
Emergency plans/response	G	Providing an emergency response to flooding is the responsibility of many organisations, including local authorities, the emergency services and SEPA. Effective management of an emergency response relies on emergency plans that are prepared under the Civil Contingencies Act 2004 by Category 1 and 2 Responders. Scottish Water are a Category 2 responder under the Civil Contingencies Act 2004 and will support regional and local resilience partnerships as required. The emergency response by these organisations is coordinated through regional and local resilience partnerships. This response may be	01/06/2016-01/06/2022	NAC is in the last stage to review the newly developed town by town based Emergency Plans,	The Ayrshire Civil Contingencies team is responsible for producing the Civil Contingencies Plan, which outlines the management and operational arrangements that the Councils will follow in the event of an emergency as well as encouraging other agencies to prepare for their role. The Councils will contribute to the production and review of the Civil Contingencies Plan and the Emergency Plan for Severe Weather and Flooding, as required. This response may be supported by the work of voluntary organisations. Completion of the town by town Emergency Plan for North Ayrshire is expected in 2019

		supported by the work of voluntary organisations.			
Planning policies	G	<p>Scottish Planning Policy and accompanying Planning Advice Notes set out Scottish Ministers' priorities for the operation of the planning system and for the development and use of land. In terms of flood risk management, the policy supports a catchment-scale approach to sustainable flood risk management and aims to build the resilience of our cities and towns, encourage sustainable land management in our rural areas, and to address the long-term vulnerability of parts of our coasts and islands. Under this approach, new development in areas with medium to high likelihood of flooding should be avoided.</p>	01/06/2016-01/06/2022	<p>The Proposed Local Development Plan (LDP) 2 has gone through public Consultation in 2017/18 approved by the Council on the 17 April 2018. The next stage is the examination stage by Scottish Minister. The Council completed a Strategic Flood Risk Assessment for the proposed LDP2. In addition, we are developing (in partnership with South Ayrshire Council) an Ayrshire Shoreline Management Plan (SMP). This study will prompt land use and policy changes and recommend further studies to allow physical protective measures to take place in the future.</p>	<p>The Council's planning policies will be reviewed periodically to ensure that all current national policies are implemented and that the recommendations of strategic studies, such as the Ayrshire Shoreline Management Plan, Surface Water Management Plans etc., are considered.</p>

## Summary of Progress for River Irvine and Annick Water

Key progress has been made with the start of the Upper and Lower Irvine Valley Flood Protection Study, including option appraisal. A surface water management plan, natural flood management options and the viability of property level protection has also progressed.

The River Irvine Catchment has been exposed to a number of significant recent weather events during Storm Edmund and Storm Frank in 2016.

## Overview of actions to manage flooding in River Irvine and Annick Water

PVA	Flood protections scheme/works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Strategic mapping and modelling SEPA	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Emergency plans/response	Planning policies
12/06			A	G		G	G	R	G	G	G	G		G	G	G	G	G

## Summary of progress of actions to manage flood risk in the River Irvine and Annick Water (PVA 12/06)

Action	Status	Description	Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
New Flood Warning Newmilns, Galston, Kilmarnock, Irvine and Stewarton	A	<p>The scope of a new flood warning for the River Irvine is currently being examined. The area under consideration for a new flood warning includes properties in Newmilns affected by flooding from the River Irvine. The risk to Galston will be reviewed using the councils new flood study for the River Irvine. This could impact on the potential for provision of warnings at Galston. For areas where the risk is from the Irvine an update to the flood forecasting system will be required. Another area under consideration includes properties in Kilmarnock affected by flooding from the Kilmarnock Water and River Irvine. An update to the existing flood forecasting system will be required to deliver flood warning in this</p>	20/03/2016 - 19/06/2020	Scoping is currently being conducted for the River Irvine, Kilmarnock Water and Annick Water. A review of the flood risk to Galston has established that it is not feasible to develop a flood warning for the main source of risk (Burn Anne).	Full scoping, infrastructure and a flood forecasting system will be required to develop a new flood warning scheme in this area.

		location. Flood warning is also required for properties mainly in Irvine and Stewarton affected by flooding from the Annick Water. Full scoping, infrastructure and a flood forecasting system will be required to develop a new flood warning scheme in this area. develop a new flood warning scheme in this area.			
Flood protection study	G	Upper Irvine Valley Flood Study and option appraisal	01/06/2016-01/06/2022	The Upper River Irvine Valley Flood Study including fluvial modelling is completed. The option appraisal is progressing according to programme.	If feasible options are identified they will be submitted to the National Prioritisation process to seek funding from Scottish Government for implementation.
Surface water plan/study		An integrated catchment study covering the Meadowhead catchment was carried out in SR10 (2010-2015). This study will help to support the surface water management planning process in Kilmarnock, Greenholm, Irvine, Prestwick and Ayr. The study has improved knowledge and understanding of flood risk and interactions between the above ground and below ground drainage network e.g. with the sewer network and watercourses. The Optioneering phase of this study, to establish the preferred solution(s) to the flooding issues, is now being progressed.	01/06/2016-01/06/2022	Pre Optioneering Catchment Plan and prioritisation stages completed.	The Optioneering Phase to be completed. The implementation of the findings will be considered in coordination with Scottish Water in the next cycle of FRM Plan.

Surface water plan/study	G	North and East Ayrshire Council will develop a surface water management plan or plans to cover Irvine and Kilmaronock which set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives.	01/06/2016-01/06/2022	The Surface Water Management Plan for the Irvine, Meadowhead catchment is progressing. The initial data gathering and review is ongoing and planned to be completed by February 2019.  The Surface water management Plan for East Ayrshire Council catchments are currently at tender stage and planned to be complete within 2020.	The implementation of the findings will be considered in the next cycle of FRM Plan.
Strategic mapping and modelling River Irvine mapping improvements	G	SEPA will work with East Ayrshire Council to improve the understanding of flood risk along the River Irvine. The Council are leading on the production of the River Irvine modelling with SEPA providing advice and reviewing information during the process. SEPA will update strategic surface water mapping in some parts of this catchment to improve understanding of flood risk. The inclusion of additional surface water hazard data resulting from the completion of local authority surface water management plans will be	01/01/2016-31/12/2020	A screening exercise to characterise the catchment and identify the data necessary to support mapping improvements has been undertaken. Two local authority studies are currently underway at this location. These projects will collectively enable the revision of flood mapping within the River Irvine catchment.	

		considered as these projects are completed.			
Strategic mapping and modelling Pluvial mapping update	R	SEPA will update strategic surface water mapping in some parts of this catchment to improve understanding of flood risk. The inclusion of additional surface water hazard data resulting from the completion of local authority surface water management plans will be considered as these projects are completed.	01/01/2016-31/12/2020	SEPA's current Surface water hazard maps use design rainfall estimates based on FEH99 methodology, this has now been superseded by FEH13 methodology. The FEH13 dataset contains the latest science and understanding of rainfall across Scotland and represents a significant change in rainfall amounts compared to FEH99 dataset, as such it is no longer consider appropriate to deliver this action as originally intended.	<p>This action will not be taken forwards as described. SEPA will develop new Surface water flood hazard maps over the remainder of Cycle 1. It is anticipated that updated flood mapping from this revised action will be available early in Cycle 2.</p> <p>Alongside this SEPA is investigating the feasibility of developing an interim approach to assess the change in Surface water hazard (and risk) associated with FEH13, such that we could consider it in the development of the 2021 FRM Strategies.</p>
Strategic mapping and modelling Section 16 Assessment		Scottish Water will undertake further investigation and modelling in the Meadowhead Point sewer catchment to improve knowledge and understanding of flood risk in this area as required under Section	01/01/2016-31/12/2020	The Meadowhead assessment of flood risk within the sewer catchment has been completed.	The meadowhead assessment is now completed and shared with Local Authority.

		16 of the Flood Risk Management (Scotland) Act 2009.			
Maintain flood protection scheme*	G	<p>The Kilmarnock Flood Protection Scheme was designed to mitigate flooding from the River Irvine in the Riccarton and Crookedholm areas of Kilmarnock. The scheme has a standard of protection of 100 years. The schemes currently constructed form two main types:</p> <p>Walled structures maintained under the Annual Flap valve and Penstock Maintenance Contract; and earth embankments maintained by Panel engineers and supported by the annual grass cutting contract (to allow inspection).</p>	01/06/2016-01/06/2022	<p>EAC continues to carry out its maintenance contracts.</p> <p>In addition the Irvine Valley Flood Study is looking to identify any measures required to ensure these defences remain effective.</p>	The Council will continue to inspect and maintain the flood protection structures within the catchment.
Maintain flood protection scheme*	G	<p>Defences along the banks of the Irvine River protect properties in the Waterside up to a 20 year flood. North Ayrshire Council will continue to inspect and maintain the River Irvine flood defences at Waterside, which will continue to manage flooding according to the design standard at the time of construction. Given the relatively minor nature of</p>	01/06/2016-01/06/2022	The Council will continue to inspect and maintain the flood protection structures within the catchment.	The Council will continue to inspect and maintain the flood protection structures within the catchment.



		<p>the structures, the inspection works will be scheduled as part of the Council's duties in accordance with Sections 18 of the Flood Risk Management (Scotland) Act 2009.</p> <p>In 2014 the River embankment stabilisation was carried out, and recently the surface water outfall valves were inspected and proposed to be lowered/replaced as part of the surface water flood mitigation effort for the area. If the defences remain the same, levels of flood risk are likely to increase over time as a consequence of climate change.</p>			
<p>Maintain flood warning Irvine Waterside/Low Green flood warning areas in Irvine and the Queen's Drive, New Mill Road and Samson Avenue flood warning areas in Kilmarnock</p>	G	<p>SEPA will continue to maintain the Irvine Waterside/Low Green flood warning area in Irvine and the Queen's Drive, New Mill Road and Samson Avenue flood warning areas in Kilmarnock which are part of the Irvine river flood warning scheme. When flood events occur in an area with a flood warning service, SEPA will seek to verify and validate the warning service. SEPA will use feedback and post-event data to</p>	<p>22/12/2015- 22/06/2022</p>	<p>SEPA has continued to operate the flood warning service</p>	<p>SEPA will continue to operate the flood warning service</p>

		ensure that our flood warning service is timely and accurate.			
Flood forecasting	G	The Scottish Flood Forecasting Service is a joint initiative between SEPA and the Met Office that produces daily, national flood guidance statements which are issued to Category 1 and 2 Responders. The service also provides information which allows SEPA to issue flood warnings, giving people a better chance of reducing the impact of flooding on their home or business. For more information please visit SEPA's website.	22/12/2015- 22/06/2022	SEPA has continued to operate the Scottish Flood Forecasting Service (SFFS) Partnership with the Met Office with daily, national Flood Guidance Statements issued to Category 1 and 2 agencies (such as emergency responders, local authorities and other organisations with flooding management duties) and regional Flood Alerts issued to the public. Each daily statement gives an assessment of the risk of flooding for the next five days to enable these organisations to put preparations in place to reduce the impact of flooding. SEPA's Flood Alert service is freely available to everyone and enables communities to be aware and prepared to reduce the impacts of flooding.	SEPA will continue and improve the Scottish Flood Forecasting Service (SFFS) with the Met Office, with daily Flood Guidance Statements and regional Flood Alerts issued as required to enable communities and responders to reduce the impacts of flooding. SEPA is currently exploring options to develop a public version of the daily Flood Guidance Statement to provide better and earlier information to the public.
Community flood action groups	G	Although not part of a community flood action group the public take an active interest in flooding issues within Galston and inform the Council about debris in the watercourse. East Ayrshire Council	01/06/2016- 22/06/2022	East Ayrshire Council, SEPA and Scottish Water will continue to engage with responsible authorities and all other stakeholders, including community groups and the public to	EAC will continue the ongoing support for the Community Flood Group.

		will liaise with the group through Community Council meetings and directly to the public.		raise awareness of flood risk and how those affected can be better prepared.	
Self help	G	Everyone is responsible for protecting themselves and their property from flooding. Property and business owners can take simple steps to reduce damage and disruption to their homes and businesses should flooding happen. This includes preparing a flood plan and flood kit, installing property level protection, signing up to Floodline The Councils, SEPA and Scottish Water will continue to engage with responsible Authorities and all other stakeholders, including community groups and the public to raise awareness of flood risk and how those affected can be better prepared. Further detail can be found in the Councils and Scottish Flood Forum websites.	01/04/2016-22/06/2022	Community Engagement includes, PLP exhibitions, selection, surveys and appropriate and relevant information to enable clients to make the right decisions.	Ongoing community PLP training, Flood Warden and resilience group promotion.
Awareness raising	G	North and East Ayrshire Councils, SEPA and Scottish Water collectively work to raise awareness of flood risk and how those affected	22/12/2015-22/06/2022	SEPA's principle awareness raising approaches have been through: 1. Direct campaigning and general awareness raising	SEPA will continue to raise awareness of flood risk through direct campaigning, general awareness raising, developing

Awareness raising	<p>can be better prepared. Through the continued development of flood schemes and studies at higher risk locations, officers from the Council's Flood Risk Management Team attend community council events to discuss elements of flood risk management. Across Scotland, SEPA will create and share communication and education resources with other responsible authorities. These resources will include awareness campaigns, media and marketing activity and promotion of SEPA's flood forecasting and warning services (Floodline). Scottish Water will provide targeted flooding communications for Scottish Water specific activities and raise awareness by producing and supplying targeted information to the public on large capital projects and detailed local studies.</p>		<p>2. Education and tools 3. Partnership delivery development</p> <p>North Ayrshire Council general awareness raising is a continuous activity via NAC website for all Ayrshire, Supporting Local Flood Emergency Groups is an occasional activity in the Catchment, Project related public consultations affecting Kilmarnock carried out.</p>	<p>education and engagement tools, creating new partnerships and improving its flood forecasting and warning services (e.g. Scottish Flood Forecasting Service and Floodline). This will continue with many of the actions reported for the interim progress summary. Further information is contained within SEPA's Flood Warning Development Framework, published in 2017 and for the period 2017 to 2021. Raising Awareness will form part of each of the 3 key themes identified:</p> <ul style="list-style-type: none"> <li>• Aim 1: Maintenance of existing and delivery of new flood warning schemes.</li> <li>• Aim 2: Development and innovation.</li> <li>• Aim 3: Engagement with partners and customers</li> </ul> <p>Campaign Calendar for 2018/19 in March/April 2019 Proposed for North Ayrshire;</p>
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					Focus weeks - on flooding proposed in 2018/19 for North Ayrshire;
Awareness raising	G	<p>East Ayrshire Council, SEPA and Scottish Water collectively work to raise awareness of flood risk and how those affected can be better prepared.</p> <p>Across Scotland, SEPA will create and share communication and education resources with other responsible authorities. These resources will include awareness campaigns, media and marketing activity and promotion of SEPA's flood forecasting and warning services (Floodline).</p> <p>Scottish Water will provide targeted flooding communications for Scottish Water specific activities and raise awareness by producing and supplying targeted information to the public on large capital projects and detailed local studies.</p> <p>Further Information is provided on East Ayrshire Council, SEPA,</p>	01/04/2016-22/06/2022	<p>EAC and SEPA has delivered a range of awareness raising activities through campaigning, education activities and partnership delivery. We have run national and local digital and direct engagement campaigns to raise awareness of flood risk and SEPA's flood warning service, Floodline. We publish and publicise an electronic newsletter (Flooding Gateway) four times a year which is distributed to a wide audience. SEPA are working with Education Scotland and Scottish Government Resilience team to embed flooding awareness within the Curriculum for Excellence, and resilience partners in Safer Communities programmes. We have also developed an online tool that helps everyone share information on current flooding issues (Report-a-Flood). We have worked in partnership with local authorities, emergency services and community organisations</p>	<p>EAC and SEPA will continue to raise awareness of flood risk through campaigning, developing education and engagement tools, creating new partnerships and improving the flood warning and forecasting service. Many of our awareness raising activities currently underway will continue. Our focus will be on promoting flood warning and forecasting service, innovation, education and engagement with partners, customers and the public.</p>

		Scottish Water and Ayrshire Road Alliance websites.		(e.g. Neighbourhood Watch Scotland, Citizens Advice Scotland and others) to share our resources and help to promote preparedness and understanding of how we manage flood risk in Scotland. We have actively supported the Scottish Flood Forum and worked closely with UK agencies to develop joint flooding information.	
Maintenance	G	Local authorities have a duty to assess watercourses and carry out clearance and repair works where such works would substantially reduce flood risk. They produce schedules of clearance and repair works and make these available for public inspection. Scottish Water undertake risk based inspection, maintenance and repair on the public sewer network. Asset owners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk.	01/06/2016-01/06/2022	NAC has a 4 weekly maintenance regime for trash screens, biennially we carry out watercourse inspections within the catchment.	The Council will continue to inspect and maintain watercourses, screens and other relevant Council assets.

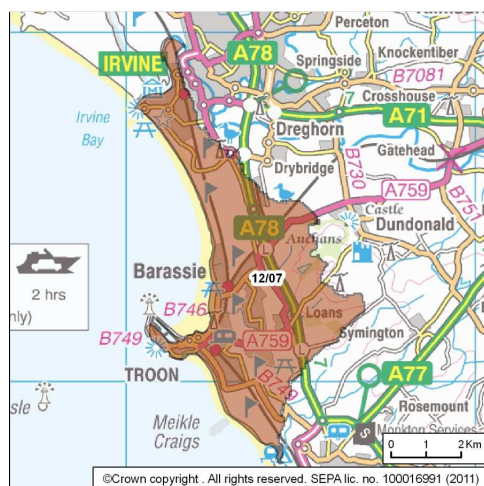
Maintenance	G	East Ayrshire Council in accordance with Section 18 of the FR Scotland Act 2009 undertake assessment of water bodies to determine whether works of clearance and repair would substantially reduce risk of flooding. This information is used to produce a schedule of works, which is available for the public to inspect	01/06/2016-01/06/2022	High risk locations such as those with screens and smaller culverts are inspected in a scheduled bases. The majority inspections are tend to be undertake in the winter months when flows are higher and water born debris can be an issue.	The Council will continue to inspect and maintain watercourses, screens and other relevant Council assets.
Emergency plans/response	G	Providing an emergency response to flooding is the responsibility of many organisations, including local authorities, the emergency services and SEPA. Effective management of an emergency response relies on emergency plans that are prepared under the Civil Contingencies Act 2004 by Category 1 and 2 Responders. Scottish Water are a Category 2 responder under the Civil Contingencies Act 2004 and will support regional and local resilience partnerships as required. The emergency response by these organisations is coordinated through regional and local resilience partnerships. This response may be	01/06/2016-01/06/2022	NAC is in the last stage to review the newly developed town by town based Emergency Plans,	The Ayrshire Civil Contingencies team is responsible for producing the Civil Contingencies Plan, which outlines the management and operational arrangements that the Councils will follow in the event of an emergency as well as encouraging other agencies to prepare for their role. The Councils will contribute to the production and review of the Civil Contingencies Plan and the Emergency Plan for Severe Weather and Flooding, as required. This response may be supported by the work of voluntary organisations. Completion of the town by town

		supported by the work of voluntary organisations.			Emergency Plan for North Ayrshire is expected in 2019.
Planning policies	G	<p>Scottish Planning Policy and accompanying Planning Advice Notes set out Scottish Ministers' priorities for the operation of the planning system and for the development and use of land. In terms of flood risk management, the policy supports a catchment-scale approach to sustainable flood risk management and aims to build the resilience of our cities and towns, encourage sustainable land management in our rural areas, and to address the long-term vulnerability of parts of our coasts and islands. Under this approach, new development in areas with medium to high likelihood of flooding should be avoided.</p>	01/06/2016-01/06/2022	<p>The Proposed Local Development Plan (LDP) 2 has gone through public Consultation in 2017/18 approved by the Council on the 17 April 2018. The next stage is the examination stage by Scottish Minister. The Council completed a Strategic Flood Risk Assessment for the proposed LDP2. In addition, we are developing (in partnership with South Ayrshire Council) an Ayrshire Shoreline Management Plan (SMP). This study will prompt land use and policy changes and recommend further studies to allow physical protective measures to take place in the future.</p>	<p>The Council's planning policies will be reviewed periodically to ensure that all current national policies are implemented and that the recommendations of strategic studies, such as the Ayrshire Shoreline Management Plan, Surface Water Management Plans etc., are considered.</p>



## 4.6 Irvine to Troon (Potentially Vulnerable Area 12/07)

Local Plan District	Local authority	Main catchment
Ayrshire	North Ayrshire Council, South Ayrshire Council	Monkton to Irvine coastal



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### Summary of Progress for Irvine to Troon

There are approximately 1,000 residential properties at risk of flooding. The Annual Average Damages are approximately £1.3 million. Further information can be found in the Ayrshire Local FRMP under PVA 12/07, please click [here](#).

The Ayrshire Shoreline Management Plan is completed and adopted by both North and South Ayrshire Councils in September 2018. The Meadowhead Integrated Catchment Study and Surface Water Management Plan for North Ayrshire are progressing according to plan. Natural flood risk measures in South Ayrshire in the form of sand dune propagation have successfully continued throughout the reporting period.

### Overview of actions to manage flooding in Irvine to Troon

PVA	Flood protections scheme/works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Strategic mapping and modelling SEPA	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Emergency plans/response	Planning policies
12/07		G		G		G	G	R	G	G	G			G	G	G	G	G

## Summary of progress of actions to manage flood risk in the Irvine to Troon (PVA 12/07)

Action	Status	Description	Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
Natural flood management works	G	South Ayrshire Council are currently undertaking sand dune propagation in Troon, and some of the benefits of these actions are to help reduce the risk of coastal erosion and flooding. It is recommended that this should continue.	22/12/2015-22/06/2022	This work continues to be carried out on an annual basis.	The Council will continue to undertake sand dune propagation.
Flood protection study	G	A shoreline management plan is recommended, this study is not limited to Potentially Vulnerable Areas but should cover the whole of the Ayrshire coastline and any areas beyond this which may be influenced by changes in coastal processes. The study should investigate flooding and coastal erosion, wave overtopping and the current coastal protection offered. The study will help to develop an understanding of coastal issues and identify where further work may be required to mitigate against flooding.	01/06/2016-01/06/2022	The Ayrshire Shoreline Management Plan is completed and adopted by both North and South Ayrshire Councils in September/October 2018.	The Ayrshire Shoreline Management Plan will be reviewed every 6 years.

Surface Water Management Plan	G	An integrated catchment study covering the Meadowhead catchment was carried out in SR10 (2010-2015). This study will help to support the surface water management planning process in Kilmarnock, Greenholm, Irvine, Prestwick and Ayr. The study has improved knowledge and understanding of flood risk and interactions between the above ground and below ground drainage network e.g. with the sewer network and watercourses. The Optioneering phase of this study, to establish the preferred solution(s) to the flooding issues, is now being progressed.	01/06/2016-01/06/2022	Pre-Optioneering Catchment Plan and prioritisation stages completed.	The Optioneering Phase to be completed. The implementation of the findings will be considered in coordination with Scottish Water in the next cycle of FRM Plan.
Surface water plan/study	G	North Ayrshire Council will develop a surface water management plan or plans to cover Irvine town which set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives.	01/06/2016-01/06/2022	The Surface Water Management Plan for the Irvine, Meadowhead catchment is procured in June 2018. The initial data gathering and review is ongoing and planned to be completed by February 2019.	North Ayrshire Council will develop a surface water management plan or plans to cover Irvine and Kilmarnock which set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives.

Strategic mapping and modelling	R	SEPA will seek to develop flood mapping in the Ayr to Ardrossan area to improve understanding of coastal flood risk. The extent and timing of improvements will depend on detailed scoping and data availability. The coastal mapping and modelling process will start in 2016, with early work focussing on methodology development and data collection. Once this stage has been completed a thorough review will be carried out to identify the final mapping improvements that can be made in the area. Where this work coincides with local authority studies, SEPA will work collaboratively to ensure consistent modelling approaches are applied.	22/12/2016 – 01/06/2022	<p>Following the establishment of a coastal flood hazard map development framework and characterisation of the coastline, several projects are currently underway at this location:</p> <ul style="list-style-type: none"> <li>• Development of a national coastal joint probability dataset;</li> <li>• Update to the UK design extreme sea level dataset</li> </ul> <p>These projects/datasets will inform a future coastal modelling and mapping project for the Firth of Clyde.</p>	It is anticipated that this action will progress to a study prior to the end of Cycle 1 however completion is likely to be in early Cycle 2. Topographic survey will be necessary prior to any modelling study.
Strategic mapping and modelling- Section 16 assessment		Scottish Water will undertake further investigation and modelling in the Meadowhead sewer catchment to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.	01/01/2016- 31/12/2020	The Scottish Water assessment of flood risk within the sewer catchment has been completed.	The assessment is now completed and shared with Local Authority.

Maintain flood protection scheme*	G	In Troon there are sections of seawalls, rock armour and gabion mattresses running from the golf club to the harbour and north of the harbour to Beach Road. These defences offer some level of protection to the properties in this area. These defences will be maintained and will continue to manage flooding according to the design standard at the time of construction.	01/06/2016-01/06/2022	This work continues to be carried out on an annual basis.	The Council will continue to inspect and maintain the flood protection structures within the catchment.
Maintain flood warning Troon Coastal, Troon Central and Prestwick Links Road flood warning areas	G	SEPA will continue to maintain the Troon Coastal, Troon Central and Prestwick Links Road flood warning areas which are part of the Firth of Clyde coastal flood warning scheme. When flood events occur in an area with a flood warning service, SEPA will seek to verify and validate the warning service. SEPA will use feedback and post-event data to ensure that our flood warning service is timely and accurate.	22/12/2015-22/06/2022	SEPA has recently reviewed and recalibrated the Firth of Clyde flood forecasting model. SEPA has merged the Troon Coastal, Troon Central and the Prestwick Links Road flood warning areas (part of the Firth of Clyde coastal flood warning scheme) to create a new flood warning area for 'Ayr to Troon'.	SEPA will continue to operate the flood warning service.
Flood forecasting	G	The Scottish Flood Forecasting Service is a joint initiative between SEPA and the Met Office that	22/12/2015-22/06/2022	SEPA has continued to operate the Scottish Flood Forecasting Service (SFFS) Partnership with	SEPA will continue and improve the Scottish Flood Forecasting Service (SFFS) with the Met

		produces daily, national flood guidance statements which are issued to Category 1 and 2 Responders. The service also provides information which allows SEPA to issue flood warnings, giving people a better chance of reducing the impact of flooding on their home or business. For more information please visit SEPA's website.		the Met Office with daily, national Flood Guidance Statements issued to Category 1 and 2 agencies (such as emergency responders, local authorities and other organisations with flooding management duties) and regional Flood Alerts issued to the public. Each daily statement gives an assessment of the risk of flooding for the next five days to enable these organisations to put preparations in place to reduce the impact of flooding. SEPA's Flood Alert service is freely available to everyone and enables communities to be aware and prepared to reduce the impacts of flooding.	Office, with daily Flood Guidance Statements and regional Flood Alerts issued as required to enable communities and responders to reduce the impacts of flooding. SEPA is currently exploring options to develop a public version of the daily Flood Guidance Statement to provide better and earlier information to the public.
Self help	G	Everyone is responsible for protecting themselves and their property from flooding. Property and business owners can take simple steps to reduce damage and disruption to their homes and businesses should flooding happen.	01/04/2016-22/06/2022	Community Engagement includes, PLP exhibitions, selection, surveys and appropriate and relevant information to enable clients to make the right decisions.	Ongoing community PLP training, Flood Warden and resilience group promotion.

		<p>This includes preparing a flood plan and flood kit, installing property level protection, signing up to Floodline</p> <p>The Councils, SEPA and Scottish Water will continue to engage with responsible Authorities and all other stakeholders, including community groups and the public to raise awareness of flood risk and how those affected can be better prepared. Further detail can be found in the Councils and Scottish Flood Forum websites.</p>			
Awareness raising	G	<p>North Ayrshire Council, SEPA and Scottish Water collectively work to raise awareness of flood risk and how those affected can be better prepared. Through the continued development of flood schemes and studies at higher risk locations, officers from the Council's Flood Risk Management Team attend community council events to discuss elements of flood risk management. Across Scotland, SEPA will create and share communication and education resources with other</p>	22/12/2015-22/06/2022	<p>SEPA's principle awareness raising approaches have been through:</p> <ol style="list-style-type: none"> <li>1. Direct campaigning and general awareness raising</li> <li>2. Education and tools</li> <li>3. Partnership delivery development</li> </ol> <p>North and South Ayrshire Councils general awareness raising is a continuous activity via NAC website for all Ayrshire.</p>	<p>SEPA will continue to raise awareness of flood risk through direct campaigning, general awareness raising, developing education and engagement tools, creating new partnerships and improving its flood forecasting and warning services (e.g. Scottish Flood Forecasting Service and Floodline). This will continue with many of the actions reported for the interim progress summary. Further information is contained within SEPA's Flood Warning</p>

		responsible authorities. These resources will include awareness campaigns, media and marketing activity and promotion of SEPA's flood forecasting and warning services (Floodline). Scottish Water will provide targeted flooding communications for Scottish Water specific activities and raise awareness by producing and supplying targeted information to the public on large capital projects and detailed local studies.			Development Framework, published in 2017 and for the period 2017 to 2021. Raising Awareness will form part of each of the 3 key themes identified: <ul style="list-style-type: none"> <li>• Aim 1: Maintenance of existing and delivery of new flood warning schemes.</li> <li>• Aim 2: Development and innovation.</li> <li>• Aim 3: Engagement with partners and customers</li> </ul> Campaign Calendar for 2018/19 in March/April 2019 Proposed for North Ayrshire; Focus weeks - on flooding proposed in 2018/19 for North Ayrshire;
Maintenance General	G	Local authorities have a duty to assess watercourses and carry out clearance and repair works where such works would substantially reduce flood risk. They produce schedules of clearance and repair works and make these available for public inspection. Scottish Water	01/06/2016-01/06/2022	NAC has a 4 weekly maintenance regime for trash screens, biennially we carry out watercourse and coastal inspections. The regularity of coastal inspections are risk based and varies between 6 month and 3 years.	The Councils will continue to inspect and maintain watercourses, screens and other relevant Council assets.



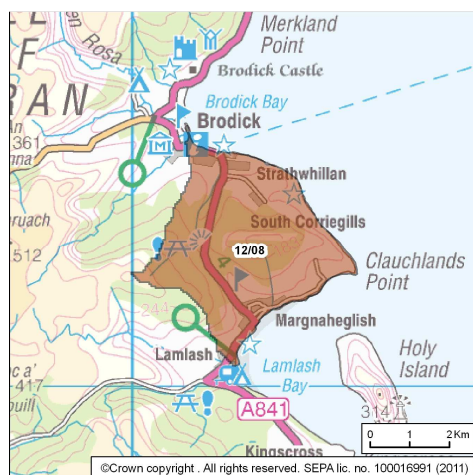
		undertake risk-based inspection, maintenance and repair on the public sewer network. Asset owners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk.		South Ayrshire Council carry out monthly inspections and clearance work where necessary on 17 debris screens where there is a known flood risk from blockage. Watercourse inspections are carried out on a regular basis where there are known flood risk issues. 25km of coastal protection structures are inspected annually	
Maintain flood Protection Schemes	G	In Troon there are sections of seawalls, rock armour and gabion mattresses running from the golf club to the harbour and north of the harbour to Beach Road. These defences offer some level of protection to the properties in this area. These defences will be maintained and will continue to manage flooding according to the design standard at the time of construction.	01/06/2016-01/06/2022	This work continues to be carried out on an annual basis.	The Council will continue to inspect and maintain the flood protection structures within the catchment.
Emergency plans/response	G	Providing an emergency response to flooding is the responsibility of many organisations, including local authorities, the emergency services	01/06/2016-01/06/2022	NAC is in the last stage to review the newly developed town by town based Emergency Plans,	The Ayrshire Civil Contingencies team is responsible for producing the Civil Contingencies Plan, which outlines the management

		and SEPA. Effective management of an emergency response relies on emergency plans that are prepared under the Civil Contingencies Act 2004 by Category 1 and 2 Responders. Scottish Water are a Category 2 responder under the Civil Contingencies Act 2004 and will support regional and local resilience partnerships as required. The emergency response by these organisations is coordinated through regional and local resilience partnerships. This response may be supported by the work of voluntary organisations.			and operational arrangements that the Councils will follow in the event of an emergency as well as encouraging other agencies to prepare for their role. The Councils will contribute to the production and review of the Civil Contingencies Plan and the Emergency Plan for Severe Weather and Flooding, as required. This response may be supported by the work of voluntary organisations.
Planning policies	G	Scottish Planning Policy and accompanying Planning Advice Notes set out Scottish Ministers' priorities for the operation of the planning system and for the development and use of land. In terms of flood risk management, the policy supports a catchment-scale approach to sustainable flood risk management and aims to build the resilience of our cities and towns,	01/06/2016-01/06/2022	The Proposed Local Development Plan (LDP) 2 has gone through public Consultation in 2017/18 approved by the Council on the 17 April 2018. The next stage is the examination stage by Scottish Minister. The Council completed a Strategic Flood Risk Assessment for the proposed LDP2. In addition, we	The Council's planning policies will be reviewed periodically to ensure that all current national policies are implemented and that the recommendations of strategic studies, such as the Ayrshire Shoreline Management Plan, Surface Water Management Plans etc., are considered.

		<p>encourage sustainable land management in our rural areas, and to address the long-term vulnerability of parts of our coasts and islands. Under this approach, new development in areas with medium to high likelihood of flooding should be avoided.</p>		<p>are developing (in partnership with South Ayrshire Council) an Ayrshire Shoreline Management Plan (SMP). This study will prompt land use and policy changes and recommend further studies to allow physical protective measures to take place in the future.</p> <p>The South Ayrshire Council Local Development Plan recognises the importance of sustainable flood risk management in both urban and rural developments and is in alignment with Scottish Planning Policy. The Local Development Plan is currently under review with public consultation on the plan scheduled for the end of 2018.</p>	
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## 4.8 Isle of Arran (Potentially Vulnerable Area 12/08)

Local Plan District	Local authority	Main catchment
Ayrshire	North Ayrshire Council	Brodick to Kilmory – Arran coastal



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### Summary of Progress for Isle of Arran

There are approximately 120 residential properties at risk of flooding. The Annual Average Damages are approximately £390,000. Further information can be found in the Ayrshire Local FRMP under PVA 12/08, please click [here](#).

Key progress has been made with the completion of the Ayrshire Shoreline Management Plan and the completion of the flood risk study. The option appraisal is progressing according to plan with an aim to identify flood protection measures for Brodick and Lamlash.

### Overview of actions to manage flooding in Isle of Arran

PVA	Flood protections scheme/works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Strategic mapping and modelling SEPA	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Emergency plans/response	Planning policies
12/08				G					G	G	G			G	G	G	G	G

## Summary of progress of actions to manage flood risk in the Isle of Arran (PVA 12/08)

Action	Status	Description	Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
Flood protection study	G	A study will be undertaken to further investigate river flood risk combined with coastal flood risk to Brodick and Lamlash. This study should build on the work within the shoreline management plan to provide a detailed investigation of the current and future risk. The study should examine the most sustainable combination of actions to manage flooding.	01/04/2018-13/03/2020	The GlenCoyle, Monamore and Benlister Burn fluvial and coastal modelling is completed including the regional climate change sensitivity assessment and approved by SEPA in July 2018. The option appraisal is progressing according to programme.	If feasible option identified that will be submitted to the National Prioritisation process to seek fund from Scottish Government for implementation.
Flood protection study	G	A shoreline management plan is recommended, this study is not limited to Potentially Vulnerable Areas but should cover the whole of the Ayrshire coastline and any areas beyond this which may be influenced by changes in coastal processes. The study should investigate flooding and coastal erosion, wave overtopping and the current coastal protection offered.	01/06/2016-01/06/2022	The Ayrshire Shoreline Management Plan is completed and adopted by both North and South Ayrshire Councils in September/October 2018.	The Ayrshire Shoreline Management Plan will be reviewed every 6 years.

		The study will help to develop an understanding of coastal issues and identify where further work may be required to mitigate against flooding.			
Maintain flood protection scheme*	G	There are a range of formal and informal coastal defences in Brodick and Lamlash. These defences offer some level of protection to the properties in this area. North Ayrshire Council will continue to inspect and maintain the Brodick and Lamlash coastal flood defences, which will continue to manage flooding according to the design standard at the time of construction.	01/06/2016-01/06/2022	The sea defences will be maintained as part of the Council's coastal asset management programme. If the defences remain the same, levels of flood risk are likely to increase over time as a consequence of climate change.	The Council will continue to inspect and maintain the flood protection structures within the catchment.
Maintain flood warning Arran Lamlash Cordon and Arran Seafront and Montrose Terrace flood warning areas	G	SEPA will continue to maintain the Arran Lamlash Cordon and the Arran Seafront and Montrose Terrace flood warning areas which are part of the Firth of Clyde coastal flood warning scheme.	22/12/2015-22/06/2022	SEPA has recently reviewed and recalibrated the Firth of Clyde flood forecasting model. SEPA has merged the Arran Seafront and Montrose Terrace and the Arran Lamlash Cordon flood warning areas (part of the Firth of Clyde coastal flood warning scheme) to create a new flood warning area for 'Lamlash to Whiting Bay'.	SEPA will continue to operate the flood warning service
Flood forecasting	G	The Scottish Flood Forecasting Service is a joint initiative between	22/12/2015-22/06/2022	SEPA has continued to operate the Scottish Flood Forecasting Service	SEPA will continue and improve the Scottish Flood Forecasting

		SEPA and the Met Office that produces daily, national flood guidance statements which are issued to Category 1 and 2 Responders. The service also provides information which allows SEPA to issue flood warnings, giving people a better chance of reducing the impact of flooding on their home or business. For more information please visit SEPA's website.		(SFFS) Partnership with the Met Office with daily, national Flood Guidance Statements issued to Category 1 and 2 agencies (such as emergency responders, local authorities and other organisations with flooding management duties) and regional Flood Alerts issued to the public. Each daily statement gives an assessment of the risk of flooding for the next five days to enable these organisations to put preparations in place to reduce the impact of flooding. SEPA's Flood Alert service is freely available to everyone and enables communities to be aware and prepared to reduce the impacts of flooding.	Service (SFFS) with the Met Office, with daily Flood Guidance Statements and regional Flood Alerts issued as required to enable communities and responders to reduce the impacts of flooding. SEPA is currently exploring options to develop a public version of the daily Flood Guidance Statement to provide better and earlier information to the public.
Self help	G	Everyone is responsible for protecting themselves and their property from flooding. Property and business owners can take simple steps to reduce damage and disruption to their homes and businesses should flooding happen. This includes preparing a flood plan and flood kit, installing property level protection, signing up to Floodline	01/04/2016-22/06/2022	Community Engagement includes, PLP exhibitions, selection, surveys and appropriate and relevant information to enable clients to make the right decisions.	Ongoing community PLP training, Flood Warden and resilience group promotion.

		The Councils, SEPA and Scottish Water will continue to engage with responsible Authorities and all other stakeholders, including community groups and the public to raise awareness of flood risk and how those affected can be better prepared. Further detail can be found in the Councils and Scottish Flood Forum websites.			
Awareness raising	G	North Ayrshire Council, SEPA and Scottish Water collectively work to raise awareness of flood risk and how those affected can be better prepared. Through the continued development of flood schemes and studies at higher risk locations, officers from the Council's Flood Risk Management Team attend community council events to discuss elements of flood risk management. Across Scotland, SEPA will create and share communication and education resources with other responsible authorities. These resources will include awareness campaigns, media and marketing	22/12/2015-22/06/2022	SEPA's principle awareness raising approaches have been through: 1. Direct campaigning and general awareness raising 2. Education and tools 3. Partnership delivery development North Ayrshire Council general awareness raising is a continuous activity via NAC website for all Ayrshire, Supporting Local Flood Emergency Groups is an occasional activity in Largs, Project related public consultations affecting Largs carried out.	SEPA will continue to raise awareness of flood risk through direct campaigning, general awareness raising, developing education and engagement tools, creating new partnerships and improving its flood forecasting and warning services (e.g. Scottish Flood Forecasting Service and Floodline). This will continue with many of the actions reported for the interim progress summary. Further information is contained within SEPA's Flood Warning Development Framework, published in 2017 and for the period 2017 to 2021.



		activity and promotion of SEPA's flood forecasting and warning services (Floodline). Scottish Water will provide targeted flooding communications for Scottish Water specific activities and raise awareness by producing and supplying targeted information to the public on large capital projects and detailed local studies.			Raising Awareness will form part of each of the 3 key themes identified: <ul style="list-style-type: none"> <li>• Aim 1: Maintenance of existing and delivery of new flood warning schemes.</li> <li>• Aim 2: Development and innovation.</li> <li>• Aim 3: Engagement with partners and customers</li> </ul> Campaign Calendar for 2018/19 in March/April 2019 Proposed for North Ayrshire; Focus weeks - on flooding proposed in 2018/19 for North Ayrshire;
Maintenance	G	Local authorities have a duty to assess watercourses and carry out clearance and repair works where such works would substantially reduce flood risk. They produce schedules of clearance and repair works and make these available for public inspection. Scottish Water undertake risk-based inspection, maintenance and repair on the public sewer network. Asset owners	01/06/2016-01/06/2022	NAC carry out watercourse inspections within Brodick and Lamlash Isle of Arran and coastal inspections on NAC owned structures. The regularity of coastal inspections are risk-based and varies between 6 month and 3 years.	The Council will continue to inspect and maintain watercourses, screens and other relevant Council assets.

		and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk.			
Emergency plans/response	G	<p>Providing an emergency response to flooding is the responsibility of many organisations, including local authorities, the emergency services and SEPA. Effective management of an emergency response relies on emergency plans that are prepared under the Civil Contingencies Act 2004 by Category 1 and 2 Responders. Scottish Water are a Category 2 responder under the Civil Contingencies Act 2004 and will support regional and local resilience partnerships as required. The emergency response by these organisations is coordinated through regional and local resilience partnerships. This response may be supported by the work of voluntary organisations.</p>	01/06/2016-01/06/2022	NAC is in the last stage to review the newly developed town by town based Emergency Plans,	The Ayrshire Civil Contingencies team is responsible for producing the Civil Contingencies Plan, which outlines the management and operational arrangements that the Councils will follow in the event of an emergency as well as encouraging other agencies to prepare for their role. The Councils will contribute to the production and review of the Civil Contingencies Plan and the Emergency Plan for Severe Weather and Flooding, as required. This response may be supported by the work of voluntary organisations.

Planning policies	G	<p>Scottish Planning Policy and accompanying Planning Advice Notes set out Scottish Ministers' priorities for the operation of the planning system and for the development and use of land. In terms of flood risk management, the policy supports a catchment-scale approach to sustainable flood risk management and aims to build the resilience of our cities and towns, encourage sustainable land management in our rural areas, and to address the long-term vulnerability of parts of our coasts and islands. Under this approach, new development in areas with medium to high likelihood of flooding should be avoided.</p>	<p>01/06/2016-01/06/2022</p>	<p>The Proposed Local Development Plan (LDP) 2 has gone through public Consultation in 2017/18 approved by the Council on the 17 April 2018. The next stage is the examination stage by Scottish Minister. The Council completed a Strategic Flood Risk Assessment for the proposed LDP2. In addition, we are developing (in partnership with South Ayrshire Council) an Ayrshire Shoreline Management Plan (SMP). This study will prompt land use and policy changes and recommend further studies to allow physical protective measures to take place in the future.</p>	<p>The Council's planning policies will be reviewed periodically to ensure that all current national policies are implemented and that the recommendations of strategic studies, such as the Ayrshire Shoreline Management Plan, Surface Water Management Plans etc., are considered.</p>
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## 4.9 Prestwick to Ayr (Potentially Vulnerable Area 12/09)

Local Plan District	Local authority	Main catchment
Ayrshire	South Ayrshire Council	Doonfoot to Monkton coastal



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### Summary of Progress for Prestwick to Ayr

There are approximately 300 residential properties at risk of flooding. The Annual Average Damages are approximately £240,000. Further information can be found in the Ayrshire Local FRMP under PVA 12/09, please click [here](#).

The Ayrshire Shoreline Management Plan has been completed and adopted by both North and South Ayrshire Councils in September/October 2018. The Meadowhead Integrated Catchment Study and Surface Water Management Plans for Ayr and Prestwick are progressing according to plan.

Natural flood risk measures in South Ayrshire in the form of sand dune propagation have successfully continued through the reporting period.

### Overview of actions to manage flooding in Prestwick to Ayr

PVA	Flood protections scheme/works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Strategic mapping and modelling SEPA	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Emergency plans/response	Planning policies
12/09		G		G		G		R	G	G	G			G	G	G	G	G

## Summary of progress of actions to manage flood risk in the Prestwick to Ayr (PVA 12/09)

Action	Status	Description	Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
Natural flood management works	G	South Ayrshire Council are currently undertaking sand dune propagation at Prestwick North Beach and Ayr South Beach. Some of the benefits of these actions are to help reduce the risk of coastal erosion and flooding. It is recommended that this should continue.	22/12/2015-22/06/2022	This work continues to be carried out on an annual basis.	The Council will continue to undertake sand dune propagation.
Flood protection study	G	A shoreline management plan is recommended; this study is not limited to Potentially Vulnerable Areas but should cover the whole of the Ayrshire coastline and any areas beyond this which may be influenced by changes in coastal processes. The study should investigate flooding and coastal erosion, wave overtopping and the current coastal protection offered.	01/06/2016-01/06/2022	The Ayrshire Shoreline Management Plan is completed and adopted by both North and South Ayrshire Councils in September/October 2018.	The Ayrshire Shoreline Management Plan will be reviewed every 6 years.

		The study will help to develop an understanding of coastal issues and identify where further work may be required to mitigate against flooding.			
Surface water plan/study	G	An integrated catchment study covering the Meadowhead catchment was carried out in SR10 (2010-2015). This study will help to support the surface water management planning process in Kilmarnock, Greenholm, Irvine, Prestwick and Ayr. The study has improved knowledge and understanding of flood risk and interactions between the above ground and below ground drainage network e.g. with the sewer network and watercourses. The Optioneering phase of this study, to establish the preferred solution(s) to the flooding issues, is now being progressed.	01/06/2016-01/06/2022	Pre Optioneering Catchment Plan and prioritisation stages completed.	The Optioneering Phase to be completed. The implementation of the findings will be considered in coordination with Scottish Water in the next cycle of FRM Plan.
Surface water plan/study	G	South Ayrshire Council will develop a surface water management plan or plans to cover Prestwick and Ayr which set objectives for the management of surface water flood	01/06/2016-01/06/2022	The Surface water management Plan for South Ayrshire Council catchments is currently at tender stage and planned to be complete by end of 2019.	The implementation of the findings will be considered in the next cycle of FRM Plan.

		risk and identify the most sustainable actions to achieve the objectives.			
Strategic mapping and modelling Section 16 Assessment		Scottish Water will undertake further investigation and modelling in the Prestwick and Ayr sewer catchment to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.	01/01/2016-31/12/2020	The Scottish Water assessment of flood risk within the sewer catchment has been completed.	The assessment is now completed and shared with Local Authority.
Strategic mapping and modelling	R	SEPA will seek to develop flood mapping in the Ayr to Ardrossan area to improve understanding of coastal flood risk. The extent and timing of improvements will depend on detailed scoping and data availability. Where this work coincides with local authorities.	01/06/2016-01/06/2022	<p>Following the establishment of a coastal flood hazard map development framework and characterisation of the coastline, several projects are currently underway at this location:</p> <ul style="list-style-type: none"> <li>• Development of a national coastal joint probability dataset;</li> <li>• Update to the UK design extreme sea level dataset</li> </ul> <p>These projects/datasets will inform a future coastal modelling and mapping project for the Firth of Clyde.</p>	It is anticipated that this action will progress to a study prior to the end of Cycle 1 however completion is likely to be in early Cycle 2. Topographic survey will be necessary prior to any modelling study.
Maintain flood protection scheme*	G	The South Pier protects the entrance of Ayr Harbour from the action of waves while also reducing	01/06/2016-01/06/2022	The coastal protection structures are on a scheduled inspection and maintenance programme.	The Council will continue to inspect and maintain the flood

		siltation in the channel. An existing seawall runs from the South Pier to the mouth of the River Doon, the purpose of which is to protect coastal erosion however it also provides a limited level of flood protection to the area. There are similar coastal defences in Prestwick. These will be maintained, and will continue to manage flooding according to the design standard at the time of construction. An annual inspection is carried out on all			protection structures within the catchment.
Maintain flood warning Ayr Seafield and Prestwick Links Road flood warning areas	G	SEPA will continue to maintain the Ayr Seafield the Prestwick Links Road flood warning areas which are part of the Firth of Clyde coastal flood warning scheme. When flood events occur in an area with a flood warning service, SEPA will seek to verify and validate the warning service. SEPA will use feedback and post-event data to ensure that our flood warning service is timely and accurate.	22/12/2015 - 22/06/2022	SEPA has recently reviewed and recalibrated the Firth of Clyde flood forecasting model. SEPA has merged the Ayr Seafield and the Prestwick Links Road flood warning areas (part of the Firth of Clyde coastal flood warning scheme) to create a new flood warning area for 'Ayr to Troon'.	SEPA will continue to operate the flood warning service.



Flood forecasting	G	The Scottish Flood Forecasting Service is a joint initiative between SEPA and the Met Office that produces daily, national flood guidance statements which are issued to Category 1 and 2 Responders. The service also provides information which allows SEPA to issue flood warnings, giving people a better chance of reducing the impact of flooding on their home or business. For more information please visit SEPA's website.	22/12/2015 - 22/06/2022	SEPA has continued to operate the Scottish Flood Forecasting Service (SFFS) Partnership with the Met Office with daily, national Flood Guidance Statements issued to Category 1 and 2 agencies (such as emergency responders, local authorities and other organisations with flooding management duties) and regional Flood Alerts issued to the public. Each daily statement gives an assessment of the risk of flooding for the next five days to enable these organisations to put preparations in place to reduce the impact of flooding. SEPA's Flood Alert service is freely available to everyone and enables communities to be aware and prepared to	SEPA will continue and improve the Scottish Flood Forecasting Service (SFFS) with the Met Office, with daily Flood Guidance Statements and regional Flood Alerts issued as required to enable communities and responders to reduce the impacts of flooding. SEPA is currently exploring options to develop a public version of the daily Flood Guidance Statement to provide better and earlier information to the public.
Self help	G	Everyone is responsible for protecting themselves and their property from flooding. Property and business owners can take simple steps to reduce damage and disruption to their homes and businesses should flooding happen. This includes preparing a flood plan	01/04/2016- 22/06/2022	Community Engagement includes, PLP exhibitions, selection, surveys and appropriate and relevant information to enable clients to make the right decisions.	Ongoing community support, PLP training, Flood Warden and resilience group promotion.

		and flood kit, installing property level protection, signing up to Floodline The Councils, SEPA and Scottish Water will continue to engage with responsible Authorities and all other stakeholders, including community groups and the public to raise awareness of flood risk and how those affected can be better prepared. Further detail can be found in the Councils and Scottish Flood Forum websites.			
Awareness raising	G	South Ayrshire Council, SEPA and Scottish Water collectively work to raise awareness of flood risk and how those affected can be better prepared. Through the continued development of flood schemes and studies at higher risk locations, officers from the Council's Flood Risk Management Team attend community council events to discuss elements of flood risk management. Across Scotland, SEPA will create and share communication and education resources with other responsible authorities. These	22/12/2015-22/06/2022	SEPA's principle awareness raising approaches have been through: 1. Direct campaigning and general awareness raising 2. Education and tools 3. Partnership delivery development South Ayrshire Councils general awareness raising is a continuous activity	SEPA will continue to raise awareness of flood risk through direct campaigning, general awareness raising, developing education and engagement tools, creating new partnerships and improving its flood forecasting and warning services (e.g. Scottish Flood Forecasting Service and Floodline). This will continue with many of the actions reported for the interim progress summary. Further information is contained within SEPA's Flood Warning Development Framework,

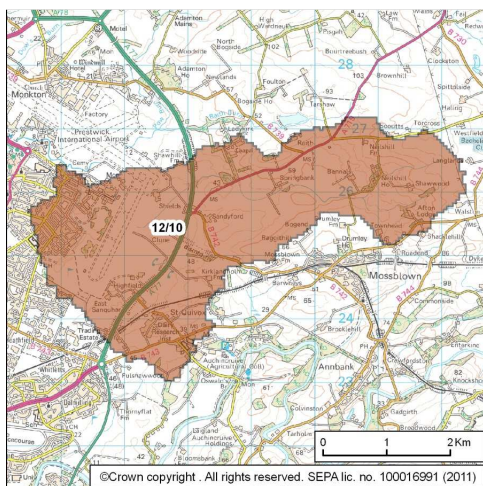
		resources will include awareness campaigns, media and marketing activity and promotion of SEPA's flood forecasting and warning services (Floodline). Scottish Water will provide targeted flooding communications for Scottish Water specific activities and raise awareness by producing and supplying targeted information to the public on large capital projects and detailed local studies.			published in 2017 and for the period 2017 to 2021. Raising Awareness will form part of each of the 3 key themes identified: <ul style="list-style-type: none"> <li>• Aim 1: Maintenance of existing and delivery of new flood warning schemes.</li> <li>• Aim 2: Development and innovation.</li> <li>• Aim 3: Engagement with partners and customers</li> </ul>
Maintenance	G	Local authorities have a duty to assess watercourses and carry out clearance and repair works where such works would substantially reduce flood risk. They produce schedules of clearance and repair works and make these available for public inspection. Scottish Water undertake risk based inspection, maintenance and repair on the public sewer network. Asset owners and riparian landowners are responsible for the maintenance and management of their own assets	01/06/2016-01/06/2022	South Ayrshire Council carry out monthly inspections and clearance work where necessary on 17 debris screens where there is a known flood risk from blockage. Watercourse inspections are carried out on a regular basis where there are known flood risk issues. 25km of coastal protection structures are inspected annually.	The Council will continue to inspect and maintain watercourses, screens and other relevant Council assets.

		including those which help to reduce flood risk.			
Emergency plans/response	G	<p>Providing an emergency response to flooding is the responsibility of many organisations, including local authorities, the emergency services and SEPA. Effective management of an emergency response relies on emergency plans that are prepared under the Civil Contingencies Act 2004 by Category 1 and 2 Responders. Scottish Water are a Category 2 responder under the Civil Contingencies Act 2004 and will support regional and local resilience partnerships as required. The emergency response by these organisations is coordinated through regional and local resilience partnerships. This response may be supported by the work of voluntary organisations.</p>	01/06/2016-01/06/2022	For SAC Ayrshire Civil Contingencies maintain and update all emergency response plans. These are updated every 3 years or as required after an incident. This is done in conjunction with the relevant department and external agency.	The Ayrshire Civil Contingencies team is responsible for producing the Civil Contingencies Plan, which outlines the management and operational arrangements that the Councils will follow in the event of an emergency as well as encouraging other agencies to prepare for their role. The Councils will contribute to the production and review of the Civil Contingencies Plan and the Emergency Plan for Severe Weather and Flooding, as required. This response may be supported by the work of voluntary organisations.
	G	<p>Scottish Planning Policy and accompanying Planning Advice Notes set out Scottish Ministers' priorities for the operation of the planning system and for the</p>	01/06/2016-01/06/2022	The South Ayrshire Council Local Development Plan recognises the importance of sustainable flood risk management in both urban and rural developments and is in alignment with	The Council's planning policies will be reviewed periodically to ensure that all current national policies are implemented and that the recommendations of strategic

Planning policies		development and use of land. In terms of flood risk management, the policy supports a catchment-scale approach to sustainable flood risk management and aims to build the resilience of our cities and towns, encourage sustainable land management in our rural areas, and to address the long-term vulnerability of parts of our coasts and islands. Under this approach, new development in areas with medium to high likelihood of flooding should be avoided.		Scottish Planning Policy. The Local Development Plan is currently under review with public consultation on the plan scheduled for the end of 2018.	studies, such as the Ayrshire Shoreline Management Plan, Surface Water Management Plans etc., are considered.
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## 4.10 Pow Burn Catchment (Potentially Vulnerable Area 12/10)

Local Plan District	Local authority	Main catchment
Ayrshire	South Ayrshire Council	Pow Burn



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### Summary of Progress for Pow Burn Catchment

There are approximately 410 residential properties at risk of flooding. The Annual Average Damages are approximately £940,000. Further information can be found in the Ayrshire Local FRMP under PVA 12/01, please click [here](#).

The Meadowhead Integrated Catchment study and Surface Water Management Plans for Ayr and Prestwick are progressing according to plan.

In addition to the actions in the LOCAL FRMP a scope has now been developed for a Pow Burn Flood Study which is ready to go through a procurement process once funding has been confirmed.

### Overview of actions to manage flooding in Pow Burn Catchment

PVA	Flood protections scheme/works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Strategic mapping and modelling SEPA	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Emergency plans/response	Planning policies
12/10			G			G		R			G			G	G	G	G	G

## Summary of progress of actions to manage flood risk in the Pow Burn Catchment (PVA 12/10)

Action	Status	Description	Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
Surface water plan/study	G	An integrated catchment study covering the Meadowhead catchment was carried out in SR10 (2010-2015). This study will help to support the surface water management planning process in Kilmarnock, Greenholm, Irvine, Prestwick and Ayr. The study has improved knowledge and understanding of flood risk and interactions between the above ground and below ground drainage network e.g. with the sewer network and watercourses. The Optioneering phase of this study, to establish the preferred solution(s) to the flooding issues, is now being progressed.	01/06/2016-01/06/2022	Pre Optioneering Catchment Plan and prioritisation stages completed.	The Optioneering Phase to be completed. The implementation of the findings will be considered in coordination with Scottish Water in the next cycle of FRM Plan.

Surface water plan/study	G	South Ayrshire Council will develop a surface water management plan or plans to cover Prestwick and Ayr which set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives.	01/06/2016-01/06/2022	The Surface water management Plan for South Ayrshire Council catchments is currently at tender stage and planned to be complete by end of 2019.	The implementation of the findings will be considered in the next cycle of FRM Plan.
Strategic mapping and modelling	R	SEPA will seek to incorporate additional surface water data into the flood maps to improve understanding of flood risk. Approximately 1,300km <sup>2</sup> of improved surface water data is currently available within this Local Plan District.	01/06/2016-01/06/2022	SEPA's current Surface water hazard maps use design rainfall estimates based on FEH99 methodology, this has now been superseded by FEH13 methodology. The FEH13 dataset contains the latest science and understanding of rainfall across Scotland and represents a significant change in rainfall amounts compared to FEH99 dataset, as such it is no longer consider appropriate to deliver this action as originally intended.	This action will not be taken forwards as described. SEPA will develop new Surface water flood hazard maps over the remainder of Cycle 1. It is anticipated that updated flood mapping from this revised action will be available early in Cycle 2. Alongside this SEPA will investigate the feasibility of developing an interim approach to assess the change in Surface water hazard (and risk) associated with FEH13, such that we could consider it in the development of the 2021 FRM Strategies.
Strategic mapping and modelling Section 16 Assessment		Scottish Water will undertake further investigation and modelling in the Meadowhead sewer catchment to	01/01/2016-31/12/2020	The Scottish Water assessment of flood risk within the sewer catchment has been completed.	The assessment is now completed and shared with Local Authority.



		improve knowledge and understanding of flood risk in this area and as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.			
New flood warning Prestwick	G	The potential benefits and feasibility of a new flood warning scheme for the Pow Burn in Prestwick will be assessed in 2016.	01/01/2016 – 2017	Scoping was completed by SEPA in 2017. Actions carried out along the Pow Burn meant that a new flood warning scheme was no longer beneficial. This decision was discussed and agreed with the local authority.	No further actions will be carried out.
Flood forecasting	G	The Scottish Flood Forecasting Service is a joint initiative between SEPA and the Met Office that produces daily, national flood guidance statements which are issued to Category 1 and 2 Responders. The service also provides information which allows SEPA to issue flood warnings, giving people a better chance of reducing the impact of flooding on their home or business. For more information please visit SEPA's website.	22/12/2015-01/06/2022	SEPA has continued to operate the Scottish Flood Forecasting Service (SFFS) Partnership with the Met Office with daily, national Flood Guidance Statements issued to Category 1 and 2 agencies (such as emergency responders, local authorities and other organisations with flooding management duties) and regional Flood Alerts issued to the public. Each daily statement gives an assessment of the risk of flooding for the next five days to enable these organisations to put preparations in place to reduce the impact of flooding. SEPA's Flood Alert	SEPA will continue and improve the Scottish Flood Forecasting Service (SFFS) with the Met Office, with daily Flood Guidance Statements and regional Flood Alerts issued as required to enable communities and responders to reduce the impacts of flooding. SEPA is currently exploring options to develop a public version of the daily Flood Guidance Statement to provide better and earlier information to the public.

				service is freely available to everyone and enables communities to be aware and prepared to reduce the impacts of flooding.	
Self help	G	Everyone is responsible for protecting themselves and their property from flooding. Property and business owners can take simple steps to reduce damage and disruption to their homes and businesses should flooding happen. This includes preparing a flood plan and flood kit, installing property level protection, signing up to Floodline The Councils, SEPA and Scottish Water will continue to engage with responsible Authorities and all other stakeholders, including community groups and the public to raise awareness of flood risk and how those affected can be better prepared. Further detail can be found in the Councils and Scottish Flood Forum websites.	01/06/2016-22/06/2022	Community Engagement includes, PLP exhibitions, selection, surveys and appropriate and relevant information to enable clients to make the right decisions.	Ongoing community PLP training, Flood Warden and resilience group promotion.
Awareness raising	G	South Ayrshire Council, SEPA and Scottish Water collectively work to raise awareness of flood risk and	22/12/2015-22/06/2022	SEPA's principle awareness raising approaches have been through:	SEPA will continue to raise awareness of flood risk through direct campaigning, general

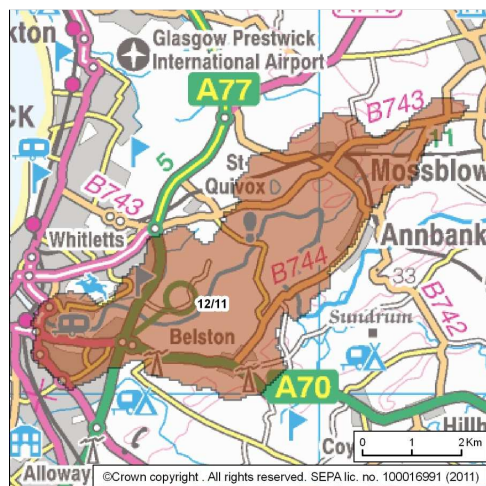
		<p>how those affected can be better prepared. Through the continued development of flood schemes and studies at higher risk locations, officers from the Council's Flood Risk Management Team attend community council events to discuss elements of flood risk management. Across Scotland, SEPA will create and share communication and education resources with other responsible authorities. These resources will include awareness campaigns, media and marketing activity and promotion of SEPA's flood forecasting and warning services (Floodline). Scottish Water will provide targeted flooding communications for Scottish Water specific activities and raise awareness by producing and supplying targeted information to the public on large capital projects and detailed local studies.</p>		<ol style="list-style-type: none"> <li>1. Direct campaigning and general awareness raising</li> <li>2. Education and tools</li> <li>3. Partnership delivery development</li> </ol> <p>South Ayrshire Councils general awareness raising is a continuous activity</p>	<p>awareness raising, developing education and engagement tools, creating new partnerships and improving its flood forecasting and warning services (e.g. Scottish Flood Forecasting Service and Floodline). This will continue with many of the actions reported for the interim progress summary. Further information is contained within SEPA's Flood Warning Development Framework, published in 2017 and for the period 2017 to 2021. Raising Awareness will form part of each of the 3 key themes identified:</p> <ul style="list-style-type: none"> <li>• Aim 1: Maintenance of existing and delivery of new flood warning schemes.</li> <li>• Aim 2: Development and innovation.</li> <li>• Aim 3: Engagement with partners and customers.</li> </ul>
Maintenance	G	<p>Local authorities have a duty to assess watercourses and carry out clearance and repair works where</p>	01/06/2016-01/06/2022	<p>South Ayrshire Council carry out monthly inspections and clearance work where necessary on 17 debris</p>	<p>The Council will continue to inspect and maintain</p>

		such works would substantially reduce flood risk. They produce schedules of clearance and repair works and make these available for public inspection. Scottish Water undertake risk based inspection, maintenance and repair on the public sewer network. Asset owners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk.		screens where there is a known flood risk from blockage. Watercourse inspections are carried out on a regular basis where there are known flood risk issues. 25km of coastal protection structures are inspected annually.	watercourses, screens and other relevant Council assets.
Emergency plans/response	G	Providing an emergency response to flooding is the responsibility of many organisations, including local authorities, the emergency services and SEPA. Effective management of an emergency response relies on emergency plans that are prepared under the Civil Contingencies Act 2004 by Category 1 and 2 Responders. Scottish Water are a Category 2 responder under the Civil Contingencies Act 2004 and will support regional and local resilience partnerships as required.	01/06/2016-01/06/2022	For SAC Ayrshire Civil Contingencies maintain and update all emergency response plans. These are updated every 3 years or as required after an incident. This is done in conjunction with the relevant department and external agency.	The Ayrshire Civil Contingencies team is responsible for producing the Civil Contingencies Plan, which outlines the management and operational arrangements that the Councils will follow in the event of an emergency as well as encouraging other agencies to prepare for their role. The Councils will contribute to the production and review of the Civil Contingencies Plan and the Emergency Plan for Severe Weather and Flooding, as

		The emergency response by these organisations is coordinated through regional and local resilience partnerships. This response may be supported by the work of voluntary organisations.			required. This response may be supported by the work of voluntary organisations.
Planning policies	G	Scottish Planning Policy and accompanying Planning Advice Notes set out Scottish Ministers' priorities for the operation of the planning system and for the development and use of land. In terms of flood risk management, the policy supports a catchment-scale approach to sustainable flood risk management and aims to build the resilience of our cities and towns, encourage sustainable land management in our rural areas, and to address the long-term vulnerability of parts of our coasts and islands. Under this approach, new development in areas with medium to high likelihood of flooding should be avoided.	01/06/2016-01/06/2022	The South Ayrshire Council Local Development Plan recognises the importance of sustainable flood risk management in both urban and rural developments and is in alignment with Scottish Planning Policy. The Local Development Plan is currently under review with public consultation on the plan scheduled for the end of 2018.	The Council's planning policies will be reviewed periodically to ensure that all current national policies are implemented and that the recommendations of strategic studies, such as the Ayrshire Shoreline Management Plan, Surface Water Management Plans etc., are considered.

## 4.11 River Ayr (Potentially Vulnerable Area 12/11)

Local Plan District	Local authority	Main catchment
Ayrshire	South Ayrshire Council	River Ayr



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### Summary of Progress for River Ayr

There are approximately 90 residential properties at risk of flooding. The Annual Average Damages are approximately £72,000. Further information can be found in the Ayrshire Local FRMP under PVA 12/11, please click [here](#).

The Meadowhead Integrated Catchment study and Surface Water Management Plans for Ayr and Prestwick are progressing according to plan. This will consider the main flood risk in this area which is surface water flooding.

### Overview of actions to manage flooding in River Ayr

PVA	Flood protections scheme/works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Strategic mapping and modelling SEPA	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Emergency plans/response	Planning policies
12/11			A			G					G			G	G	G	G	G

## Summary of progress of actions to manage flood risk in the River Ayr (PVA 12/11)

Action	Status	Description	Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
New flood warning River Ayr	A	The area under consideration for a new flood warning includes properties affected by flooding from the River Ayr. Full scoping, infrastructure and a flood forecasting system will be required before a flood warning service can be delivered in this area. Communities that will benefit from a warning will be identified during development of the scheme.	1/06/2016 – 30/09/2018	Scoping work complete and new hydrometric infrastructure (river monitoring sites) been installed.	New flood forecasting capabilities to be developed.
Surface water plan/study	G	An integrated catchment study covering the Meadowhead catchment was carried out in SR10 (2010-2015). This study will help to support the surface water management planning process in Kilmarnock, Greenholm, Irvine, Prestwick and Ayr. The study has improved knowledge and understanding of flood risk and interactions between the above	01/06/2016- 01/06/2022	Pre Optioneering Catchment Plan and prioritisation stages completed.	The Optioneering Phase to be completed. The implementation of the findings will be considered in coordination with Scottish Water in the next cycle of FRM Plan.

		ground and below ground drainage network e.g. with the sewer network and watercourses. The Optioneering phase of this study, to establish the preferred solution(s) to the flooding issues, is now being progressed.			
Surface water plan/study	G	South Ayrshire Council will develop a surface water management plan or plans to cover Prestwick and Ayr which set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives.	01/06/2016-01/06/2022	The Surface water management Plan for South Ayrshire Council catchments is currently at tender stage and planned to be complete by end of 2019.	The implementation of the findings will be considered in the next cycle of FRM Plan.
Strategic mapping and modelling	G	Scottish Water will undertake further investigation and modelling in the Meadowhead sewer catchment to improve knowledge and understanding of flood risk in this area and as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.	01/01/2016 – 31/12/2020	The Scottish Water assessment of flood risk within the sewer catchment has been completed.	The assessment is now completed and shared with Local Authority.
Flood forecasting	G	The Scottish Flood Forecasting Service is a joint initiative between SEPA and the Met Office that produces daily, national flood	22/12/2015-01/06/2022	SEPA has continued to operate the Scottish Flood Forecasting Service (SFFS) Partnership with the Met Office with daily,	SEPA will continue and improve the Scottish Flood Forecasting Service (SFFS) with the Met Office, with daily Flood Guidance



		guidance statements which are issued to Category 1 and 2 Responders. The service			Statements and regional Flood Alerts issued as required to enable communities and responders to reduce the impacts of flooding. SEPA is currently exploring options to develop a public version of the daily Flood Guidance Statement to provide better and earlier information to the public.
Self help	G	Everyone is responsible for protecting themselves and their property from flooding. Property and business owners can take simple steps to reduce damage and disruption to their homes and businesses should flooding happen. This includes preparing a flood plan and flood kit, installing property level protection, signing up to Floodline The Councils, SEPA and Scottish Water will continue to engage with responsible Authorities and all other stakeholders, including community groups and the public to raise awareness of flood risk and how those affected can be better	01/04/2016-22/06/2022	Community Engagement includes, PLP exhibitions, selection, surveys and appropriate and relevant information to enable clients to make the right decisions.	Ongoing community PLP training, Flood Warden and resilience group promotion.

		prepared. Further detail can be found in the Councils and Scottish Flood Forum websites.			
Awareness raising	G	<p>South Ayrshire Council, SEPA and Scottish Water collectively work to raise awareness of flood risk and how those affected can be better prepared. Through the continued development of flood schemes and studies at higher risk locations, officers from the Council's Flood Risk Management Team attend community council events to discuss elements of flood risk management. Across Scotland, SEPA will create and share communication and education resources with other responsible authorities. These resources will include awareness campaigns, media and marketing activity and promotion of SEPA's flood forecasting and warning services (Floodline). Scottish Water will provide targeted flooding communications for Scottish Water specific activities and raise awareness by producing and</p>	22/12/2015-22/06/2022	<p>SEPA's principle awareness raising approaches have been through:</p> <ol style="list-style-type: none"> <li>1. Direct campaigning and general awareness raising</li> <li>2. Education and tools</li> <li>3. Partnership delivery development</li> </ol> <p>South Ayrshire Councils general awareness raising is a continuous activity</p>	<p>SEPA will continue to raise awareness of flood risk through direct campaigning, general awareness raising, developing education and engagement tools, creating new partnerships and improving its flood forecasting and warning services (e.g. Scottish Flood Forecasting Service and Floodline). This will continue with many of the actions reported for the interim progress summary. Further information is contained within SEPA's Flood Warning Development Framework, published in 2017 and for the period 2017 to 2021. Raising Awareness will form part of each of the 3 key themes identified:</p> <ul style="list-style-type: none"> <li>• Aim 1: Maintenance of existing and delivery of new flood warning schemes.</li> </ul>

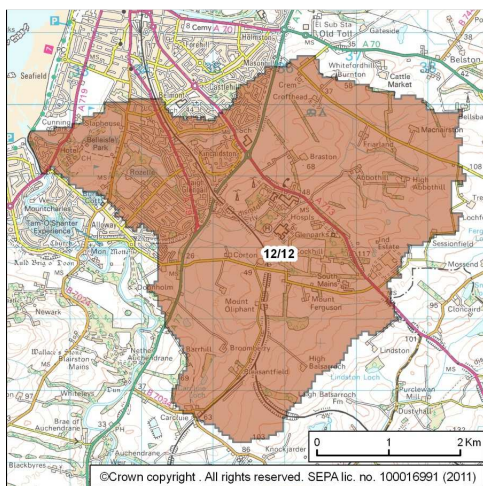
		supplying targeted information to the public on large capital projects and detailed local studies.			<ul style="list-style-type: none"> <li>• Aim 2: Development and innovation.</li> <li>• Aim 3: Engagement with partners and customers</li> </ul>
Maintenance	G	Local authorities have a duty to assess watercourses and carry out clearance and repair works where such works would substantially reduce flood risk. They produce schedules of clearance and repair works and make these available for public inspection. Scottish Water undertake risk based inspection, maintenance and repair on the public sewer network. Asset owners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk.	01/06/2016-01/06/2022	South Ayrshire Council carry out monthly inspections and clearance work where necessary on 17 debris screens where there is a known flood risk from blockage. Watercourse inspections are carried out on a regular basis where there are known flood risk issues. 25km of coastal protection structures are inspected annually.	The Council will continue to maintain watercourses, screens and other relevant Council assets.
Emergency plans/response	G	Providing an emergency response to flooding is the responsibility of many organisations, including local authorities, the emergency services and SEPA. Effective management of an emergency response relies on emergency plans that are prepared	01/06/2016-01/06/2022	For SAC Ayrshire Civil Contingencies maintain and update all emergency response plans. These are updated every 3 years or as required after an incident. This is done in conjunction with the relevant department and external agency.	The Ayrshire Civil Contingencies team is responsible for producing the Civil Contingencies Plan, which outlines the management and operational arrangements that the Councils will follow in the event of an emergency as well as

		<p>under the Civil Contingencies Act 2004 by Category 1 and 2 Responders. Scottish Water are a Category 2 responder under the Civil Contingencies Act 2004 and will support regional and local resilience partnerships as required. The emergency response by these organisations is coordinated through regional and local resilience partnerships. This response may be supported by the work of voluntary organisations.</p>			<p>encouraging other agencies to prepare for their role. The Councils will contribute to the production and review of the Civil Contingencies Plan and the Emergency Plan for Severe Weather and Flooding, as required. This response may be supported by the work of voluntary organisations.</p>
Planning policies	G	<p>Scottish Planning Policy and accompanying Planning Advice Notes set out Scottish Ministers' priorities for the operation of the planning system and for the development and use of land. In terms of flood risk management, the policy supports a catchment-scale approach to sustainable flood risk management and aims to build the resilience of our cities and towns, encourage sustainable land management in our rural areas, and</p>	01/06/2016-01/06/2022	<p>The South Ayrshire Council Local Development Plan recognises the importance of sustainable flood risk management in both urban and rural developments and is in alignment with Scottish Planning Policy. The Local Development Plan is currently under review with public consultation on the plan scheduled for the end of 2018.</p>	<p>The Council's planning policies will be reviewed periodically to ensure that all current national policies are implemented and that the recommendations of strategic studies, such as the Ayrshire Shoreline Management Plan, Surface Water Management Plans etc., are considered.</p>

		to address the long-term vulnerability of parts of our coasts and islands. Under this approach, new development in areas with medium to high likelihood of flooding should be avoided.			
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## 4.12 Ayr East (Potentially Vulnerable Area 12/12)

Local Plan District	Local authority	Main catchment
Ayrshire	South Ayrshire Council	River Ayr



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### Summary of Progress for Ayr East

There are approximately 290 residential properties at risk of flooding. The Annual Average Damages are approximately £720,000. Further information can be found in the Ayrshire Local FRMP under PVA 12/12, please click [here](#).

The Meadowhead Integrated Catchment study and Surface Water Management Plans for Ayr and Prestwick are progressing according to plan.

### Overview of actions to manage flooding in Ayr East

PVA	Flood protections scheme/works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Strategic mapping and modelling SEPA	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Emergency plans/response	Planning policies
12/12								R			G			G	G	G	G	G

## Summary of progress of actions to manage flood risk in the Ayr East (PVA 12/12)

Action	Status	Description	Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
Strategic mapping and modelling	R	<p>SEPA will update strategic coastal mapping in the Ayr to Ardrossan area to improve understanding of flood risk. The extent and timing of improvements will depend on detailed scoping and data availability. Where this work coincides with local authority studies, SEPA will work collaboratively to ensure consistent modelling approaches are applied.</p> <p>The coastal mapping and modelling process will start in 2016, with early work focussing on methodology development and data collection.</p> <p>Once this stage has been completed a thorough review will be carried out to identify the final mapping improvements that can be made in the area.</p>	01/01/2016-31/12/2018	<p>Following the establishment of a coastal flood hazard map development framework and characterisation of the coastline, several projects are currently underway at this location:</p> <ul style="list-style-type: none"> <li>• Development of a national coastal joint probability dataset;</li> <li>• Update to the UK design extreme sea level dataset</li> </ul> <p>These projects/datasets will inform a future coastal modelling and mapping project for the Firth of Clyde.</p>	<p>It is anticipated that this action will progress to a study prior to the end of Cycle 1 however completion is likely to be in early Cycle 2 due to both the geographical extent and technical complexity of the mapping improvements required.</p> <p>Topographic survey will be necessary prior to any modelling study.</p>

Strategic mapping and modelling Section 16 Assessment		Scottish Water will undertake further investigation and modelling in the Meadowhead sewer catchment to improve knowledge and understanding of flood risk in this area and as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.	01/01/2016-31/12/2020	The Scottish Water assessment of flood risk within the sewer catchment has been completed.	The assessment is now completed and shared with Local Authority.
Maintain Flood Warning Ayr Seafield flood warning area	G	SEPA will continue to maintain the Ayr Seafield flood warning area which is part of the Firth of Clyde coastal flood warning scheme. When flood events occur in an area with a flood warning service, SEPA will seek to verify and validate the warning service. SEPA will use feedback and post-event data to ensure that our flood warning service is timely and accurate.	22/12/2015-22/06/2022	SEPA has recently reviewed and recalibrated the Firth of Clyde flood forecasting model. SEPA has continued to maintain the Ayr Seafield flood warning area within a new 'Ayr to Troon' flood warning area which is part of the Firth of Clyde coastal flood warning scheme.	SEPA will continue to operate the flood warning service.
Flood forecasting	G	The Scottish Flood Forecasting Service is a joint initiative between SEPA and the Met Office that produces daily, national flood guidance statements which are issued to Category 1 and 2 Responders. The service also provides information which allows	22/12/2015-01/06/2022	SEPA has continued to operate the Scottish Flood Forecasting Service (SFFS) Partnership with the Met Office with daily, national Flood Guidance Statements issued to Category 1 and 2 agencies (such as emergency responders, local authorities and other organisations with flooding	SEPA will continue and improve the Scottish Flood Forecasting Service (SFFS) with the Met Office, with daily Flood Guidance Statements and regional Flood Alerts issued as required to enable communities and responders to reduce the impacts



		SEPA to issue flood warnings, giving people a better chance of reducing the impact of flooding on their home or business. For more information please visit SEPA's website.		management duties) and regional Flood Alerts issued to the public. Each daily statement gives an assessment of the risk of flooding for the next five days to enable these organisations to put preparations in place to reduce the impact of flooding. SEPA's Flood Alert service is freely available to everyone and enables communities to be aware and prepared to reduce the impacts of flooding.	of flooding. SEPA is currently exploring options to develop a public version of the daily Flood Guidance Statement to provide better and earlier information to the public.
Self help	G	Everyone is responsible for protecting themselves and their property from flooding. Property and business owners can take simple steps to reduce damage and disruption to their homes and businesses should flooding happen. This includes preparing a flood plan and flood kit, installing property level protection, signing up to Floodline The Councils, SEPA and Scottish Water will continue to engage with responsible Authorities and all other stakeholders, including community groups and the public to raise awareness of flood risk and how	01/06/2016-22/06/2022	Community Engagement includes, PLP exhibitions, selection, surveys and appropriate and relevant information to enable clients to make the right decisions.	Ongoing community PLP training, Flood Warden and resilience group promotion.

		those affected can be better prepared. Further detail can be found in the Councils and Scottish Flood Forum websites.			
Awareness raising	G	<p>South Ayrshire Council, SEPA and Scottish Water collectively work to raise awareness of flood risk and how those affected can be better prepared. Through the continued development of flood schemes and studies at higher risk locations, officers from the Council's Flood Risk Management Team attend community council events to discuss elements of flood risk management. Across Scotland, SEPA will create and share communication and education resources with other responsible authorities. These resources will include awareness campaigns, media and marketing activity and promotion of SEPA's flood forecasting and warning services (Floodline). Scottish Water will provide targeted flooding communications for Scottish Water specific activities and raise</p>	22/12/2015-22/06/2022	<p>SEPA's principle awareness raising approaches have been through:</p> <ol style="list-style-type: none"> <li>1. Direct campaigning and general awareness raising</li> <li>2. Education and tools</li> <li>3. Partnership delivery development</li> </ol> <p>South Ayrshire Councils general awareness raising is a continuous activity</p>	<p>SEPA will continue to raise awareness of flood risk through direct campaigning, general awareness raising, developing education and engagement tools, creating new partnerships and improving its flood forecasting and warning services (e.g. Scottish Flood Forecasting Service and Floodline). This will continue with many of the actions reported for the interim progress summary. Further information is contained within SEPA's Flood Warning Development Framework, published in 2017 and for the period 2017 to 2021. Raising Awareness will form part of each of the 3 key themes identified:</p> <ul style="list-style-type: none"> <li>• Aim 1: Maintenance of existing and delivery of new flood warning schemes.</li> </ul>

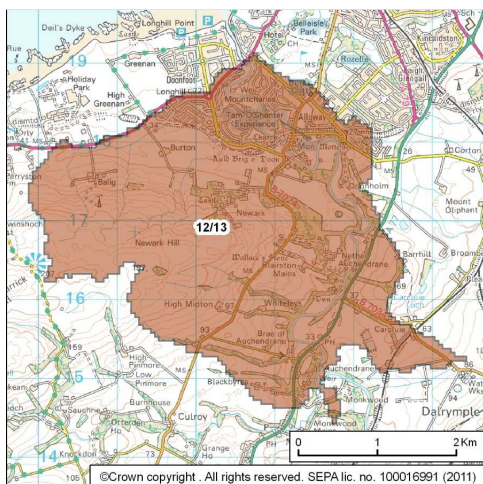
		awareness by producing and supplying targeted information to the public on large capital projects and detailed local studies.			<ul style="list-style-type: none"> <li>• Aim 2: Development and innovation.</li> <li>• Aim 3: Engagement with partners and customers.</li> </ul>
Maintenance	G	Local authorities have a duty to assess watercourses and carry out clearance and repair works where such works would substantially reduce flood risk. They produce schedules of clearance and repair works and make these available for public inspection. Scottish Water undertake risk based inspection, maintenance and repair on the public sewer network. Asset owners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk.	01/06/2016-01/06/2022	South Ayrshire Council carry out monthly inspections and clearance work where necessary on 17 debris screens where there is a known flood risk from blockage. Watercourse inspections are carried out on a regular basis where there are known flood risk issues. 25km of coastal protection structures are inspected annually.	The Council will continue to inspect and maintain watercourses, screens and other relevant Council assets.
Emergency plans/response	G	Providing an emergency response to flooding is the responsibility of many organisations, including local authorities, the emergency services and SEPA. Effective management of an emergency response relies on emergency plans that are prepared	01/06/2016-01/06/2022	For SAC Ayrshire Civil Contingencies maintain and update all emergency response plans. These are updated every 3 years or as required after an incident. This is done in conjunction with the relevant department and external agency.	The Ayrshire Civil Contingencies team is responsible for producing the Civil Contingencies Plan, which outlines the management and operational arrangements that the Councils will follow in the event of an emergency as well as

		<p>under the Civil Contingencies Act 2004 by Category 1 and 2 Responders. Scottish Water are a Category 2 responder under the Civil Contingencies Act 2004 and will support regional and local resilience partnerships as required. The emergency response by these organisations is coordinated through regional and local resilience partnerships. This response may be supported by the work of voluntary organisations.</p>			<p>encouraging other agencies to prepare for their role. The Councils will contribute to the production and review of the Civil Contingencies Plan and the Emergency Plan for Severe Weather and Flooding, as required. This response may be supported by the work of voluntary organisations.</p>
Planning policies	G	<p>Scottish Planning Policy and accompanying Planning Advice Notes set out Scottish Ministers' priorities for the operation of the planning system and for the development and use of land. In terms of flood risk management, the policy supports a catchment-scale approach to sustainable flood risk management and aims to build the resilience of our cities and towns, encourage sustainable land management in our rural areas, and to address the long-term</p>	01/06/2016-01/06/2022	<p>The South Ayrshire Council Local Development Plan recognises the importance of sustainable flood risk management in both urban and rural developments and is in alignment with Scottish Planning Policy. The Local Development Plan is currently under review with public consultation on the plan scheduled for the end of 2018.</p>	<p>The Council's planning policies will be reviewed periodically to ensure that all current national policies are implemented and that the recommendations of strategic studies, such as the Ayrshire Shoreline Management Plan, Surface Water Management Plans etc., are considered.</p>

		vulnerability of parts of our coasts and islands. Under this approach, new development in areas with medium to high likelihood of flooding should be avoided.			
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## 4.13 Ayr South (Potentially Vulnerable Area 12/13)

Local Plan District	Local authority	Main catchment
Ayrshire	South Ayrshire Council	River Doon



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### Summary of Progress for Ayr South

There are approximately 20 residential properties at risk of flooding. The Annual Average Damages are approximately £40,000. Further information can be found in the Ayrshire Local FRMP under PVA 12/13, please click [here](#).

Throughout the period South Ayrshire Council have carried out inspection and maintenance works at known high flood risk locations such as debris screens and small culverts.

The Meadowhead Integrated Catchment study and Surface Water Management Plans for Ayr and Prestwick are progressing according to plan.

### Overview of actions to manage flooding in Ayr South

PVA	Flood protections scheme/works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Strategic mapping and modelling SEPA	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Emergency plans/response	Planning policies
12/13							G				G			G	G	G	G	G

## Summary of progress of actions to manage flood risk in the Ayr South (PVA 12/13)

Action	Status	Description	Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
Strategic mapping and modelling Section 16 Assessment	G	Scottish Water will undertake further investigation and modelling in the Meadowhead sewer catchment to improve knowledge and understanding of flood risk in this area and as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.	01/01/2016- 31/12/2020	The Scottish Water assessment of flood risk within the sewer catchment has been completed.	The assessment is now completed and shared with Local Authority.
Flood forecasting	G	The Scottish Flood Forecasting Service is a joint initiative between SEPA and the Met Office that produces daily, national flood guidance statements which are issued to Category 1 and 2 Responders. The service also provides information which allows SEPA to issue flood warnings, giving people a better chance of reducing the impact of flooding on their home or business. For more information please visit SEPA's website.	22/12/2015- 01/06/2022	SEPA has continued to operate the Scottish Flood Forecasting Service (SFFS) Partnership with the Met Office with daily, national Flood Guidance Statements issued to Category 1 and 2 agencies (such as emergency responders, local authorities and other organisations with flooding management duties) and regional Flood Alerts issued to the public. Each daily statement gives an assessment of the risk of flooding for the next five days to enable these organisations to put preparations in place to reduce the	SEPA will continue and improve the Scottish Flood Forecasting Service (SFFS) with the Met Office, with daily Flood Guidance Statements and regional Flood Alerts issued as required to enable communities and responders to reduce the impacts of flooding. SEPA is currently exploring options to develop a public version of the daily Flood Guidance Statement to provide better and earlier information to the public.

				impact of flooding. SEPA's Flood Alert service is freely available to everyone and enables communities to be aware and prepared to reduce the impacts of flooding.	
Self help	G	Everyone is responsible for protecting themselves and their property from flooding. Property and business owners can take simple steps to reduce damage and disruption to their homes and businesses should flooding happen. This includes preparing a flood plan and flood kit, installing property level protection, signing up to Floodline. The Councils, SEPA and Scottish Water will continue to engage with responsible Authorities and all other stakeholders, including community groups and the public to raise awareness of flood risk and how those affected can be better prepared. Further detail can be found in the Councils and Scottish Flood Forum websites.	01/06/2016-22/06/2022	Community Engagement includes, PLP exhibitions, selection, surveys and appropriate and relevant information to enable clients to make the right decisions.	Ongoing community PLP training, Flood Warden and resilience group promotion.
Awareness raising	G	South Ayrshire Council, SEPA and Scottish Water collectively work to	22/12/2015-22/06/2022	SEPA's principle awareness raising approaches have been through:	SEPA will continue to raise awareness of flood risk through



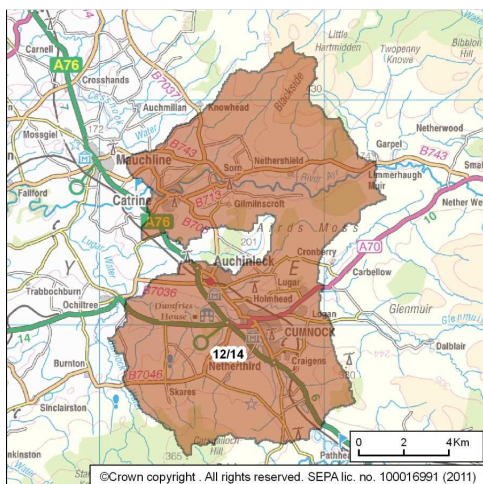
		raise awareness of flood risk and how those affected can be better prepared. Through the continued development of flood schemes and studies at higher risk locations, officers from the Council's Flood Risk Management Team attend community council events to discuss elements of flood risk management. Across Scotland, SEPA will create and share communication and education resources with other responsible authorities. These resources will include awareness campaigns, media and marketing activity and promotion of SEPA's flood forecasting and warning services (Floodline). Scottish Water will provide targeted flooding communications for Scottish Water specific activities and raise awareness by producing and supplying targeted information to the public on large capital projects and detailed local studies.		<ol style="list-style-type: none"> <li>1. Direct campaigning and general awareness raising</li> <li>2. Education and tools</li> <li>3. Partnership delivery development</li> </ol> <p>South Ayrshire Councils general awareness raising is a continuous activity</p>	<p>direct campaigning, general awareness raising, developing education and engagement tools, creating new partnerships and improving its flood forecasting and warning services (e.g. Scottish Flood Forecasting Service and Floodline). This will continue with many of the actions reported for the interim progress summary. Further information is contained within SEPA's Flood Warning Development Framework, published in 2017 and for the period 2017 to 2021.</p> <p>Raising Awareness will form part of each of the 3 key themes identified:</p> <ul style="list-style-type: none"> <li>• Aim 1: Maintenance of existing and delivery of new flood warning schemes.</li> <li>• Aim 2: Development and innovation.</li> <li>• Aim 3: Engagement with partners and customers.</li> </ul>
Maintenance	G	Local authorities have a duty to assess watercourses and carry out	01/06/2016-01/06/2022	South Ayrshire Council carry out monthly inspections and clearance	The Council will continue to inspect and maintain watercourses,

		clearance and repair works where such works would substantially reduce flood risk. They produce schedules of clearance and repair works and make these available for public inspection. Scottish Water undertake risk based inspection, maintenance and repair on the public sewer network. Asset owners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk.		work where necessary on 17 debris screens where there is a known flood risk from blockage. Watercourse inspections are carried out on a regular basis where there are known flood risk issues.	screens and other relevant Council Assets.
Emergency plans/response	G	Providing an emergency response to flooding is the responsibility of many organisations, including local authorities, the emergency services and SEPA. Effective management of an emergency response relies on emergency plans that are prepared under the Civil Contingencies Act 2004 by Category 1 and 2 Responders. Scottish Water are a Category 2 responder under the Civil Contingencies Act 2004 and will support regional and local	01/06/2016-01/06/2022	For SAC Ayrshire Civil Contingencies maintain and update all emergency response plans. These are updated every 3 years or as required after an incident. This is done in conjunction with the relevant department and external agency.	The Ayrshire Civil Contingencies team is responsible for producing the Civil Contingencies Plan, which outlines the management and operational arrangements that the Councils will follow in the event of an emergency as well as encouraging other agencies to prepare for their role. The Councils will contribute to the production and review of the Civil Contingencies Plan and the Emergency Plan for Severe Weather and Flooding, as

		resilience partnerships as required. The emergency response by these organisations is coordinated through regional and local resilience partnerships. This response may be supported by the work of voluntary			required. This response may be supported by the work of voluntary organisations.
Planning policies	G	Scottish Planning Policy and accompanying Planning Advice Notes set out Scottish Ministers' priorities for the operation of the planning system and for the development and use of land. In terms of flood risk management, the policy supports a catchment-scale approach to sustainable flood risk management and aims to build the resilience of our cities and towns, encourage sustainable land management in our rural areas, and to address the long-term vulnerability of parts of our coasts and islands. Under this approach, new development in areas with medium to high likelihood of flooding should be avoided.	01/06/2016-01/06/2022	The South Ayrshire Council Local Development Plan recognises the importance of sustainable flood risk management in both urban and rural developments and is in alignment with Scottish Planning Policy. The Local Development Plan is currently under review with public consultation on the plan scheduled for the end of 2018.	The Council's planning policies will be reviewed periodically to ensure that all current national policies are implemented and that the recommendations of strategic studies, such as the Ayrshire Shoreline Management Plan, Surface Water Management Plans etc., are considered.

## 4.14 Cumnock and Catrine (Potentially Vulnerable Area 12/14)

Local Plan District	Local authority	Main catchment
Ayrshire	East Ayrshire Council	River Ayr



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### Summary of Progress for Cumnock and Catrine

There are approximately 330 residential properties and 240 non-residential properties at risk of flooding. The Annual Average Damages are approximately £970,000. Further information can be found in the Ayrshire Local FRMP under PVA 12/14, please click [here](#).

Key progress has been made with the installation of River Monitors on the Lugar and Glaisnock Waters. These are being used in conjunction with the SEPA monitor on the River Ayr at Catrine, to gather hydraulic data to inform the planned combined Flood study (2020 -2022) for these watercourses. The Flood study will inform Cycle 2 flooding actions for these locations.

### Overview of actions to manage flooding in Cumnock and Catrine

PVA	Flood protections scheme/works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Strategic mapping and modelling SEPA	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Emergency plans/response	Planning policies
12/14				G			G	R			G	G		G	G	G	G	G

## Summary of progress of actions to manage flood risk in the Cumnock and Catrine (PVA 12/14)

Action	Status	Description	Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
Flood protection study	G	A study will investigate the feasibility of a flood protection scheme along the River Ayr at Sorn/Catrine and further investigate any measures required in Cumnock.	01/06/2016-22/06/2022	Progress has been made with the installation of River Monitors on the Lugar and Glaisnock Waters. These are being used in conjunction with the SEPA monitor on the River Ayr at Catrine, to gather hydraulic data to inform the planned combined Flood study (2020 -2022) for these watercourses. The Flood study will inform Cycle 2 flooding actions for these locations.	Additional resourcing is required in order to procure these works out to tender. These works are expected to progress on schedule.
Strategic mapping and modelling	R	SEPA will seek to incorporate additional surface water data into the flood maps to improve understanding of flood risk. Approximately 1,300km <sup>2</sup> of improved surface water data is currently available within this Local Plan District.	01/06/2016-22/06/2022	SEPA's current Surface water hazard maps use design rainfall estimates based on FEH99 methodology, this has now been superseded by FEH13 methodology. The FEH13 dataset contains the latest science and understanding of rainfall across Scotland and represents a significant change in rainfall amounts compared	This action will not be taken forwards as described. SEPA will develop new Surface water flood hazard maps over the remainder of Cycle 1. It is anticipated that updated flood mapping from this revised action will be available early in Cycle 2.

				to FEH99 dataset, as such it is no longer consider appropriate to deliver this action as originally intended.	Alongside this SEPA will investigate the feasibility of developing an interim approach to assess the change in Surface water hazard (and risk) associated with FEH13, such that we could consider it in the development of the 2021 FRM Strategies.
Strategic mapping and modelling - Section 16 assessment	G	Scottish Water will undertake further investigation and modelling in the Catrineholm and Underwood Cumnock sewer catchment to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.	01/01/2016-31/12/2019	The Scottish Water assessment of flood risk within the sewer catchment has been completed for both Catrineholm and Underwood Cumnock.	The assessment is now completed and to be shared with Local Authority.
Flood forecasting	G	The Scottish Flood Forecasting Service is a joint initiative between SEPA and the Met Office that produces daily, national flood guidance statements which are issued to Category 1 and 2 Responders. The service also provides information which allows SEPA to issue flood warnings,	22/12/2015-01/06/2022	SEPA has continued to operate the Scottish Flood Forecasting Service (SFFS) Partnership with the Met Office with daily, national Flood Guidance Statements issued to Category 1 and 2 agencies (such as emergency responders, local authorities and other organisations with flooding management duties) and regional	SEPA will continue and improve the Scottish Flood Forecasting Service (SFFS) with the Met Office, with daily Flood Guidance Statements and regional Flood Alerts issued as required to enable communities and responders to reduce the impacts of flooding. SEPA is currently

		giving people a better chance of reducing the impact of flooding on their home or business. For more information please visit SEPA's website.		Flood Alerts issued to the public. Each daily statement gives an assessment of the risk of flooding for the next five days to enable these organisations to put preparations in place to reduce the impact of flooding. SEPA's Flood Alert service is freely available to everyone and enables communities to be aware and prepared to reduce the impacts of flooding.	exploring options to develop a public version of the daily Flood Guidance Statement to provide better and earlier information to the public.
Property level protection scheme	G	East Ayrshire Council is currently procuring suitable flow and level monitoring installations on appropriate watercourses identified for studies, with the intention of informing those studies in areas known to have little or no information currently available. Information gaps and proposed locations are being identified in co-operation with SEPA. Once this in place the Flood Study for the River Ayr will inform any property level protection requirements for the area and the monitors will form the basis for a Flood Warning scheme to support the placement.	01/06/2016-22/06/2022	The Flood Study for the River Ayr for Catrine and Lugar and Glaisnock in Cumnock will inform any property level protection requirements for the area and the monitors will form the basis for a Flood Warning scheme to support the placement.	EAC have currently made PLP available to all residents in EAC, who would benefit from there use, and continue to do so.

Self help	G	<p>Everyone is responsible for protecting themselves and their property from flooding. Property and business owners can take simple steps to reduce damage and disruption to their homes and businesses should flooding happen. This includes preparing a flood plan and flood kit, installing property level protection, signing up to Floodline. The Councils, SEPA and Scottish Water will continue to engage with responsible Authorities and all other stakeholders, including community groups and the public to raise awareness of flood risk and how those affected can be better prepared. Further detail can be found in the Councils and Scottish Flood Forum websites.</p>	01/04/2016-22/06/2022	Community Engagement includes, PLP exhibitions, selection, surveys and appropriate and relevant information to enable clients to make the right decisions.	Ongoing community PLP training, Flood Warden and resilience group promotion.
Awareness raising	G	<p>East Ayrshire Council, SEPA and Scottish Water collectively work to raise awareness of flood risk and how those affected can be better prepared. Across Scotland, SEPA will create and share communication and</p>	01/04/2016-22/06/2022	EAC and SEPA has delivered a range of awareness raising activities through campaigning, education activities and partnership delivery. We have run national and local digital and direct engagement campaigns to raise awareness of flood risk and SEPA's	EAC and SEPA will continue to raise awareness of flood risk through campaigning, developing education and engagement tools, creating new partnerships and improving the flood warning and forecasting service. Many of our



		<p>education resources with other responsible authorities. These resources will include awareness campaigns, media and marketing activity and promotion of SEPA's flood forecasting and warning services (Floodline).</p> <p>Scottish Water will provide targeted flooding communications for Scottish Water specific activities and raise awareness by producing and supplying targeted information to the public on large capital projects and detailed local studies.</p> <p>Further Information is provided on East Ayrshire Council, SEPA, Scottish Water and Ayrshire Road Alliance websites.</p>	<p>flood warning service, Floodline. We publish and publicise an electronic newsletter (Flooding Gateway) four times a year which is distributed to a wide audience. SEPA are working with Education Scotland and Scottish Government Resilience team to embed flooding awareness within the Curriculum for Excellence, and resilience partners in Safer Communities programmes. We have also developed an online tool that helps everyone share information on current flooding issues (Report-a-Flood). We have worked in partnership with local authorities, emergency services and community organisations (e.g. Neighbourhood Watch Scotland, Citizens Advice Scotland and others) to share our resources and help to promote preparedness and understanding of how we manage flood risk in Scotland. We have actively supported the Scottish Flood Forum and worked closely with UK agencies to develop joint flooding information.</p>	<p>awareness raising activities currently underway will continue. Our focus will be on promoting flood warning and forecasting service, innovation, education and engagement with partners, customers and the public.</p>
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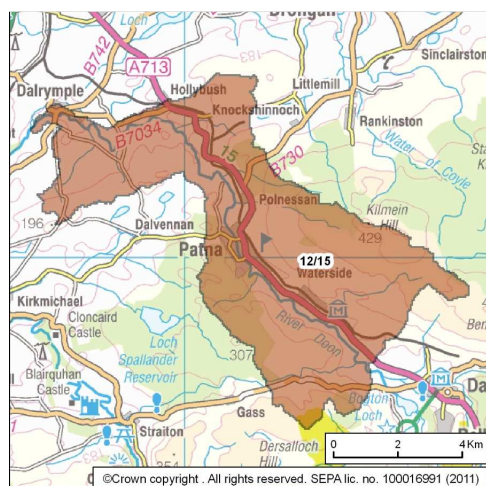
Maintenance	G	East Ayrshire Council in accordance with Section 18 of the Flood Risk Management (Scotland) Act 2009 undertake assessment of water bodies to determine whether works of clearance and repair would substantially reduce the risk of flooding. This information is used to produce a schedule of works which is available for the public to inspect.	01/04/2016-22/06/2022	High risk locations such as those with screens and some smaller culverts are inspected on a scheduled basis. The majority of inspections tend to be undertaken in the winter months when flows are higher, and leaves and other waterborne debris can be an issue. Works of clearance are carried out during these inspections which are not specifically "scheduled". The main water bodies, and other water bodies, within urban areas are subject to an annual visual inspection and any works	The Council will continue to inspect and maintain watercourses, screens and other relevant Council assets.
Emergency plans/response	G	The Civil Contingencies Team ensures that the Council will be able to respond speedily and effectively in a major emergency. North, South and East Ayrshire teams are a shared service team known as the Ayrshire Civil Contingencies Team. If disaster strikes, or if emergencies develop in Ayrshire, communities will look to the Council for support and advice. The Ayrshire Civil Contingencies Team ensures that	01/04/2016-22/06/2022	Emergency Response Planning is carried out by Ayrshire Civil Contingencies Team (ACCT) this is an all Ayrshire shared service. ACCT update and co-ordinate (all Emergency Responders) the emergency response plans (ERP) as required (in direct consultation with ARA, where appropriate). In addition to the ERP EAC has implemented a system of river monitors in known areas and a rota of Flood Scouts (FS).	Providing an emergency response to flooding is the responsibility of many organisations, including local authorities, the emergency services and SEPA. Effective management of an emergency response relies on emergency plans that are prepared under the Civil Contingencies Act 2004 by Category 1 and 2 Responders. Scottish Water are a Category 2 responder under the Civil

		<p>the Council will be able to respond speedily and effectively in a major emergency in accordance with the Civil Contingencies Act 2004 (Contingency Planning) (Scotland) Regulations 2005. Our responsibilities include preparing comprehensive and robust contingency plans and procedures irrespective of the nature of the emergency. The main aim is to preserve life and property. Every emergency plan also sets out to:</p> <p>Mitigate the harmful effects of the emergency on the environment; bring about a swift return to normal life in the communities and environment affected; and encourage all agencies and organisations to prepare for their role.</p>		<p>Is maintained who are tasked to monitor and report back on status on receipt of any alarm.</p>	<p>Contingencies Act 2004 and will support regional and local resilience partnerships as required. The emergency response by these organisations is coordinated through regional and local resilience partnerships. This response may be supported by the work of voluntary organisations.</p>
Planning policies	G	<p>Scottish Planning Policy and accompanying Planning Advice Notes set out Scottish Ministers' priorities for the operation of the planning system and for the</p>	01/06/2016-22/06/2022	<p>The Local Development Plan (LDP) takes cognisance of the Local Flood Risk Management and Plan (LOCAL FRMP) is currently in mid cycle. Work is progressing on the next LPD.</p>	<p>The Council's planning policies will be reviewed periodically to ensure that all current national policies are implemented and that the recommendations of strategic</p>

		<p>development and use of land. In terms of flood risk management, the policy supports a catchment-scale approach to sustainable flood risk management and aims to build the resilience of our cities and towns, encourage sustainable land management in our rural areas, and to address the long-term vulnerability of parts of our coasts and islands. Under this approach, new development in areas with medium to high likelihood of flooding should be avoided.</p>	<p>Throughout the production of the LPD, close liaison is maintained between our Development Planners and the Flood Risk Management team to ensure the Planners are informed of any factors that would impact on the LPD.</p> <p>Including any new PVA information as received.</p>	<p>studies, such as the Ayrshire Shoreline Management Plan, Surface Water Management Plans etc., are considered.</p>
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## 4.15 Dalrymple and Patna (Potentially Vulnerable Area 12/15)

Local Plan District	Local authority	Main catchment
Ayrshire	East Ayrshire Council, South Ayrshire Council	River Doon



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### Summary of Progress for Dalrymple and Patna

There are approximately 90 residential properties at risk of flooding. The Annual Average Damages are approximately £120,000. Further information can be found in the Ayrshire Local FRMP under PVA 12/15, please click [here](#).

Key progress has been made with the installation of River Monitors on the Taiglum and Primpton Burns and on the River Doon at Dalrymple Bridge, to gather hydraulic data to inform the planned combined Flood study (2020 -2022) for these watercourses. The Flood study will inform Cycle 2 flooding actions for these locations.

### Overview of actions to manage flooding in Dalrymple and Patna

PVA	Flood protections scheme/works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Strategic mapping and modelling SEPA	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Emergency plans/response	Planning policies
12/15				A				R	G		G			G	G	G	G	G

## Summary of progress of actions to manage flood risk in the Dalrymple and Patna (PVA 12/15)

Action	Status	Description	Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
Flood protection study	A	A study will investigate the feasibility of a flood protection scheme, including modification of conveyance through a historic bridge and Construction of direct defences. The study will also examine the current operating procedure of Loch Doon to increase the level of storage, this will be carried out in coordination with Scottish Power	01/06/2016-22/06/2022	Progress has been made with the installation of River Monitors on the Taiglum and Primpton Burns and the River Doon, to gather hydraulic data to inform the planned combined Flood study (2020 -2022) for these watercourses. The Flood study will inform Cycle 2 flooding actions for these locations	Additional resourcing is required in order to procure these work and issue tenders, recruitment is ongoing for additional staff. The anticipated rescheduling is not envisaged to affect the ability to report as intended in Cycle 2.
Strategic mapping and modelling Pluvial mapping updates	R	SEPA will seek to incorporate additional surface water data into the flood maps to improve understanding of flood risk. Approximately 1,300km <sup>2</sup> of improved surface water data is currently available within this Local Plan District.	01/01/2016-31/12/2016	SEPA's current Surface water hazard maps use design rainfall estimates based on FEH99 methodology, this has now been superseded by FEH13 methodology. The FEH13 dataset contains the latest science and understanding of rainfall across Scotland and represents a significant change in rainfall amounts compared	This action will not be taken forwards as described. SEPA will develop new Surface water flood hazard maps over the remainder of Cycle 1. It is anticipated that updated flood mapping from this revised action will be available early in Cycle 2.

				to FEH99 dataset, as such it is no longer consider appropriate to deliver this action as originally intended.	Alongside this SEPA is investigating the feasibility of developing an interim approach to assess the change in Surface water hazard (and risk) associated with FEH13, such that we could consider it in the development of the 2021 FRM Strategies.
Maintain flood protection scheme*	G	An existing overflow channel on the Primpton Burn reduces the flood risk from the watercourse. The Council should investigate the current benefit which is offered by the scheme. This channel will be maintained, and will continue to manage flooding according to the design standard at the time of construction. Levels of flood risk are likely to increase over time as a consequence of climate change. The Primpton Burn is particularly prone to high water levels in the River Doon. East Ayrshire Council/ACCT have held meetings with Scottish Power to liaison on the operating protocols of the Doon	01/06/2016-22/06/2022	Local authorities have a duty to assess watercourses and carry out clearance and repair works where such works would substantially reduce flood risk. They produce schedules of clearance and repair works and make these available for public inspection. Scottish Water undertake risk based inspection, maintenance and repair on the public sewer network. Asset owners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk.	The Council will continue to inspect and maintain the flood protection structures within the Catchment.

		<p>Dam. Scottish Power have agreed to release more water earlier to mitigate against the need to open the gates only in an emergency. This earlier release is intended to lessen the impact during heavy rainfall events. This section of the Doon is an area that has been identified for a future study (2016-2021) to establish any further works required here.</p>			
Flood forecasting	G	<p>The Scottish Flood Forecasting Service is a joint initiative between SEPA and the Met Office that produces daily, national flood guidance statements which are issued to Category 1 and 2 Responders. The service also provides information which allows SEPA to issue flood warnings, giving people a better chance of reducing the impact of flooding on their home or business. For more information please visit SEPA's website.</p>	22/12/2015-01/06/2022	<p>SEPA has continued to operate the Scottish Flood Forecasting Service (SFFS) Partnership with the Met Office with daily, national Flood Guidance Statements issued to Category 1 and 2 agencies (such as emergency responders, local authorities and other organisations with flooding management duties) and regional Flood Alerts issued to the public. Each daily statement gives an assessment of the risk of flooding for the next five days to enable these organisations to put preparations in place to reduce the impact of flooding. SEPA's Flood Alert service is freely available to everyone</p>	<p>SEPA will continue and improve the Scottish Flood Forecasting Service (SFFS) with the Met Office, with daily Flood Guidance Statements and regional Flood Alerts issued as required to enable communities and responders to reduce the impacts of flooding. SEPA is currently exploring options to develop a public version of the daily Flood Guidance Statement to provide better and earlier information to the public.</p>



				and enables communities to be aware and prepared to reduce the impacts of flooding.	
Self help	G	Everyone is responsible for protecting themselves and their property from flooding. Property and business owners can take simple steps to reduce damage and disruption to their homes and businesses should flooding happen. This includes preparing a flood plan and flood kit, installing property level protection, signing up to Floodline The Councils, SEPA and Scottish Water will continue to engage with responsible Authorities and all other stakeholders, including community groups and the public to raise awareness of flood risk and how those affected can be better prepared. Further detail can be found in the Councils and Scottish Flood Forum websites.	01/06/2016-22/06/2022	Community Engagement includes, PLP exhibitions, selection, surveys and appropriate and relevant information to enable clients to make the right decisions.	Ongoing community PLP training, Flood Warden and resilience group promotion.
Awareness raising	G	East Ayrshire Council, South Ayrshire Council, SEPA and Scottish Water collectively work to raise awareness of flood risk and	01/06/2016-22/06/2022	EAC and SEPA has delivered a range of awareness raising activities through campaigning, education activities and partnership delivery. We have run	SEPA will continue to raise awareness of flood risk through direct campaigning, general awareness raising, developing

		<p>how those affected can be better prepared.</p>	<p>national and local digital and direct engagement campaigns to raise awareness of flood risk and SEPA's flood warning service, Floodline. We publish and publicise an electronic newsletter (Flooding Gateway) four times a year which is distributed to a wide audience. SEPA are working with Education Scotland and Scottish Government Resilience team to embed flooding awareness within the Curriculum for Excellence, and resilience partners in Safer Communities programmes. We have also developed an online tool that helps everyone share information on current flooding issues (Report-a-Flood). We have worked in partnership with local authorities, emergency services and community organisations (e.g. Neighbourhood Watch Scotland, Citizens Advice Scotland and others) to share our resources and help to promote preparedness and understanding of how we manage flood risk in Scotland. We have actively supported the Scottish Flood</p>	<p>education and engagement tools, creating new partnerships and improving its flood forecasting and warning services (e.g. Scottish Flood Forecasting Service and Floodline). This will continue with many of the actions reported for the interim progress summary. Further information is contained within SEPA's Flood Warning Development Framework, published in 2017 and for the period 2017 to 2021. Raising Awareness will form part of each of the 3 key themes identified:</p> <ul style="list-style-type: none"> <li>• Aim 1: Maintenance of existing and delivery of new flood warning schemes.</li> <li>• Aim 2: Development and innovation.</li> <li>• Aim 3: Engagement with partners and customers.</li> </ul> <p>The Council will continually deliver awareness raising events.</p>
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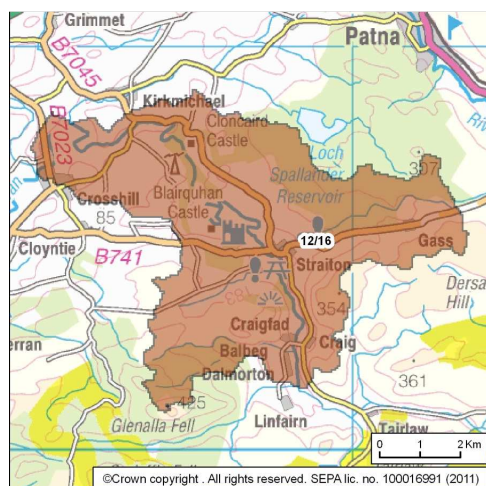
				Forum and worked closely with UK agencies to develop joint flooding information.	
Maintenance	G	East Ayrshire Council in accordance with Section 18 of the Flood Risk Management (Scotland) Act 2009 undertake assessment of water bodies to determine whether works of clearance and repair would substantially reduce the risk of flooding. This information is used to produce a schedule of works which is available for the public to inspect.	01/06/2016-22/06/2022	High risk locations such as those with screens and some smaller culverts are inspected on a scheduled basis. The majority of inspections tend to be undertaken in the winter months when flows are higher, and leaves and other waterborne debris can be an issue. Works of clearance are carried out during these inspections which are not specifically "scheduled". The main water bodies, and other water bodies, within urban areas are subject to an annual visual inspection and any works	The Council will continue to inspect and maintain the flood protection structures within the catchment.
Emergency plans/response	G	The Civil Contingencies Team ensures that the Council will be able to respond speedily and effectively in a major emergency. North, South and East Ayrshire teams are a shared service team known as the Ayrshire Civil Contingencies Team. If disaster strikes, or if	01/06/2016-22/06/2022	Emergency Response Planning is carried out by Ayrshire Civil Contingencies Team (ACCT) this is an all Ayrshire shared service. ACCT update and co-ordinate (all Emergency Responders) the emergency response plans (ERP) as required (in direct consultation with ARA, where appropriate).	Providing an emergency response to flooding is the responsibility of many organisations, including local authorities, the emergency services and SEPA. Effective management of an emergency response relies on emergency plans that are prepared under the Civil Contingencies Act 2004 by

	<p>emergencies develop in Ayrshire, communities will look to the Council for support and advice. The Ayrshire Civil Contingencies Team ensures that the Council will be able to respond speedily and effectively in a major emergency in accordance with the Civil Contingencies Act 2004 (Contingency Planning) (Scotland) Regulations 2005. Our responsibilities include preparing comprehensive and robust contingency plans and procedures irrespective of the nature of the emergency. The main aim is to preserve life and property. Every emergency plan also sets out to:</p> <ul style="list-style-type: none"> <li>Mitigate the harmful effects of the emergency on the environment;</li> <li>bring about a swift return to normal life in the communities and environment affected; and</li> <li>encourage all agencies and organisations to prepare for their role.</li> </ul>		<p>In addition to the ERP EAC has implemented a system of river monitors in known areas and a rota of Flood Scouts (FS). Is maintained who are tasked to monitor and report back on status on receipt of any alarm.</p>	<p>Category 1 and 2 Responders. Scottish Water are a Category 2 responder under the Civil Contingencies Act 2004 and will support regional and local resilience partnerships as required. The emergency response by these organisations is coordinated through regional and local resilience partnerships. This response may be supported by the work of voluntary organisations.</p>
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Planning policies	G	<p>Scottish Planning Policy and accompanying Planning Advice Notes set out Scottish Ministers' priorities for the operation of the planning system and for the development and use of land. In terms of flood risk management, the policy supports a catchment-scale approach to sustainable flood risk management and aims to build the resilience of our cities and towns, encourage sustainable land management in our rural areas, and to address the long-term vulnerability of parts of our coasts and islands. Under this approach, new development in areas with medium to high likelihood of flooding should be avoided.</p>	<p>01/06/2016-01/06/2022</p>	<p>The South Ayrshire Council Local Development Plan recognises the importance of sustainable flood risk management in both urban and rural developments and is in alignment with Scottish Planning Policy. The Local Development Plan is currently under review with public consultation on the plan scheduled for the end of 2018.</p>	<p>The Council's planning policies will be reviewed periodically to ensure that all current national policies are implemented and that the recommendations of strategic studies, such as the Ayrshire Shoreline Management Plan, Surface Water Management Plans etc., are considered.</p>
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## 4.16 Straiton (Potentially Vulnerable Area 12/16)

Local Plan District	Local authority	Main catchment
Ayrshire	East Ayrshire Council, South Ayrshire Council	Water of Girvan



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### Summary of Progress for Straiton

There are approximately 20 residential properties at risk of flooding. The Annual Average Damages are approximately £45,000. Further information can be found in the Ayrshire Local FRMP under PVA 12/16, please click [here](#).

Key progress has been made with the installation of River Monitors on the Muck Water along with others in the Doon Valley, to gather hydraulic data to inform the planned combined Flood study (2020 -2022) for these watercourses. The Flood study will inform Cycle 2 flooding actions for these locations

### Overview of actions to manage flooding in Straiton

PVA	Flood protections scheme/works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Strategic mapping and modelling SEPA	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Emergency plans/response	Planning policies
12/16											G			G	G	G	G	G

## Summary of progress of actions to manage flood risk in the Straiton (PVA 12/16)

Action	Status	Description	Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
Flood forecasting		The Scottish Flood Forecasting Service is a joint initiative between SEPA and the Met Office that produces daily, national flood guidance statements which are issued to Category 1 and 2 Responders. The service also provides information which allows SEPA to issue flood warnings, giving people a better chance of reducing the impact of flooding on their home or business. For more information please visit SEPA's website.	22/12/2015-01/06/2022	SEPA has continued to operate the Scottish Flood Forecasting Service (SFFS) Partnership with the Met Office with daily, national Flood Guidance Statements issued to Category 1 and 2 agencies (such as emergency responders, local authorities and other organisations with flooding management duties) and regional Flood Alerts issued to the public. Each daily statement gives an assessment of the risk of flooding for the next five days to enable these organisations to put preparations in place to reduce the impact of flooding. SEPA's Flood Alert service is freely available to everyone and enables communities to be aware and prepared to reduce the impacts of flooding.	SEPA will continue and improve the Scottish Flood Forecasting Service (SFFS) with the Met Office, with daily Flood Guidance Statements and regional Flood Alerts issued as required to enable communities and responders to reduce the impacts of flooding. SEPA is currently exploring options to develop a public version of the daily Flood Guidance Statement to provide better and earlier information to the public.
Self help	G	Everyone is responsible for protecting themselves and their property from flooding. Property and	01/06/2016-22/06/2022	Community Engagement includes, PLP exhibitions, selection, surveys and appropriate and relevant	Ongoing community PLP training, Flood Warden and resilience group promotion.

		business owners can take simple steps to reduce damage and disruption to their homes and businesses should flooding happen. This includes preparing a flood plan and flood kit, installing property level protection, signing up to Floodline The Councils, SEPA and Scottish Water will continue to engage with responsible Authorities and all other stakeholders, including community groups and the public to raise awareness of flood risk and how those affected can be better prepared. Further detail can be found in the Councils and Scottish Flood Forum websites.		information to enable clients to make the right decisions.	
Awareness raising	G	South Ayrshire Council, SEPA and Scottish Water collectively work to raise awareness of flood risk and how those affected can be better prepared. Through the continued development of flood schemes and studies at higher risk locations, officers from the Council's Flood Risk Management Team attend community council events to discuss	22/12/2015-22/06/2022	SEPA's principle awareness raising approaches have been through: 1. Direct campaigning and general awareness raising 2. Education and tools 3. Partnership delivery development South Ayrshire Councils general awareness raising is a continuous activity	SEPA will continue to raise awareness of flood risk through direct campaigning, general awareness raising, developing education and engagement tools, creating new partnerships and improving its flood forecasting and warning services (e.g. Scottish Flood Forecasting Service and Floodline). This will continue with



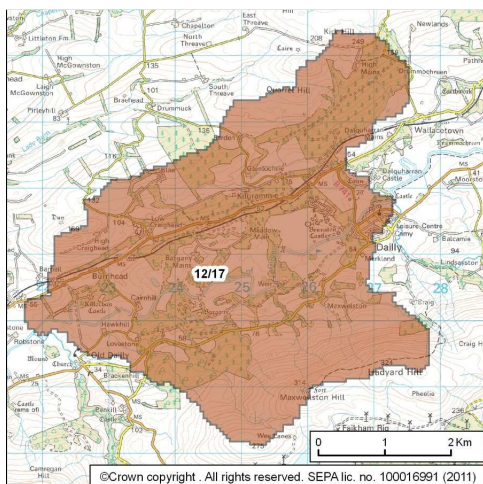
		<p>elements of flood risk management. Across Scotland, SEPA will create and share communication and education resources with other responsible authorities. These resources will include awareness campaigns, media and marketing activity and promotion of SEPA's flood forecasting and warning services (Floodline). Scottish Water will provide targeted flooding communications for Scottish Water specific activities and raise awareness by producing and supplying targeted information to the public on large capital projects and detailed local studies.</p>			<p>many of the actions reported for the interim progress summary. Further information is contained within SEPA's Flood Warning Development Framework, published in 2017 and for the period 2017 to 2021. Raising Awareness will form part of each of the 3 key themes identified:</p> <ul style="list-style-type: none"> <li>• Aim 1: Maintenance of existing and delivery of new flood warning schemes.</li> <li>• Aim 2: Development and innovation.</li> <li>• Aim 3: Engagement with partners and customers.</li> </ul>
Maintenance	G	<p>Local authorities have a duty to assess watercourses and carry out clearance and repair works where such works would substantially reduce flood risk. They produce schedules of clearance and repair works and make these available for public inspection. Scottish Water undertake risk based inspection,</p>	01/06/2016-01/06/2022	<p>South Ayrshire Council carry out monthly inspections and clearance work where necessary on 17 debris screens where there is a known flood risk from blockage. Watercourse inspections are carried out on a regular basis where there are known flood risk issues.</p>	<p>The Council will continue to inspect and maintain the flood protection structures within the Catchment.</p>

		<p>maintenance and repair on the public sewer network. Asset owners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk.</p>			
Emergency plans/response	G	<p>Providing an emergency response to flooding is the responsibility of many organisations, including local authorities, the emergency services and SEPA. Effective management of an emergency response relies on emergency plans that are prepared under the Civil Contingencies Act 2004 by Category 1 and 2 Responders. Scottish Water are a Category 2 responder under the Civil Contingencies Act 2004 and will support regional and local resilience partnerships as required. The emergency response by these organisations is coordinated through regional and local resilience partnerships. This response may be supported by the work of voluntary organisations.</p>	01/06/2016-01/06/2022	For SAC Ayrshire Civil Contingencies maintain and update all emergency response plans. These are updated every 3 years or as required after an incident. This is done in conjunction with the relevant department and external agency.	The Ayrshire Civil Contingencies team is responsible for producing the Civil Contingencies Plan, which outlines the management and operational arrangements that the Councils will follow in the event of an emergency as well as encouraging other agencies to prepare for their role. The Councils will contribute to the production and review of the Civil Contingencies Plan and the Emergency Plan for Severe Weather and Flooding, as required. This response may be supported by the work of voluntary organisations.

Planning policies	G	<p>Scottish Planning Policy and accompanying Planning Advice Notes set out Scottish Ministers' priorities for the operation of the planning system and for the development and use of land. In terms of flood risk management, the policy supports a catchment-scale approach to sustainable flood risk management and aims to build the resilience of our cities and towns, encourage sustainable land management in our rural areas, and to address the long-term vulnerability of parts of our coasts and islands. Under this approach, new development in areas with medium to high likelihood of flooding should be avoided.</p>	<p>01/06/2016-01/06/2022</p>	<p>The South Ayrshire Council Local Development Plan recognises the importance of sustainable flood risk management in both urban and rural developments and is in alignment with Scottish Planning Policy. The Local Development Plan is currently under review with public consultation on the plan scheduled for the end of 2018.</p>	<p>The Council's planning policies will be reviewed periodically to ensure that all current national policies are implemented and that the recommendations of strategic studies, such as the Ayrshire Shoreline Management Plan, Surface Water Management Plans etc., are considered.</p>
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## 4.17 Dailly (Potentially Vulnerable Area 12/17)

Local Plan District	Local authority	Main catchment
Ayrshire	South Ayrshire Council	Water of Girvan



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### Summary of Progress for Dailly

There are fewer than ten residential properties at risk of flooding. The Annual Average Damages are approximately £38,000. Further information can be found in the Ayrshire Local FRMP under PVA 12/17, please click [here](#).

Throughout the period South Ayrshire Council have carried out inspection and maintenance works at known high flood risk locations such as debris screens and small culverts.

### Overview of actions to manage flooding in Dailly

PVA	Flood protections scheme/works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Strategic mapping and modelling SEPA	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Emergency plans/response	Planning policies
12/17											G			G	G	G	G	G

## Summary of progress of actions to manage flood risk in the Dailly (PVA 12/17)

Action	Status	Description	Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
Flood forecasting	G	The Scottish Flood Forecasting Service is a joint initiative between SEPA and the Met Office that produces daily, national flood guidance statements which are issued to Category 1 and 2 Responders. The service also provides information which allows SEPA to issue flood warnings, giving people a better chance of reducing the impact of flooding on their home or business. For more information please visit SEPA's website.	22/12/2015-01/06/2022	SEPA has continued to operate the Scottish Flood Forecasting Service (SFFS) Partnership with the Met Office with daily, national Flood Guidance Statements issued to Category 1 and 2 agencies (such as emergency responders, local authorities and other organisations with flooding management duties) and regional Flood Alerts issued to the public. Each daily statement gives an assessment of the risk of flooding for the next five days to enable these organisations to put preparations in place to	SEPA will continue and improve the Scottish Flood Forecasting Service (SFFS) with the Met Office, with daily Flood Guidance Statements and regional Flood Alerts issued as required to enable communities and responders to reduce the impacts of flooding. SEPA is currently exploring options to develop a public version of the daily Flood Guidance Statement to provide better and earlier information to the public.
Self help	G	Everyone is responsible for protecting themselves and their property from flooding. Property and business owners can take simple steps to reduce damage and disruption to their homes and businesses should flooding happen.	01/06/2016-22/06/2022	Community Engagement includes, PLP exhibitions, selection, surveys and appropriate and relevant information to enable clients to make the right decisions.	Ongoing community PLP training, Flood Warden and resilience group promotion.

		<p>This includes preparing a flood plan and flood kit, installing property level protection, signing up to Floodline</p> <p>The Councils, SEPA and Scottish Water will continue to engage with responsible Authorities and all other stakeholders, including community groups and the public to raise awareness of flood risk and how those affected can be better prepared. Further detail can be found in the Councils and Scottish Flood Forum websites.</p>			
Awareness raising	G	<p>South Ayrshire Council, SEPA and Scottish Water collectively work to raise awareness of flood risk and how those affected can be better prepared. Through the continued development of flood schemes and studies at higher risk locations, officers from the Council's Flood Risk Management Team attend community council events to discuss elements of flood risk management. Across Scotland, SEPA will create and share communication and education resources with other</p>	22/12/2015-22/06/2022	<p>SEPA's principle awareness raising approaches have been through:</p> <ol style="list-style-type: none"> <li>1. Direct campaigning and general awareness raising</li> <li>2. Education and tools</li> <li>3. Partnership delivery development</li> </ol> <p>South Ayrshire Councils general awareness raising is a continuous activity</p>	<p>SEPA will continue to raise awareness of flood risk through direct campaigning, general awareness raising, developing education and engagement tools, creating new partnerships and improving its flood forecasting and warning services (e.g. Scottish Flood Forecasting Service and Floodline). This will continue with many of the actions reported for the interim progress summary. Further information is contained within SEPA's Flood Warning</p>

		responsible authorities. These resources will include awareness campaigns, media and marketing activity and promotion of SEPA's flood forecasting and warning services (Floodline). Scottish Water will provide targeted flooding communications for Scottish Water specific activities and raise awareness by producing and supplying targeted information to the public on large capital projects and detailed local studies			Development Framework, published in 2017 and for the period 2017 to 2021. Raising Awareness will form part of each of the 3 key themes identified: • Aim 1: Maintenance of existing and delivery of new flood warning schemes. • Aim 2: Development and innovation. • Aim 3: Engagement with partners and customers.
Maintenance	G	Local authorities have a duty to assess watercourses and carry out clearance and repair works where such works would substantially reduce flood risk. They produce schedules of clearance and repair works and make these available for public inspection. Scottish Water undertake risk based inspection, maintenance and repair on the public sewer network. Asset owners and riparian landowners are responsible for the maintenance and management of their own assets	01/06/2016-01/06/2022	South Ayrshire Council carry out monthly inspections and clearance work where necessary on 17 debris screens where there is a known flood risk from blockage. Watercourse inspections are carried out on a regular basis where there are known flood risk issues.	The Council will continue to inspect and maintain watercourses, screens and other relevant Council assets.

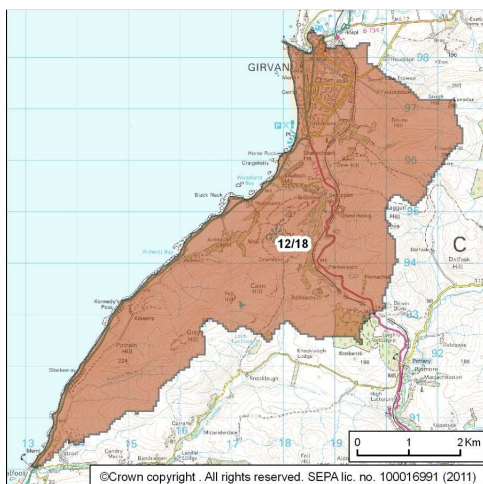
		including those which help to reduce flood risk.			
Emergency plans/response	G	<p>Providing an emergency response to flooding is the responsibility of many organisations, including local authorities, the emergency services and SEPA. Effective management of an emergency response relies on emergency plans that are prepared under the Civil Contingencies Act 2004 by Category 1 and 2 Responders. Scottish Water are a Category 2 responder under the Civil Contingencies Act 2004 and will support regional and local resilience partnerships as required. The emergency response by these organisations is coordinated through regional and local resilience partnerships. This response may be supported by the work of voluntary organisations.</p>	01/06/2016-01/06/2022	For SAC Ayrshire Civil Contingencies maintain and update all emergency response plans. These are updated every 3 years or as required after an incident. This is done in conjunction with the relevant department and external agency.	The Ayrshire Civil Contingencies team is responsible for producing the Civil Contingencies Plan, which outlines the management and operational arrangements that the Councils will follow in the event of an emergency as well as encouraging other agencies to prepare for their role. The Councils will contribute to the production and review of the Civil Contingencies Plan and the Emergency Plan for Severe Weather and Flooding, as required. This response may be supported by the work of voluntary organisations.
Planning policies	G	<p>Scottish Planning Policy and accompanying Planning Advice Notes set out Scottish Ministers' priorities for the operation of the planning system and for the</p>	01/06/2016-01/06/2022	The South Ayrshire Council Local Development Plan recognises the importance of sustainable flood risk management in both urban and rural developments and is in alignment with	The Council's planning policies will be reviewed periodically to ensure that all current national policies are implemented and that the recommendations of strategic



		development and use of land. In terms of flood risk management, the policy supports a catchment-scale approach to sustainable flood risk management and aims to build the resilience of our cities and towns, encourage sustainable land management in our rural areas, and to address the long-term vulnerability of parts of our coasts and islands. Under this approach, new development in areas with medium to high likelihood of flooding should be avoided.		Scottish Planning Policy. The Local Development Plan is currently under review with public consultation on the plan scheduled for the end of 2018.	studies, such as the Ayrshire Shoreline Management Plan, Surface Water Management Plans etc., are considered.
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## 4.18 Girvan (Potentially Vulnerable Area 12/18)

Local Plan District	Local authority	Main catchment
Ayrshire	South Ayrshire Council	Girvan to Lendalfoot coastal



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### Summary of Progress for Girvan

There are approximately 110 residential properties at risk of flooding. The Annual Average Damages are approximately £220,000. Further information can be found in the Ayrshire Local FRMP under PVA 12/18, please click [here](#).

The Ayrshire Shoreline Management Plan is completed and adopted by both North and South Ayrshire Councils in September/October 2018.

The Mill Burn and Girvan Water Flood Study is ongoing and will be key in determining what options are available to mitigate flood risk in Girvan. The study is planned to be completed in 2019.

### Overview of actions to manage flooding in Girvan

PVA	Flood protections scheme/works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Strategic mapping and modelling SEPA	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Emergency plans/response	Planning policies
12/18				G			G	R	G	G	G			G	G	G	G	G

## Summary of progress of actions to manage flood risk in the Girvan (PVA 12/18)

Action	Status	Description	Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
Flood protection study	G	A shoreline management plan is recommended; this study is not limited to Potentially Vulnerable Areas but should cover the whole of the Ayrshire coastline and any areas beyond this which may be influenced by changes in coastal processes. The study should investigate flooding and coastal erosion, wave overtopping and the current coastal protection offered. The study will help to develop an understanding of coastal issues and identify where further work may be required to mitigate against flooding.	01/06/2016-01/06/2022	The Ayrshire Shoreline Management Plan is completed and adopted by both North and South Ayrshire Councils in September/October 2018.	The Ayrshire Shoreline Management Plan will be reviewed every 6 years.
Flood protection study		A flood study will be carried out to further investigate river flood risk combined with coastal flood risk to Girvan. This study will build on the work within the shoreline management plan to provide a	01/06/2016-01/06/2022	South Ayrshire Council have commissioned the Mill Burn & Girvan Water Flood Study. The study is ongoing and currently in the high-level assessment of the options appraisal stage.	Select three options to take forward to the project appraisal report. Produce flood extent maps and calculate the benefit costs for each of the items by April 2019.

		detailed investigation of the current and future flood risk. The study should examine the most sustainable combinations of actions to manage flooding.			
Strategic mapping and modelling	R	SEPA will seek to develop flood mapping in the Ayr to Ardrossan area to improve understanding of coastal flood risk. The extent and timing of improvements will depend on detailed scoping and data availability. Where this work coincides with local authority studies, SEPA will work collaboratively to ensure consistent modelling approaches are applied. The coastal mapping and modelling process will start in 2016, with early work focussing on methodology development and data collection. Once this stage has been completed a thorough review will be carried out to identify the final mapping improvements that can be made in the area.	01/01/2016-31/12/2018.	<p>Following the establishment of a coastal flood hazard map development framework and characterisation of the coastline, several projects are currently underway at this location:</p> <ul style="list-style-type: none"> <li>• Development of a national coastal joint probability dataset;</li> <li>• Update to the UK design extreme sea level dataset</li> </ul> <p>These projects/datasets will inform a future coastal modelling and mapping project for the Firth of Clyde.</p>	<p>It is anticipated that this action will progress to a study prior to the end of Cycle 1 however completion is likely to be in early Cycle 2 due to both the geographical extent and technical complexity of the mapping improvements required. Topographic survey will be necessary prior to any modelling study.</p>

Strategic mapping and modelling Section 16 Assessment		Scottish Water will undertake further investigation and modelling in the Girvan sewer catchment to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.	01/01/2018 – 31/12/2020	The Scottish Water assessment of flood risk within the sewer catchment has been completed.	The assessment is now completed and to be shared with Local Authority.
Maintain flood protection scheme*	G	There are a number of sections of coastal defences in Girvan which provide some protection to the area. These defences will be maintained, and will continue to manage flooding according to the design standard at the time of construction. An annual inspection is carried out on all coastal protection structures in South Ayrshire with maintenance works carried out on a priority basis within available resources. Additional inspections are carried out in response to external defect reports or following severe storm events.	01/06/2016- 01/06/2022	This work continues to be carried out on an annual basis.	The Council will continue to inspect and maintain the flood protection structures within the catchment.

Maintain flood warning Girvan Esplanade flood warning area	G	SEPA will continue to maintain the Girvan Esplanade flood warning area which is part of the Firth of Clyde coastal flood warning scheme. When flood events occur in an area with a flood warning service, SEPA will seek to verify and validate the warning service. SEPA will use feedback and post-event data to ensure that our flood warning service is timely and accurate.	22/12/2015- 22/06/2022	SEPA has recently reviewed and recalibrated the Firth of Clyde flood forecasting model. SEPA has continued to maintain the Girvan Esplanade flood warning area which is part of the Firth of Clyde coastal flood warning scheme.	SEPA will continue to operate the flood warning service.
Flood forecasting	G	The Scottish Flood Forecasting Service is a joint initiative between SEPA and the Met Office that produces daily, national flood guidance statements which are issued to Category 1 and 2 Responders. The service also provides information which allows SEPA to issue flood warnings, giving people a better chance of reducing the impact of flooding on their home or business. For more information please visit SEPA's website.	22/12/2015- 01/06/2022	SEPA has continued to operate the Scottish Flood Forecasting Service (SFFS) Partnership with the Met Office with daily, national Flood Guidance Statements issued to Category 1 and 2 agencies (such as emergency responders, local authorities and other organisations with flooding management duties) and regional Flood Alerts issued to the public. Each daily statement gives an assessment of the risk of flooding for the next five days to enable these organisations to put preparations in place to reduce the impact of flooding. SEPA's Flood Alert	SEPA will continue and improve the Scottish Flood Forecasting Service (SFFS) with the Met Office, with daily Flood Guidance Statements and regional Flood Alerts issued as required to enable communities and responders to reduce the impacts of flooding. SEPA is currently exploring options to develop a public version of the daily Flood Guidance Statement to provide better and earlier information to the public.

				service is freely available to everyone and enables communities to be aware and prepared to reduce the impacts of flooding.	
Self help	G	Everyone is responsible for protecting themselves and their property from flooding. Property and business owners can take simple steps to reduce damage and disruption to their homes and businesses should flooding happen. This includes preparing a flood plan and flood kit, installing property level protection, signing up to Floodline. The Councils, SEPA and Scottish Water will continue to engage with responsible Authorities and all other stakeholders, including community groups and the public to raise awareness of flood risk and how those affected can be better prepared. Further detail can be found in the Councils and Scottish Flood Forum websites.	01/06/2016-01/06/2022	Community Engagement includes, PLP exhibitions, selection, surveys and appropriate and relevant information to enable clients to make the right decisions.	Ongoing community PLP training, Flood Warden and resilience group promotion.

Awareness raising	G	<p>South Ayrshire Council, SEPA and Scottish Water collectively work to raise awareness of flood risk and how those affected can be better prepared. Through the continued development of flood schemes and studies at higher risk locations, officers from the Council's Flood Risk Management Team attend community council events to discuss elements of flood risk management. Across Scotland, SEPA will create and share communication and education resources with other responsible authorities. These resources will include awareness campaigns, media and marketing activity and promotion of SEPA's flood forecasting and warning services (Floodline). Scottish Water will provide targeted flooding communications for Scottish Water specific activities and raise awareness by producing and supplying targeted information to</p>	22/12/2015-22/06/2022	<p>SEPA's principle awareness raising approaches have been through:</p> <ol style="list-style-type: none"> <li>1. Direct campaigning and general awareness raising</li> <li>2. Education and tools</li> <li>3. Partnership delivery development</li> </ol> <p>South Ayrshire Councils general awareness raising is a continuous activity</p>	<p>SEPA will continue to raise awareness of flood risk through direct campaigning, general awareness raising, developing education and engagement tools, creating new partnerships and improving its flood forecasting and warning services (e.g. Scottish Flood Forecasting Service and Floodline). This will continue with many of the actions reported for the interim progress summary. Further information is contained within SEPA's Flood Warning Development Framework, published in 2017 and for the period 2017 to 2021. Raising Awareness will form part of each of the 3 key themes identified:</p> <ul style="list-style-type: none"> <li>• Aim 1: Maintenance of existing and delivery of new flood warning schemes.</li> <li>• Aim 2: Development and innovation.</li> <li>• Aim 3: Engagement with partners and customers.</li> </ul>
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		the public on large capital projects and detailed local studies			
Maintenance	G	Local authorities have a duty to assess watercourses and carry out clearance and repair works where such works would substantially reduce flood risk. They produce schedules of clearance and repair works and make these available for public inspection. Scottish Water undertake risk based inspection, maintenance and repair on the public sewer network. Asset owners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk.	01/06/2016-01/06/2022	South Ayrshire Council carry out monthly inspections and clearance work where necessary on 17 debris screens where there is a known flood risk from blockage. Watercourse inspections are carried out on a regular basis where there are known flood risk issues.	The Council will continue to inspect and maintain watercourses, screens and other Council assets.
Emergency plans/response	G	Providing an emergency response to flooding is the responsibility of many organisations, including local authorities, the emergency services and SEPA. Effective management of an emergency response relies on emergency plans that are prepared under the Civil Contingencies Act 2004 by	01/06/2016-01/06/2022	For SAC Ayrshire Civil Contingencies maintain and update all emergency response plans. These are updated every 3 years or as required after an incident. This is done in conjunction with the relevant department and external agency.	The Ayrshire Civil Contingencies team is responsible for producing the Civil Contingencies Plan, which outlines the management and operational arrangements that the Councils will follow in the event of an emergency as well as encouraging other agencies to prepare for their role. The

		<p>Category 1 and 2 Responders. Scottish Water are a Category 2 responder under the Civil Contingencies Act 2004 and will support regional and local resilience partnerships as required. The emergency response by these organisations is coordinated through regional and local resilience partnerships. This response may be supported by the work of voluntary organisations.</p>			<p>Councils will contribute to the production and review of the Civil Contingencies Plan and the Emergency Plan for Severe Weather and Flooding, as required. This response may be supported by the work of voluntary organisations.</p>
Planning policies	G	<p>Scottish Planning Policy and accompanying Planning Advice Notes set out Scottish Ministers' priorities for the operation of the planning system and for the development and use of land. In terms of flood risk management, the policy supports a catchment-scale approach to sustainable flood risk management and aims to build the resilience of our cities and towns, encourage sustainable land management in our rural areas, and to address the long-term vulnerability of parts of our</p>	01/06/2016-01/06/2022	<p>The South Ayrshire Council Local Development Plan recognises the importance of sustainable flood risk management in both urban and rural developments and is in alignment with Scottish Planning Policy. The Local Development Plan is currently under review with public consultation on the plan scheduled for the end of 2018.</p>	<p>The Council's planning policies will be reviewed periodically to ensure that all current national policies are implemented and that the recommendations of strategic studies, such as the Ayrshire Shoreline Management Plan, Surface Water Management Plans etc., are considered.</p>

		coasts and islands. Under this approach, new development in areas with medium to high likelihood of flooding should be avoided.			
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## 4.19 Dalmellington (Potentially Vulnerable Area 12/19c)

Local Plan District	Local authority	Main catchment
Ayrshire	East Ayrshire Council Muck Water	East Ayrshire Council Muck Water



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 SEPA (December 2015).

### Summary of Progress for Dalmellington

There are approximately 50 residential properties at risk of flooding. The total Annual Average Damages are approximately £140,000. Further information can be found in the Ayrshire Local FRMP under PVA 12/019c, please click [here](#).

Key progress has been made with the installation of River Monitors on the Muck Water along with others in the Doon Valley, to gather hydraulic data to inform the planned combined Flood study (2020 -2022) for these watercourses. The Flood study will inform Cycle 2 flooding actions for these locations

### Overview of actions to manage flooding in Dalmellington

PVA	Flood protections scheme/works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan/study	Strategic mapping and modelling	Strategic mapping and modelling SEPA	Maintain flood protection scheme*	Maintain flood warning	Flood forecasting	Property level protection scheme	Community flood action groups	Self help	Awareness raising	Maintenance	Emergency plans/response	Planning policies
12/19c				A							G			G	G	G	G	G

## Summary of progress of actions to manage flood risk in the Dalmellington (PVA 12/19c)

Action	Status	Description	Dates	Progress in Delivery, including key deliverables and dates	Revised dates and planned actions to complete / address delay
Flood protection study	A	<p>A study will investigate the feasibility of a flood protection scheme along the Muck Water. East Ayrshire Council is currently procuring suitable flow and level monitoring installations on appropriate watercourses identified for studies, with the intention of informing those studies in areas known to have little or no information currently available. Information gaps and proposed locations are being identified in co-operation with SEPA. Once this information is available the study will look to refine understanding of the current and future flood risk in the area and investigate the feasibility of actions to reduce flooding, as prioritised in the Ayrshire Flood Risk Management Strategy.</p>	01/06/2016-22/06/2022	Progress has been made with the installation of River Monitors on the Muck Water along with others in the Doon Valley, to gather hydraulic data to inform the planned combined Flood study (2020 -2022) for these watercourses. The Flood study will inform Cycle 2 flooding actions for these locations	<p>Additional resourcing is required in order to procure these work.</p> <p>The anticipated rescheduling is not envisaged to affect the ability to report as intended in Cycle 2.</p>

Flood forecasting	G	<p>The Scottish Flood Forecasting Service is a joint initiative between SEPA and the Met Office that produces daily, national flood guidance statements which are issued to Category 1 and 2 Responders. The service also provides information which allows SEPA to issue flood warnings, giving people a better chance of reducing the impact of flooding on their home or business. For more information please visit SEPA's website.</p>	20/12/2015-22/06/2022	<p>SEPA has continued to operate the Scottish Flood Forecasting Service (SFFS) Partnership with the Met Office with daily, national Flood Guidance Statements issued to Category 1 and 2 agencies (such as emergency responders, local authorities and other organisations with flooding management duties) and regional Flood Alerts issued to the public. Each daily statement gives an assessment of the risk of flooding for the next five days to enable these organisations to put preparations in place to reduce the impact of flooding. SEPA's Flood Alert service is freely available to everyone and enables communities to be aware and prepared to reduce the impacts of flooding.</p>	<p>SEPA will continue and improve the Scottish Flood Forecasting Service (SFFS) with the Met Office, with daily Flood Guidance Statements and regional Flood Alerts issued as required to enable communities and responders to reduce the impacts of flooding. SEPA is currently exploring options to develop a public version of the daily Flood Guidance Statement to provide better and earlier information to the public.</p>
Self help	G	<p>Everyone is responsible for protecting themselves and their property from flooding. Property and business owners can take simple steps to reduce damage and disruption to their homes and businesses should flooding happen. This includes preparing a flood plan</p>	01/06/2016-22/06/2022	<p>Community Engagement includes, PLP exhibitions, selection, surveys and appropriate and relevant information to enable clients to make the right decisions.</p>	<p>Ongoing community PLP training, Flood Warden and resilience group promotion.</p>

		and flood kit, installing property level protection, signing up to Floodline The Councils, SEPA and Scottish Water will continue to engage with responsible Authorities and all other stakeholders, including community groups and the public to raise awareness of flood risk and how those affected can be better prepared. Further detail can be found in the Councils and Scottish Flood Forum websites.			
Awareness raising	G	East Ayrshire Council, South Ayrshire Council, SEPA and Scottish Water collectively work to raise awareness of flood risk and how those affected can be better prepared.	01/06/2016-22/06/2022	EAC and SEPA has delivered a range of awareness raising activities through campaigning, education activities and partnership delivery. We have run national and local digital and direct engagement campaigns to raise awareness of flood risk and SEPA's flood warning service, Floodline. We publish and publicise an electronic newsletter (Flooding Gateway) four times a year which is distributed to a wide audience. SEPA are working with Education Scotland and Scottish Government Resilience team to embed flooding awareness within the	SEPA will continue to raise awareness of flood risk through direct campaigning, general awareness raising, developing education and engagement tools, creating new partnerships and improving its flood forecasting and warning services (e.g. Scottish Flood Forecasting Service and Floodline). This will continue with many of the actions reported for the interim progress summary. Further information is contained within SEPA's Flood Warning Development Framework,

				Curriculum for Excellence, and resilience partners in Safer Communities programmes. We have also developed an online tool that helps everyone share information on current flooding issues (Report-a-Flood). We have worked in partnership with local authorities, emergency services and community organisations (e.g. Neighbourhood Watch Scotland, Citizens Advice Scotland and others) to share our resources and help to promote preparedness and understanding of how we manage flood risk in Scotland. We have actively supported the Scottish Flood Forum and worked closely with UK agencies to develop joint flooding information.	published in 2017 and for the period 2017 to 2021. Raising Awareness will form part of each of the 3 key themes identified: <ul style="list-style-type: none"> <li>• Aim 1: Maintenance of existing and delivery of new flood warning schemes.</li> <li>• Aim 2: Development and innovation.</li> <li>• Aim 3: Engagement with partners and customers. The Council will continue to deliver awareness raising in the catchment.</li> </ul>
Maintenance	G	East Ayrshire Council in accordance with Section 18 of the Flood Risk Management (Scotland) Act 2009 undertake assessment of water bodies to determine whether works of clearance and repair would substantially reduce the risk of flooding. This information is	01/06/2016-22/06/2022	High risk locations such as those with screens and some smaller culverts are inspected on a scheduled basis. The majority of inspections tend to be undertaken in the winter months when flows are higher, and leaves and other waterborne debris can be an issue.	The Council will continue to inspect and maintain watercourses, screens and other relevant Council assets.



		used to produce a schedule of works which is available for the public to inspect.		Works of clearance are carried out during these inspections which are not specifically "scheduled". The main water bodies, and other water bodies, within urban areas are subject to an annual visual inspection and any works	
Emergency plans/response	G	The Civil Contingencies Team ensures that the Council will be able to respond speedily and effectively in a major emergency. North, South and East Ayrshire teams are a shared service team known as the Ayrshire Civil Contingencies Team. If disaster strikes, or if emergencies develop in Ayrshire, communities will look to the Council for support and advice. The Ayrshire Civil Contingencies Team ensures that the Council will be able to respond speedily and effectively in a major emergency in accordance with the Civil Contingencies Act 2004 (Contingency Planning) (Scotland) Regulations 2005. Our responsibilities include preparing	01/06/2016-22/06/2022	<p>Emergency Response Planning is carried out by Ayrshire Civil Contingencies Team (ACCT) this is an all Ayrshire shared service. ACCT update and co-ordinate (all Emergency Responders) the emergency response plans (ERP) as required (in direct consultation with ARA, where appropriate).</p> <p>In addition to the ERP EAC has implemented a system of river monitors in known areas and a rota of Flood Scouts (FS). Is maintained who are tasked to monitor and report back on status on receipt of any alarm.</p>	Providing an emergency response to flooding is the responsibility of many organisations, including local authorities, the emergency services and SEPA. Effective management of an emergency response relies on emergency plans that are prepared under the Civil Contingencies Act 2004 by Category 1 and 2 Responders. Scottish Water are a Category 2 responder under the Civil Contingencies Act 2004 and will support regional and local resilience partnerships as required. The emergency response by these organisations is coordinated through regional and local resilience partnerships. This response may be supported

		comprehensive and robust contingency plans and procedures irrespective of the nature of the emergency. The main aim is to preserve life and property. Every emergency plan also sets out to: Mitigate the harmful effects of the emergency on the environment; bring about a swift return to normal life in the communities and environment affected; and encourage all agencies and organisations to prepare for their role.			by the work of voluntary organisations.
Planning policies	G	Scottish Planning Policy and accompanying Planning Advice Notes set out Scottish Ministers' priorities for the operation of the planning system and for the development and use of land. In terms of flood risk management, the policy supports a catchment-scale approach to sustainable flood risk management and aims to build the resilience of our cities and towns, encourage sustainable land management in our rural areas, and	01/06/2016-22/06/2022	The Local Development Plan (LDP) takes cognisance of the Local Flood Risk Management and Plan (LOCAL FRMP) is currently in mid cycle. Work is progressing on the next LPD. Throughout the production of the LPD, close liaison is maintained between our Development Planners and the Flood Risk Management team to ensure the Planners are informed of any factors that would impact on the LPD. Including any new PVA information as received.	The Council's planning policies will be reviewed periodically to ensure that all current national policies are implemented and that the recommendations of strategic studies, such as the Ayrshire Shoreline Management Plan, Surface Water Management Plans etc., are considered.

		to address the long-term vulnerability of parts of our coasts and islands. Under this approach, new development in areas with medium to high likelihood of flooding should be avoided.			
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## 4.20 Other actions

This section sets out details of additional significant actions undertaken in the LPD by local authorities to contribute to the implementation of the current actions in the plan and the achievement of the objectives in the plan.

<b>Action</b>	<b>Status</b>	<b>Description</b>	<b>Dates</b>	<b>Progress in Delivery, including key deliverables and dates</b>	<b>Revised dates and planned actions to complete / address delay</b>
Flood protection study	G	A study needs to be undertaken to further investigate river flood risk at the Lower Irvine Valley catchment and re-evaluate the fluvial flood risk. The study should examine the most sustainable combination of actions to manage flooding.	01/06/2016-01/06/2022	The River Irvine and Annick Water fluvial modelling is completed including the regional climate change sensitivity assessment and approved by SEPA in July 2018. The option appraisal is completed according to programme and submitted to SEPA for review.	If feasible option identified that will be submitted to the National Prioritisation process to seek fund from Scottish Government for implementation.

## Appendix1: Roles and Responsibilities

Individuals are the first line of defence against flooding. However, public bodies have responsibilities too and are working together to reduce the impacts of flooding in Scotland. Responsibility for flood risk management planning falls in the main to SEPA, local authorities and Scottish Water. However, individuals have a personal responsibility to protect themselves and their property.

Some of the key roles are outlined below and more information is available from the SEPA website.

### **Your responsibilities**

Organisations and individuals have responsibilities to protect themselves from flooding. Being prepared by knowing what to do and who to contact if flooding happens can help you reduce the damage and disruption flooding can have on your life.

The first step to being prepared is to sign up to Floodline - [www.floodlinescotland.org.uk](http://www.floodlinescotland.org.uk) - to receive messages to let you know where and when flooding is likely to happen. Other useful tools and advice on how to be prepared are available on the [Floodline](http://www.floodlinescotland.org.uk) website including a quick guide to who to contact in the event of a flood. You can also check how your area could be affected by flooding by looking at SEPA's [flood maps](http://www.sepa.org.uk/environment/water/flooding/flood-maps) - [www.sepa.org.uk/environment/water/flooding/flood-maps](http://www.sepa.org.uk/environment/water/flooding/flood-maps)

### **SEPA**

SEPA is Scotland's national flood forecasting, flood warning and strategic flood risk management authority. SEPA has a statutory duty to produce Scotland's Flood Risk Management Strategies. SEPA works closely with other organisations responsible for managing flood risk through a network of partnerships and stakeholder groups to ensure that a nationally consistent approach to flood risk management is adopted.

SEPA also has a responsibility to identify where in Scotland there is the potential for natural flood management techniques to be introduced. Natural flood management is the use of the natural features of the land to store and slow down the flow of water.

In running Floodline, SEPA provides live flooding information and advice on how to prepare for or cope with the impacts of flooding 24 hours a day, seven days a week. To help forecast for flooding SEPA works closely with the Met Office.

To raise awareness of flooding at a national level, SEPA runs education initiatives, community engagement programmes and an annual campaign to promote the useful advice and information available through Floodline. SEPA works in partnership with local authorities, Neighbourhood Watch Scotland, Ready Scotland and others to share resources and help to promote preparedness and understanding of how flood risk is managed.

SEPA has a statutory role in relation to the provision of flood risk advice to planning authorities. This role is expressed in Section 72 of the FRM Act, 2009. SEPA also has a duty to co-operate with planning authorities in the preparation of development plans. When consulted in relation to planning applications for development or site allocations in development plans, and where the planning authority considers there may be a risk of flooding, SEPA will provide advice. The advice provided by SEPA will be with respect to the risk of flooding and on the basis of the relevant information it holds which is suitable for planning purposes. It will also be in line with the principles and duties set out in the FRM Act. Further information about how SEPA engage in the

planning system, including guidance on flood risk and planning is available on SEPA website [www.sepa.org.uk/environment/land/planning](http://www.sepa.org.uk/environment/land/planning)

### **Local authorities**

Local authorities work together for flood risk management planning purposes through a single lead authority which has the responsibility to produce a Local Flood Risk Management Plan. Local authorities have been working collaboratively in the manner described above to develop these.

It is the responsibility of your local authority to implement its flood protection actions agreed within the Local Flood Risk Management Plan. You can help your local authority to manage flooding by not dumping material on the banks of a watercourse and by letting them know if flood defences are tampered with.

During severe flooding, local authorities will work with the emergency services and coordinate shelter for people evacuated from their homes.

The Lead Local Authority for the Ayrshire Local Plan District is: **North Ayrshire Council**

Other local authorities who are responsible authorities for the Ayrshire Local Plan District are: **East Ayrshire Council and South Council.**

### **Scottish Water**

Scottish Water is a responsible authority for flood risk management and is working closely with SEPA, local authorities and other responsible authorities to coordinate plans to manage flood risk.

Scottish Water has the public drainage duty and is responsible for foul drainage and the drainage of rainwater run-off from roofs and any paved ground surfaces from the boundary of properties. Additionally, Scottish Water helps to protect homes from flooding caused by sewers either overflowing or becoming blocked. Scottish Water is not responsible for private pipework or guttering within the property boundary.

### **Forestry Commission Scotland**

Forestry Commission Scotland was designated in 2013 as a responsible authority for flood risk management planning purposes and has engaged in the development of the Local Flood Risk Management Plan. This reflects the widely held view that forestry can play a significant role in managing flooding.

### **Other organisations**

- The **Scottish Government** oversees the implementation of the Flood Risk Management (Scotland) Act 2009 which requires the production of Flood Risk Management Strategies and Local Flood Risk Management Plans. Scottish Ministers are responsible for setting the policy framework for how organisations collectively manage flooding in Scotland.
- **Scottish Natural Heritage** has provided general and local advice in the development of this Flood Risk Management Strategies. Flooding is seen as a natural process that can maintain the features of interest at many designated sites, so Scottish Natural Heritage helps to ensure that any changes to patterns of flooding do not adversely affect the environment. Scottish Natural Heritage also provides advice on the impact of Flood Protection Schemes and other land use development on designated sites and species.

- During the preparation of the first flood risk management plans **Network Rail** and **Transport Scotland** have identified works to address flooding at a number of frequently flooded sites. Further engagement is planned with SEPA and local authorities to identify areas of future work. There is the opportunity for further works to be undertaken during the first flood risk management planning cycle although locations for these works are yet to be confirmed.
- **Utility companies** have undertaken site specific flood risk studies for their primary assets and have management plans in place to mitigate the effects of flooding to their assets and also minimise the impacts on customers.
- The **Met Office** provides a wide range of forecasts and weather warnings. SEPA and the Met Office work together through the [Scottish Flood Forecasting Service](#).
- The **emergency services** provide emergency relief when flooding occurs and can coordinate evacuations. You should call the emergency services on 999 if you are concerned about your safety or the safety of others and act immediately on any advice provided.
- The **Scottish Flood Forum** is a Scottish charitable organisation that provides support for those who are affected by, or are at risk of, flooding. It provides flood advice, information, awareness, education and training to individuals and communities to help reduce the risk of flooding; in partnership with the local authority, provides support during the recovery process following a flood incident and aims to support the development of resilient communities.

## Appendix2: Consultation and engagement

From 22 December 2014 a national consultation on the current state of knowledge of flood risk across Scotland and what the potential solutions might be, was undertaken with the public on the work carried out to develop draft Flood Risk Management Strategies and Local Flood Risk Management Plans.

The consultation was run jointly between SEPA and local authorities and involved the publication of draft information that is contained in the strategies and local plans. The consultation was carried out in 2 phases:

- Phase 1 commenced on 22 December 2014 and initially provided a summary of the main sources and impacts of flooding.
- Phase 2 commenced on 2 March 2015 when the proposed initial objectives to manage the identified flood risk were made available alongside a short list of potential measures, as well as information on the draft local flood risk management plans.

There was an opportunity to comment on the all the information provided between 2 March and 2 June 2015. The responses helped to form the final Strategies and Plans.

The final Flood Risk Management Strategies for 14 Local Plan Districts were approved by the Scottish Government and published by SEPA in December 2015. Further information is available on the SEPA website here - <http://apps.sepa.org.uk/FRMStrategies/>

Following publication of the Flood Risk Management Strategies by SEPA, the Ayrshire local authorities undertook a range of engagement activities through February and early March 2016 to raise awareness of the Ayrshire Flood Risk Management Strategy, flood risk within the local authority area, as identified in the SEPA Flood Maps available here - <http://map.sepa.org.uk/floodmap/map.htm> - and inform the development of the Ayrshire Local Flood Risk Management Plan. The objective of this activity was to ensure a greater awareness of these key documents, particularly for those communities identified as at risk of flooding. Further details of the activities being undertaken are available from each Ayrshire Local Authority. There will be ongoing engagement both with raising public awareness of the Plan and its approaches to managing or reducing flood risk, and as part of the process of delivering Actions.



## Appendix3: Supporting Information

### ***Sources of flooding described in this Plan***

The Local Flood Risk Management Plan addresses the risk of flooding from rivers, the coast and surface water. The risk of flooding from rivers is usually due to rainfall causing a river to rise above bank level spreading out and inundating adjacent areas. Coastal flooding is where the risk is from the sea. Sea levels can change in response to tidal cycles or atmospheric conditions. Over the longer term sea levels and coastal flood risk may change due to climate change. Surface water flooding happens when rainwater does not drain away through the normal drainage systems or soak into the ground, but lies on or flows over the ground instead.

There can be interactions between these sources of flooding, and the Actions set out in this Plan take this into account.

The following aspects of flooding have not been incorporated into this Plan:

- **Groundwater** is generally a contributing factor to flooding rather than the primary source. It is caused by water rising up from underlying rocks or flowing from springs.
- **Reservoir breaches** have been assessed under separate legislation (Reservoirs (Scotland) Act 2011). Further information and maps can be found on SEPA's website.
- The Flood Risk Management Act (Scotland) 2009 does not require SEPA or responsible authorities to assess or manage **coastal erosion**. However, SEPA has included consideration of erosion in the Flood Risk Management Strategies by identifying areas that are likely to be susceptible to erosion and where erosion can exacerbate flood risk. As part of considering where actions might deliver multiple benefits, SEPA has looked to see where the focus of coastal flood risk management studies coincides with areas of high susceptibility to coastal erosion. Subsequent detailed studies and scheme design will need to consider how coastal erosion in these areas.
- **Coastal flood modelling.** The information on coastal flooding used to set objectives and identify actions is based on SEPA modelling using simplified coastal processes and flooding mechanisms at work during a storm. Wave overtopping cannot be accurately modelled at a national scale due to the importance of local factors such as prevailing wind conditions, the depth and profile of the near-shore sea bed or the influence of any existing defences or management structures. As a result, coastal flood risk may be underestimated in some areas. Conversely, in locations with wide and flat floodplains, the modelling may overestimate flood risk. To address this, in a number of locations where more detailed local models were available they have been incorporated into the development of the Flood Risk Management Strategies. Where wave overtopping has been specifically identified as a concern – but where no further detailed modelling is available – particular compensation has been made in the selection of appropriate actions to address coastal flood risk.

### Commonly used terms

Below are explanatory notes for commonly used terms in flood risk management. A glossary of terms is also available.

- **Reference to flood risk.** During the development of the Strategy and Plan, flood risk has been assessed over a range of likelihoods. For consistency in reporting information, unless otherwise stated, all references to properties or other receptors being ‘at risk of flooding’ refer to a medium likelihood flood (up to a 1 in 200 chance of flooding in any given year). By exception, references will be made to high or low risk flooding, which should be taken to mean a 1 in 10 chance/likelihood or 1 in 1000 chance/likelihood of flooding in any given year respectively.

Likelihood of Flooding	Return Period	Annual Exceedance Probability (chance of event occurring in any one year)
High	10 year	10%
Medium	200 year	0.5%
Low	1000 year	0.1%

- **Annual Average Damages** have been used to assess the potential economic impact of flooding within an area. Depending on its size or severity each flood will cause a different amount of damage to a given area. Annual Average Damages are the theoretical average economic damages caused by flooding when considered over a very long period of time. It does not mean that damage will occur every year: in many years there will be no damages, in some years minor damages and in a few years major damages may occur.

High likelihood events, which occur more regularly, contribute proportionally more to Annual Average Damages than rarer events. Annual Average Damages incorporate economic damages to the following receptors: residential properties, non-residential properties, vehicles, emergency services, agriculture and roads. They have been calculated based on the principles set out in the Flood Hazard Research Centre Multi-Coloured Handbook (2010).

### Flood risk management planning process

Flood risk management in Scotland aims to manage flooding in a sustainable way. Sustainable flood risk management considers where floods are likely to occur in the future and takes action to reduce their impact without moving the problem elsewhere. It considers all sources of flooding, whether from rivers, the sea or from surface water. It delivers actions that will meet the needs of present and future generations whilst also protecting and enhancing the environment.

The sustainable approach to managing flood risk works on a six year planning cycle, progressing through the key stages outlined below.

- **Identifying priority areas at significant flood risk**

The first step to delivering a risk based, sustainable and plan-led approach to flood risk management was SEPA’s **National Flood Risk Assessment**, which was published in 2011. The assessment considered the likelihood of flooding from rivers, groundwater and the sea, as well as flooding caused when heavy

rainfall is unable to enter drainage systems or the river network. The likelihood of flooding was examined alongside the estimated impact on people, the economy, cultural heritage and the environment. It significantly improved our understanding of the causes and consequences of flooding and identified areas most vulnerable to floods.

- **Potentially Vulnerable Areas and Local Plan Districts**

Based on the National Flood Risk Assessment, SEPA identified areas where flooding was considered to be nationally significant. These areas are based on catchment units as it is within the context of the wider catchment that flooding can be best understood and managed. These nationally significant catchments are referred to as **Potentially Vulnerable Areas**.

In Scotland, 243 Potentially Vulnerable Areas were identified. They are estimated to contain 92% of the total number of properties at risk.

A small number of Candidate Potentially Vulnerable Areas were identified after the National Flood Risk Assessment in light of new information that warranted further assessment and appraisal. They are included in the flood risk management planning process. The National Flood Risk Assessment will be updated to inform each subsequent planning cycle.

For flood risk management purposes, Scotland was divided into 14 Local Plan Districts. Each Local Plan District will have a Flood Risk Management Strategy and a Local Flood Risk Management Plan.

- **Improving the understanding of flooding**

SEPA developed **flood hazard and flood risk maps** between 2012 and 2014. These maps improved the understanding of flooding and helped inform the subsequent selection of actions to manage flood risk in Potentially Vulnerable Areas. The flood hazard maps show information such as the extent of flooding, water level, as well as depth and velocity where appropriate. The flood risk maps provide detail on the impacts on people, the economy, cultural heritage and the environment.

In 2012 SEPA also developed an **assessment of the potential for natural flood management**. The assessment produced the first national source of information on where natural flood management actions would be most effective within Scotland.

Flood hazard and flood risk maps and the assessment of the potential for natural flood management can be viewed on the SEPA website [www.sepa.org.uk](http://www.sepa.org.uk).

- **Identifying objectives and selecting actions**

The objectives and actions to manage flooding will provide the long-term vision and practical steps for delivering flood risk management in Scotland.

Working collaboratively with local partnerships, SEPA has agreed the objectives for addressing the main flooding impacts. Actions that could deliver these agreed objectives have been appraised for their costs and benefits to ensure the right combinations are identified and prioritised. The actions considered in the development of this strategy include structural actions (such as building floodwalls, restoring flood plains, or clearance and repair works to rivers) and non-structural actions (such as flood warning, land use planning or improving our emergency response). Structural and non-structural actions should be used together to manage flood risk effectively.

An assessment of the potential for natural flood management was used to help identify opportunities for using the land and coast to slow down and store water. Natural flood management actions were

recommended in areas where they could contribute to the management of flood risk. In such instances these actions were put forward as part of flood protection or natural flood management studies.

- **Lead local authority**

The FRM Act requires a lead local authority to be identified for each Local Plan District. The lead local authority is crucial to the successful implementation of the FRM Act and, as such, must perform several important functions over and above the general duties and powers given to local authorities elsewhere in the FRM Act.

The lead local authority, having contributed with other local authorities to the production of the Flood Risk Management Strategy, must prepare a Local Flood Risk Management Plan of co-ordinated actions to reduce flood risk within the Local Plan District. Although the lead local authority is responsible for the production of the plan, its content will be drawn from and agreed by all local authorities, other responsible authorities and SEPA within the Local Plan District.

- **Surface Water Management Plans**

A Surface Water Management Plan (SWMP) is a best practice plan which outlines the preferred surface water management strategy in a given location. In this context surface water flooding describes flooding from sewers, drains, groundwater, and runoff from land, small water courses and ditches that occurs as a result of heavy rainfall.

A SWMP study is undertaken in consultation with key local partners who are responsible for surface water management and drainage in their area. Partners work together to understand the causes and effects of surface water flooding and agree the most cost effective way of managing surface water flood risk for the long term. The process of working together as a partnership is designed to encourage the development of innovative solutions and practices.

A SWMP should establish a long-term action plan to manage surface water in an area and should influence future capital investment, drainage maintenance, public engagement and understanding, land-use planning, emergency planning and future developments.

The UK Government SWMP guidance seeks to provide a simplified overarching framework, which allows different organisations to work together and develop a shared understanding of the most suitable solutions to surface water flooding problems. The SWMP guidance has been written for local authorities to assist them as they co-ordinate and lead local flood risk management activities.

- **Integrated Catchment Studies**

Integrated Catchment Studies (ICS) are led by Scottish Water in partnership with local authorities and SEPA. These studies will improve knowledge and understanding of the interactions between the above ground and below ground drainage network e.g. with the sewer network, watercourses and (where appropriate) the sea. This will improve the understanding of contributions these drainage networks play in local surface water flood risk.

Five ICS's were undertaken in Scotland during SR10 (2010-2015), to Modelling and Flood Risk Assessment stage, which have provided a fuller understanding of the sources and mechanisms of flooding across these catchments. These studies are expected to undertake an Optioneering phase between 2015-2021. This will identify the actions to reduce flood risk across the catchments, with the outputs feeding into the Local Authority led Surface Water Management Planning process.

Fifteen ICS's will begin in Scotland during SR15 (2015-2021). These studies will go through the Scoping and Modelling phases, which culminates in defining the sources and mechanisms of flooding in the catchment, and an understanding of the impacts of that flooding. It is expected that the ICS partnerships will remain and it is anticipated that the Optioneering phase for these studies will be initiated directly after the preceding phases.

Within this Local Plan District, ICS's are being carried out in the following areas; Meadowhead (including Irvine, Kilmarnock, Prestwick and Ayr), Stevenston Point (including Ardrossan, Stevenston, Saltcoats and Kilwinning).

- **Natural flood management assessment and mapping of artificial and natural features**

The new approach to Flood Risk Management requires SEPA to consider whether techniques that restore, enhance or alter natural features and characteristics can contribute to managing flood risk. This means looking at the potential to work with natural hydrological and morphological processes.

Because the National Flood Risk Assessment provides only a strategic assessment of flood risk, further refined assessments may be required in Potentially Vulnerable Areas, including the mapping of artificial and natural features whose removal could increase flood risk.

The development of catchment characteristics and methodologies, to assess the potential for natural flood management, commenced in 2012 alongside work to identify natural flood management actions, that could contribute to the management of flood risk. The information was published in 2013. The assessment of natural flood management was a consideration in the setting of objectives and actions in the Flood Risk Management Strategies. In January 2016 SEPA published the Natural Flood Management Handbook to provide practitioners with information on how best to implement natural flood management measures.

- **Flood hazard and flood risk maps**

The production of flood hazard and flood risk maps has improved our understanding of flooding and helped inform the selection of actions required to manage flood risk in Potentially Vulnerable Areas. Work on production of these maps began in January 2012. These maps show details of flood events for a range of probabilities and cover flooding from rivers, the sea, sewers, surface water run-off and groundwater.

A flood hazard map shows information that describes the nature of a flood, such as the extent of flooding, water level, depth and velocity where appropriate.

A flood risk map provides detail on the impacts on people, the economy, cultural heritage and the environment.

Further information regarding the development of the flood maps and providing a link to the maps, is available online on the SEPA website here – <http://www.sepa.org.uk/environment/water/flooding/flood-maps/>

## Appendix4: Acknowledgements

The information described in this Annex relates to the Figures and Maps that have been generated by SEPA as part of the Flood Risk Management Strategy and have been reproduced in this Local Flood Risk Management Plan. The Ayrshire Local Plan District Partners gratefully acknowledge the cooperation and input that various parties have provided, including inter alia, the following organisations:

### **SEPA**

Local authorities acknowledge the inclusion of Figures, Maps and text generated by SEPA in preparation of the Ayrshire Flood Risk Management Strategy. Figures and Maps produced by SEPA for the Ayrshire Flood Risk Management Strategy have been reproduced in the Ayrshire Local Flood Risk Management Plan with authorisation from SEPA under SEPA Licence number 100016991 (2015).

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### **The Met Office**

Data provided by The Met Office has been used under licence in some areas of flood risk information production. ©Crown Copyright (2015), the Met Office

### **Local authorities**

Lead authorities acknowledge the provision of flood models and other supporting data and information from local authorities and their collaboration in the production of flood risk management information.

### **Scottish Water**

Local authorities acknowledge the inclusion of surface water flooding data generated by Scottish Water in preparation of flood risk information.

## Appendix5: Glossary

**Actions** - Actions describe where and how flood risk will be managed. These actions have been set by SEPA and agreed with flood risk management authorities following consultation. Selection of actions to deliver the agreed objectives has been based on a detailed assessment and comparison of economic, social and environmental criteria. The FRM Act uses the term 'measures' rather than 'actions'.

**Annual Average Damages (AAD)** - Depending on its size or severity, each flood will cause a different amount of damage to a flood prone area and we can calculate the cost of this damage. Annual Average Damages for an area are the average costs per year that would occur from flooding over a very long period of time. Scottish figures have been calculated based on the method set out in the Flood Hazard Research Centre's Multi-Coloured Handbook (2010).

**Appraisal** - Appraisal is the process of defining objectives, examining options and weighing up the costs, benefits, risks and uncertainties before a decision is made. The FRM Strategy appraisal method is designed to set objectives and identify the most sustainable combination of actions to tackle flooding from rivers, sea and surface water.

**Awareness Raising** - Public awareness, participation and community support are essential components of sustainable flood risk management. SEPA and the responsible authorities have a duty to raise public awareness of flood risk. This is undertaken both individually and collaboratively by a range of organisations. Improved awareness of flood risk and actions that prepare individuals, homes and businesses for flooding can reduce the overall impact.

**Benefit Cost Ratio (BCR)** - A benefit cost ratio summarises the overall value for money of an action or project. It is expressed as the ratio of benefits to costs (both expressed as present value monetary values). A ratio of greater than 1:1 indicates that the economic benefits associated with an action are greater than the economic costs of implementation; therefore this is taken as the threshold of economic viability. It should be acknowledged that it is not always possible to accurately estimate economic values for all elements of benefit, and BCR is just one of a number of techniques used in appraisal.

**Candidate Potentially Vulnerable Area** – A small number of Candidate Potentially Vulnerable Areas were identified after the National Flood Risk Assessment in light of new information that warranted further assessment and appraisal. They are included in the flood risk management planning process. The National Flood Risk Assessment will be updated to inform each subsequent planning cycle.

**Catchment** – The area of land drained by a drainage system – either natural or piped.

**Category (CAT) 1 and 2 Responders** – As defined by the Civil Contingencies Act 2004. Category 1 responders are 'core' responders: local authorities, police, fire and rescue services, ambulance service, NHS health boards, SEPA and the Maritime and Coastguard Agency. Category 2 responders are key co-operating responders in support of Category 1 responders. These include gas and electricity companies, rail and air transport operators, harbour authorities, telecommunications providers, Scottish Water, the Health and Safety Executive and NHS National Services Scotland.

**Coastal Flooding** – Flooding that results from sea level rise from a combination of high tides and stormy conditions. The term coastal flooding is used under the Flood Risk Management (Scotland) Act 2009, but in some areas it is also referred to as tidal flooding and covers areas such as estuaries and river channels that are influenced by tidal flows.

**Combined Sewer** - Combined sewers transport foul sewage from homes and industry as well as carrying surface water runoff from gutters, drains and some highways. Heavy or prolonged rainfall can rapidly increase the flow in a combined sewer until the amount of water exceeds sewer capacity.

**Combined Sewer Overflow** - Combined sewer overflows are purposely designed structures to ensure any excess water from sewerage systems is discharged in a controlled way and at a specific managed location.

**Confluence** - Where two or more rivers meet.

**Conveyance** - Conveyance is a measure of the carrying capacity of a watercourse. Increasing conveyance enables flow to pass more rapidly and reducing conveyance slows flow down. Both actions can be effective in managing flood risk depending on local conditions.

**Culvert** - A pipe, channel or tunnel used for the conveyance of a watercourse or surface drainage water under a road, railway, canal or other obstacle.

**Damages** - Flood damages are categorised as direct or indirect i.e. as a result of the flood water itself, or subsequent knock on effects. Damage to buildings and contents caused by flood water are an example of direct damages, whilst loss of industrial production, travel disruption or stress and anxiety are indirect. Some damages can be quantified in monetary terms, and others can only be described. The potential damages avoided by implementation of a flood risk management action are commonly referred to as the benefits of that action. When comparing the effectiveness of different actions, it is useful to consider estimated damages and damages avoided across the lifespan of the action. Within the FRM Strategies, a 100 year appraisal period has been used as standard. This allows costs, damages and benefits across this time frame to be compared in present value terms. See also 'Annual Average Damages'.

**Economic Impact** - An assessment of the economic value of the positive and negative effects of flooding and / or the actions taken to manage floods.

**Embankment** – A flood embankment is an engineered earthfill structure designed to contain high river levels or protect against coastal flooding. They are commonly grass-covered, but may need additional protection against erosion by swiftly flowing water, waves or overtopping.

**Emergency Plans / Response** - Emergency response plans are applicable for all types of flooding. They set out the steps to be taken during flooding in order to maximise safety and minimise impacts where possible. Under the Civil Contingencies Act, Category 1 Responders have a duty to maintain emergency plans. Emergency plans may also be prepared by individuals, businesses, organisations or communities.

**Environmental Impact** - A change in the environment as a result of an action or activity. Impacts can be positive or negative and may vary in significance, scale and duration.

**Environmental Impact Assessment (EIA)** - A process which identifies the potential environmental impacts, both negative and positive, of a proposal.

**Estuary** - A coastal body of water usually found where a river meets the sea; the part of the river that is affected by tides.

**FEH99/13** The Flood Estimation Handbook (FEH) provides industry-standard methods for assessing flood risk in the UK as well as guidance on rainfall and river flood frequency estimation. The latest update launched in 2013 has incorporated a larger dataset with an increased number of Scottish catchments included. This has improved the confidence in the usage of this methodology across Scotland.

**Flood** - In the terms of the FRM Act, 'flood' means a temporary covering by water, from any source, of land not normally covered by water. This does not include a flood solely from a sewerage system, as a result of



normal weather or infrastructure drainage. A flood can cause significant adverse impacts on people, property and the environment.

**Flood Bund** - A constructed retaining wall, embankment or dyke designed to protect against flooding to a specified standard of protection.

**Flood defence** - Infrastructure, such as flood walls, embankments or flood storage intended to protect an area against flooding to a specified standard of protection.

**Flood Extent** - The area that has been affected by flooding, or is at risk of flooding from one or more sources for a particular likelihood.

**Flood Frequency** - The probability that a particular size/severity of flood will occur in a given year (see likelihood).

**Flood Hazard** - In terms of the FRM Act, hazard refers to the characteristics (extent, depth, velocity) of a flood.

**Flood Hazard Map** - Flood hazard maps are required by the FRM Act to show information that describes the nature of a flood in terms of the source, extent, water level or depth and, where appropriate, velocity of water. Flood hazard and risk maps are referred to collectively as flood maps and are available on the SEPA website.

**Flood Prevention / Protection Scheme** - A flood protection scheme, as defined by the FRM Act, is a scheme by a local authority for the management of flood risk within the authority area. This includes defence measures (flood prevention schemes) formerly promoted under the Flood Prevention (Scotland) Act 1961.

**Flood Protection Study** - Flood protection studies aim to refine understanding of the hazard and risk associated with flooding in a particular area, catchment or coastline. They will involve detailed assessment of flood hazard and / or risk and may develop options for managing flood risk.

**Flood Protection Works** - Flood protection works can include the same flood defence measures that would make up a formal Flood Protection Scheme but without the legal process, protections and requirements that would come by delivering the works as a scheme.

**Flood Risk** - A measure of the combination of the likelihood of flooding occurring and the associated impacts on people, the economy and the environment.

**Flood Risk Assessment** - Flood Risk Assessments are detailed studies of an area where flood risk may be present. These are often used to inform planning decisions, may help to develop flood schemes and have also contributed to the National Flood Risk Assessment.

**Flood Risk Management Strategy** - Sets out a long-term vision for the overall reduction of flood risk. Contains a summary of flood risk in each Local Plan District, together with information on catchment characteristics and a summary of objectives and actions for Potentially Vulnerable Areas.

**Flood Risk Management (Scotland) Act 2009 (FRM Act)** - The flood risk management legislation for Scotland. It transposes the EC Floods Directive into Scots Law and aims to reduce the adverse consequences of flooding on communities, the environment, cultural heritage and economic activity.

**Flood Risk Management Cycle** - Under the FRM Act flood risk management planning is undertaken in six year cycles. The first planning cycle is 2015 – 2021. The first delivery cycle is lagged by approximately 6 months and is from 2016 - 2022.

**Flood Warning Scheme** - A flood warning scheme is the network of monitoring on a coastal stretch or river, which provides SEPA with the ability to issue Flood Warnings.

**Floodplain** - Area of land that borders a watercourse, an estuary or the sea, over which water flows in time of flood, or would naturally flow but for the presence of flood defences and other structures where they exist.

**Floodplain Storage** - Floodplains naturally store water during high flows. Storage can be increased through natural or man-made features to increase flood depth or slow flows in order to reduce flooding elsewhere.

**Green (Blue-Green) Infrastructure** - The European Commission defines green infrastructure as “the use of ecosystems, green spaces and water in strategic land use planning to deliver environmental and quality of life benefits. It includes parks, open spaces, playing fields, woodlands, wetlands, road verges, allotments and private gardens. Green infrastructure can contribute to climate change mitigation and adaptation, natural disaster risk mitigation, protection against flooding and erosion as well as biodiversity conservation.”

**Historic Environment Scotland** - The new lead public body for the country's historic environment. It brings together Historic Scotland and the Royal Commission on the Ancient and Historic Monuments of Scotland.

**Habitats Regulations Appraisal** - The Habitats Regulations require competent authorities to assess certain plans or projects which affect Natura sites. Any development proposal, which requires planning permission or other consent, is a 'project' which may require consideration under the Habitats Regulations.

**Land Use Planning** – The process undertaken by public authorities to identify, evaluate and decide on different options for the use of land, including consideration of long term economic, social and environmental objectives and the implications for different communities and interest groups.

**Lead Local Authority** - A local authority responsible for leading the production, consultation, publication and review of a Local Flood Risk Management Plan.

**Local Development Plan** – A Local Development Plan (LDP) provides the vision for how communities will grow and develop in the future. The intention is that they provide certainty for communities and investors alike about where development should take place and where it should not and the supporting infrastructure required for growth. A LDP is required for each council area across Scotland.

**Local Flood Risk Management Plan** - Produced by lead local authorities, these will take forward the objectives and actions set out in Flood Risk Management Strategies. They will provide detail on the funding, timeline of delivery, arrangements and co-ordination of actions at the local level during each six year FRM planning cycle.

**Local Plan District** - Geographical areas for the purposes of flood risk management planning. There are 14 Local Plan Districts in Scotland.

**Local Plan District Partnerships** - Each Local Plan District has established a local partnership comprised of local authorities, SEPA, Scottish Water and others as appropriate. These partnerships are distinct from the FRM Local Advisory Groups and they retain clear responsibility for delivery of the FRM actions set out in the Local Flood Risk Management Plans. It is the local partnership that makes decisions and supports the delivery of these plans.

**Maintenance** - Sections 18 and 59 of the Flood Risk Management (Scotland) Act 2009 put duties of watercourse inspection, clearance and repair on local authorities. In addition, local authorities may also be responsible for maintenance of existing flood protection schemes or defences.

**National Flood Risk Assessment (NFRA)** - A national analysis of flood risk from all sources of flooding which also considers climate change impacts. Completed in December 2011 this provides the information required to undertake a strategic approach to flood management that identifies areas at flood risk that require further appraisal. The NFRA will be reviewed and updated for the second cycle of FRM Planning by December 2018.

**Natural Flood Management** - A set of flood management techniques that aim to work with natural processes (or nature) to manage flood risk.

**Non-Residential Properties** - Properties that are not used for people to live in, such as shops or other public, commercial or industrial buildings.

**Potentially Vulnerable Area** - Catchments identified as being at risk of flooding and where the impact of flooding is sufficient to justify further assessment and appraisal. There were 243 Potentially Vulnerable Areas identified by SEPA in the National Flood Risk Assessment and these will be the focus of the first FRM planning cycle.

**Property Level Protection** - Property level protection includes flood gates, sandbags and other temporary barriers that can be used to prevent water from entering individual properties during a flood.

**Q&S** - Quality and Standards (Q&S) is the process, governing costs and outputs, through which the planning and delivery of improvements by Scottish Water to the public drinking water and sewerage services in Scotland is carried out.

**Receptor** - Refers to the entity that may be impacted by flooding (a person, property, infrastructure or habitat). The vulnerability of a receptor can be reduced by increasing its resilience to flooding.

**Residual Risk** - The risk that remains after risk management and mitigation. This may include risk due to very severe (above design standard) storms or risks from unforeseen hazards.

**Resilience** - The ability of an individual, community or system to recover from flooding.

**Responsible Authority** - Designated under the FRM (Scotland) Act 2009 and associated legislation as local authorities, Scottish Water and, from 21 December 2013, the National Park Authorities and Forestry Commission Scotland. Responsible authorities, along with SEPA and Scottish Ministers, have specific duties in relation to their flood risk related functions.

**Return Period** - A measure of the rarity of a flood event. It is the statistical average length of time separating flood events of a similar size.

**River Basin Management Planning (RBMP)** - The Water Environment and Water Services (Scotland) Act 2003 transposed the European Water Framework Directive into Scots law. The Act created the River Basin Management Planning process to achieve environmental improvements to protect and improve our water environment. It also provided the framework for regulations to control the negative impacts of all activities likely to have an impact on the water environment.

**Runoff Reduction** - Actions within a catchment or sub-catchment to reduce the amount of runoff during rainfall events. This can include intercepting rainfall, storing water, diverting flows or encouraging infiltration.

**Scottish Advisory and Implementation Forum for Flooding (SAIFF)** - The stakeholder forum on flooding set up by the Scottish Government to ensure legislative and policy aims are met and to provide a platform for sharing expertise and developing common aspirations and approaches to reducing the impact of flooding on Scotland's communities, environment, cultural heritage and economy.

**Scottish Flood Forecasting Service** - SEPA operates a network of over 250 rainfall, river and coastal monitoring stations throughout Scotland that generate data 24 hours a day. The Scottish Flood Forecasting Service is a joint initiative between SEPA and the Met Office that produces daily, national flood guidance statements which are issued to Category 1 and 2 Responders. The flood guidance statements provide an assessment of the risk of flooding for a five day period allowing responders time to put preparations in place to reduce the impact of flooding. The service also provides information which allows SEPA to issue flood warnings, giving people a better chance of reducing the impact of flooding on their home or business. For more information please visit SEPA's website.

**Self Help** - Self help actions can be undertaken by any individuals, businesses, organisations or communities at risk of flooding. They are applicable to all sources, frequency and scales of flooding. They focus on awareness raising and understanding of flood risk.

**Site Protection Plans** - Site protection plans are developed to identify whether normal operation of a facility can be maintained during a flood. This may be due to existing protection or resilience of the facility or the network.

**Site of Special Scientific Interest** - Sites protected by law under the Nature Conservation (Scotland) Act 2004 to conserve their plants, animals and habitats, rocks and landforms.

**Special Area of Conservation (SAC)** - Strictly protected site designated under the European Habitats Directive. The Directive requires the establishment of a European network of protected areas which are internationally important for threatened habitats and species.

**Strategic Environmental Assessment** - A process for the early identification and assessment of the likely significant environmental effects, positive and negative, of activities. Often considered before actions are approved or adopted.

**Strategic Flood Risk Assessment (SFRA)** - A Strategic Flood Risk Assessment is designed for the purposes of specifically informing the Development Plan Process. A SFRA involves the collection, analysis and presentation of all existing and readily available flood risk information (from any source) for the area of interest. It constitutes a strategic overview of flood risk.

**Standard of protection (SoP)** - All flood protection structures are designed to be effective up to a specified flood likelihood (Standard of Protection). For events beyond this standard, flooding will occur. The chosen Standard of Protection will determine the required defence height and / or capacity.

**Surface Water Management Plan (SWMP)** - A plan that takes an integrated approach to drainage accounting for all aspects of urban drainage systems and produces long term and sustainable actions. The aim is to ensure that during a flood the flows created can be managed in a way that will cause minimum harm to people, buildings, the environment and business.

**Surface Water Plan / Study** - The management of flooding from surface water sewers, drains, small watercourses and ditches that occurs, primarily in urban areas, during heavy rainfall. FRM Strategy actions in this category include: Surface Water Management Plans, Integrated Catchment Studies and assessment of flood risk from sewerage systems (FRM Act Section 16) by Scottish Water. These have been selected as appropriate for each Potentially Vulnerable Area.

**Sustainable Drainage Systems (SuDS)** - A set of techniques designed to slow the flow of water. They can contribute to reducing flood risk by absorbing some of the initial rainfall and then releasing it gradually, thereby reducing the flood peak and helping to mitigate downstream problems. SuDS encourage us to take account of quality, quantity and amenity / biodiversity.

**Sustainable Flood Risk Management** - The sustainable flood risk management approach aims to meet human needs, whilst preserving the environment so that these needs can be met not only in the present, but also for future generations. The delivery of sustainable development is generally recognised to reconcile three pillars of sustainability – environmental, social and economic.

**Surface Water Flooding** - Flooding that occurs when rainwater does not drain away through the normal drainage systems or soak into the ground, but lies on or flows over the ground instead.

**Vulnerability** - A measure of how likely someone or something is to suffer long-term damage as a result of flooding. It is a combination of the likelihood of suffering harm or damage during a flood and the ability to recover following a flood (resilience).