
NORTH AYRSHIRE COUNCIL

29 November 2022

Cabinet

Title: Ayrshire Local Flood Risk Management Plan

Purpose: To update Cabinet on progress and next steps in relation to the publication of:

- a) the Second Ayrshire Local Flood Risk Management Plan.
- b) the Final Progress Report on the First Ayrshire Local Flood Risk Management Plan.

Recommendation: It is proposed that Cabinet:

- i. approves the Final Progress Report on the First Ayrshire Local Flood Risk Management Plan, which will allow its publication prior to the 31st of December 2022;
- ii. approves the Second Ayrshire Local Flood Risk Management Plan (North Ayrshire aspects) which will allow its publication prior to the 31st of December 2022; and
- iii. notes the potential North Ayrshire future financial implications of delivering the actions and flood studies contained within the Second Ayrshire Local Flood Risk Management Plan.

1. Executive Summary

- 1.1 The Flood Risk Management (Scotland) Act 2009 sets out a framework for a new approach to flood risk management in Scotland. The country was divided into 'Local Plan Districts' (LPDs), with Ayrshire operating as a single LPD. The Act sets out a requirement for the regular publication of a Flood Risk Management Plan as well as a Local Flood Risk Management Plan for each LPD. Both plans can be summarised as follows:
- The **Ayrshire Flood Risk Management Plan** is prepared by SEPA (Scottish Environment Protection Agency) and identifies the flood risk in each LPD and outlines mitigation actions;
 - The **Ayrshire Local Flood Risk Management Plan** is prepared by the three Ayrshire local authorities and provides further detail on the mitigation actions identified in the Ayrshire Flood Risk Management Plan and confirms the resources and timescales for action delivery.
- 1.2 SEPA published the Second Flood Risk Management Plan for the Ayrshire Local Plan District on the 22nd of December 2021. This plan identifies actions to reduce flood risk

within Ayrshire over the 6-year Cycle 2 local plan period (2022-2028).

- 1.3 The Second Ayrshire Local Flood Risk Management Plan was due to be published in June 2022 however the publication deadline for all local plans was extended by Ministerial Direction and is now the 31st of December 2022. The draft second Local Flood Risk Management Plan is provided as an appendix to this paper.
- 1.4 Details about the delivery and funding for the North Ayrshire Council-led flood studies that are required to be included in the local plan are provided in Table 5 of Appendix 5 of this paper. There is also a description of the other North Ayrshire Council-led actions in paragraphs 2.92 to 2.94.
- 1.5 Approved Flood Protection Scheme actions currently qualify for Scottish Government grant funding to cover 80% of eligible scheme costs. Given that the current funding model is still under review, it has not been confirmed if any of the North Ayrshire Council-led scheme design actions would qualify for national funding. Further progress on these actions will not be made until funding becomes available.
- 1.6 The final progress report on the First Ayrshire Local Flood Risk Management Plan is also due to be published prior to the 31st of December 2022. The draft final progress report is provided as an appendix.

2. Background

- 2.1 SEPA published the Second Ayrshire Flood Risk Management Plan on the 22nd of December 2021 (the '2021 SEPA Plan'). This plan identifies responsible authorities' committed actions to reduce flood risk within Ayrshire over the 6-year Cycle 2 local plan period (2022-2028).
- 2.2 Following publication of the 2021 SEPA Plan, North Ayrshire Council as lead local authority is required to publish the Second Ayrshire Local Flood Risk Management Plan (the 'Second Ayrshire LFRM Plan') by the 31st of December 2022. This date was extended by 6 months from the original publication date by a ministerial direction issued by the Scottish Government.
- 2.3 The Second Ayrshire LFRM Plan provides further detail about the actions of the 2021 SEPA Plan and is required to consist of a 'supplementary part' and an 'implementation part'. The 'supplementary part' is a summary of the objectives, measures and other information already contained in the published 2021 SEPA Plan.
- 2.4 The 'implementation part' is required to include a description of how the measures identified for the second local plan period (between 2022-2028) or the third local plan period (between 2028-2034) would be delivered.
- 2.5 The Second Ayrshire LFRM Plan must not be inconsistent with anything in the published the 2021 SEPA Plan.
- 2.6 The draft Second Ayrshire LFRM Plan is contained in Appendix 2. Subject to ongoing development, an online interactive digital format of the plan may be available at a later stage.

2.7 Funding

- 2.7.1 The 40 nationwide flood protection schemes prioritised in the first local plan period were to receive 80% capital grant funding from a £42m per year budget over the 6-year timescale. Due to the difference between the predicted and actual scheme costs, the available funding was insufficient. Subsequently, the Scottish Government tasked COSLA to review the suitability of the current funding model and to devise a future model. This review is ongoing, which means that the funding of all of the schemes that have been identified in the 2021 SEPA Plan have not been finalised.
- 2.7.2 The planned North Ayrshire Council-led scheme design actions that are currently awaiting funding confirmation are as follows:
- The Fairlie (Keppenburn) Flood Protection Scheme Design;
 - The Brodick Flood Protection Scheme Design, which includes measures in Lamlash; and
 - The Lower Irvine Flood Protection Scheme Design.
- 2.7.3 Due to ongoing construction price inflation increases and pressures it is possible that Scottish Government funding will not be available for the design of these schemes and that further progress will be very limited until funding becomes available.
- 2.7.4 Within North Ayrshire, Scottish Government funding that would cover 80% of eligible costs has been secured for the implementation of the confirmed Millport Coastal and Mill Burn Schemes as well as for the Upper Garnock Scheme, which is nearing completion.
- 2.7.5 Other than the design and implementation of flood protection schemes, indicative costs for the different local authority funded actions were included in 2021 SEPA Plan and are summarised in Table 3 of Appendix 3 of this paper.

2.8 Actions

- 2.8.1 A summary of the type, number and location of all of the actions contained within the 2021 SEPA Plan along with the delivery lead for each action type is provided in Table 4 of Appendix 4 of this paper. Table 4 also notes the different types of action along with location by both Potentially Vulnerable Area (PVA) and the more focussed Objective Target Area (OTA). The actions within the Ayrshire Local Plan District are led by either North Ayrshire Council, East Ayrshire Council, South Ayrshire Council, SEPA or Scottish Water.

2.9 North Ayrshire Council-Led Studies

- 2.9.1 Table 5 of Appendix 5 of this paper provides an indication of the North Ayrshire Council-led studies identified in the 2021 SEPA Plan together with an indication of the costs and programme for these studies. The costs of these studies will be met by existing Council revenue budgets. Given the uncertainty around future costs, it is not possible to accurately estimate the projected cost of the post 2028 (Cycle 3) studies at this time.

- 2.9.2 There are other ongoing actions that will be led by North Ayrshire Council over the 6-year (Cycle 2) local plan period. Costs for these actions, such as 'flood defence maintenance' or 'community engagement' are difficult to estimate but will typically be met by current revenue budgets.
- 2.9.3 There will also be area wide actions led by North Ayrshire Council to manage current and future flooding in all locations. These actions, such as Local Authority planning policy and emergency planning, will be funded by the relevant local authority revenue budgets.
- 2.9.4 The draft Second Ayrshire LFRM Plan is contained within Appendix 2. The content of plan is required to be agreed by all other responsible authorities, including the three Ayrshire local authorities, Scottish Water, SEPA and any other relevant authority with a flood risk management function within the Ayrshire Local Plan District prior to finalisation and publication. Cabinet approval is sought for the North Ayrshire Council-led actions contained within the draft plan and for the publication of the final plan as amended by the other authorities. The views of the other responsible authorities may also require minor modifications to the draft plan.

2.10 Final Progress Report on the First Ayrshire Local Flood Risk Management Plan

- 2.10.1 It is intended to append the final report on the progress of first (Cycle 1) actions to the finalised 2nd Ayrshire LFRM Plan. The final progress report finds that the delayed North Ayrshire Council actions are limited to the following:
- The Upper Garnock Flood Protection Scheme, which is currently under construction, and is almost substantially complete;
 - The Millport Coastal Flood Protection Scheme, which has been confirmed and is due to go to construction in 2023;
 - The Mill Burn Flood Protection Scheme, which has been confirmed and is due to go to construction in financial year 2023/24;
 - The Fairlie (Keppenburn) Flood Protection Scheme, which has been submitted for national prioritisation for design funding in Cycle 2 as the originally envisaged funding sources could not be secured during Cycle 1.
- 2.10.2 The majority of actions identified in the First Ayrshire Local Flood Risk Management Plan have been delivered as planned as shown by Table 6 in Appendix 6.
- 2.10.3 The draft Final Progress Report on the First Ayrshire Local Flood Risk Management Plan is contained in Appendix 1. Cabinet approval is sought for the publication of the finalised plan (particularly the North Ayrshire Council aspects), noting it may be amended by the other authorities that have led or been involved in the implementation of their specific actions, prior to publication.

3. Proposals

- 3.1 It is proposed that Cabinet:

- approves the Final Progress Report on the First Ayrshire Local Flood Risk Management Plan, which will allow its publication prior to the 31st of December 2022;
- approves the Second Ayrshire Local Flood Risk Management Plan (North Ayrshire aspects) which will allow its publication prior to the 31st of December 2022; and
- notes the potential North Ayrshire future financial implications of delivering the actions and flood studies contained within the Second Ayrshire Local Flood Risk Management Plan.

4. Implications/Socio-economic Duty

Financial

- 4.1 The funding for scheme design actions identified in the Second Local Flood Risk Management Plan have not been confirmed by the Scottish Government and it is not known when a decision on funding will be made. Funding for the implementation of previous committed schemes will remain at the current 80%/20% Scottish Government/local authority split.
- 4.2 Should the funding for scheme design actions become confirmed, all the schemes would require some degree of consultation, a relatively small amount of initial funding would be required for scheme development and consultation costs and the bulk of the expenditure for the construction is unlikely to be required before 2028 for any of the schemes.
- 4.3 Funding for the proposed flood studies, 'other' actions and area wide actions can be met from the revenue budget the Council annually receives from Scottish Government to deliver its statutory obligations resulting from the Flood Risk Management (Scotland) Act 2009.

Human Resources

- 4.4 There are no human resource implications at present. Any additional human resource requirements will be identified if commitment is made to take schemes forward and costs will be met from within available budgets.

Legal

- 4.5 The approval of the Second Ayrshire Local Flood Risk Management Plan and the Final Progress Report on the First Ayrshire Local Flood Risk Management Plan will enable the Council to undertake its statutory obligations as identified in the 2009 Flood Risk Management (Scotland) Act.
- 4.6 A Strategic Environmental Assessment (SEA) screening request was submitted to the Scottish Government gateway on the 5th of October 2021. As the second LFRM Plan will be fully consistent with the published 2021 SEPA Plan and would not propose any additional actions, a follow-up SEA will not be undertaken.
- 4.7 Similarly, the published 2021 SEPA Plan was subject to an appropriate Habitats Regulation Assessment (HRA). As the Second LFRM Plan adds further detail to the actions that have already been subject to an HRA, the plan will not result in any

additional significant effects and the mitigation statements prescribed by the earlier HRA will be included in the plan. Given this, a follow-up HRA is not required. The acceptability of this approach has been confirmed by Nature Scot.

Equality/Socio-economic

- 4.8 National studies have identified that the impact of flooding is greater within areas of deprivation. Where appropriate, an Equality Impact Assessment will be carried out during the implementation Local Flood Risk Management Plan actions.

Climate Change and Carbon

- 4.9 Flood risk management forms part of the Council's Environmental Sustainability and Climate Change Strategy by supporting the sustainability of our communities.

Key Priorities

- 4.10 Flood mitigation and protection of our communities addresses the Council Plan key priorities of 'protecting and enhancing the environment for future generations' and providing 'sustainable and effective infrastructure'.

Community Wealth Building

- 4.11 A package of community wealth building measures will be incorporated into the construction projects if and when they are progressed, and this will be considered further at the tender preparation stage.

5. Consultation

- 5.1 The Second Ayrshire LFRM Plan is required to address how it has responded to the consultation responses that were received in connection with the published 2021 SEPA Plan. SEPA has made a redacted version of the consultation responses available. Their responses have been reviewed and will be addressed in the published plan.

RUSSELL McCUTCHEON
Executive Director (Place)

For further information please contact Thomas Reaney, Head of Commercial Services, on 01294 324570.

Background Papers

Flood Risk Management (Scotland) Act 2009:

FINAL PROGRESS REPORT Local Flood Risk Management Plan (2016-2022)

Ayrshire Local Plan District



Draft Document

20th October 2022.



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Foreword

This Final Report for the Local Flood Risk Management Plan shows the progress made in delivering the actions to avoid and reduce the risk of flooding, to allow us to prepare and protect ourselves and our communities across the breadth of the local plan district. The report also marks the completion of Cycle 1 as we now transition into Cycle 2.

“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 this Final Report shows that the co-ordinated and collaborative efforts of public bodies can be brought together to deliver sustainable outcomes.

The Final 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 other authorities including Scottish Water and SEPA.

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), 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 placed an even greater responsibility on SEPA, local authorities, Scottish Water and other responsible authorities to deliver their flood risk management responsibilities in an effective and sustainable way. During Cycle 1 we have also had to respond to the challenges of the COVID-19 pandemic.

SEPA, local authorities, Scottish Water, and other responsible authorities will continue to work collaboratively to implement the actions set out in the 2nd planning cycle to June 2028

1. Background

The Final Report is a legal requirement of the Flood Risk Management (Scotland) Act 2009 (Section 38). The Final Report presents:

- an assessment of the progress made towards implementing the Ayrshire LFRMP (the 'Plan');
- a summary of the planned actions that were not implemented, with reasons for their non-implementation; and
- a description of any other actions implemented since the plan was finalised that the lead authority considers to have contributed to the achievement of the objectives.

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 a review of the Plan including progress highlights, a statement on the planned actions not implemented, the significant challenges faced and the next steps to be taken forward during the 2nd planning cycle.

Progress Highlights

A selection of progress highlights since publication of the interim progress report in March 2019 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 construction and is almost complete;
- The River Garnock Flood Warning scheme has been completed;
- The detailed design of the Millport Coastal Flood Protection Scheme has been completed and the construction of the scheme has been tendered;
- The prospective Upper and Lower Irvine Valley flood protection schemes were submitted for National Prioritisation;
- The Mill Burn Scheme has progressed to detailed design stage;
- The Ayrshire Shoreline Management Plan is completed and was adopted by both North and South Ayrshire Councils;
- The Girvan Flood Risk Assessment Study and Options Appraisal phase are completed. The chosen option has been submitted for national prioritisation;

- The Troon Coastal Flood Study is ongoing and programmed to be completed in January 2023;
- The scoping phase for the Pow Burn Flood Risk Assessment has been completed and the study is scheduled to commence in Spring 2023;
- The Meadowhead Integrated Catchment Study Options Appraisal stage was completed in June 2021. Scottish Water are leading on detailed design for a phased approach to reduce surface water and sewer flooding in Prestwick. Scottish Water have created a multi-agency stakeholder group to assist the design and communication process for this project;
- The Stevenston Point Integrated Catchment Study has been completed;
- The Strategic Mapping and Modelling dataset for Largs, Cartmelholm, Girvan, Underwood Cumnock and the Meadowhead Catchment completed by Scottish Water;
- The Brodick and Lamlash Flood Risk Assessments and the Option Appraisal has been completed;
- Surface Water Management Plans have been completed for Saltcoats, Ardrossan, Stevenston & Kilwinning (SASK); Irvine, Kilmarnock, Ayr, Prestwick and Dundonald; and
- Beach nourishment actions in Ayr and Troon continue to be successful in the propagation of natural sand dunes.

Significant Deviations from the Plan

The status of the planned actions is summarised in Section 3 and detailed in Sections 4 and 5. No significant deviations from the Plan are considered to have occurred.

Significant Challenges

Based on a review of the assessment of the progress of actions detailed in this Final Report, the following key challenges and issues have been identified, some of which have had an impact on the delivery of actions to manage flood risk. Where these challenges have had an impact on the delivery of specific actions, this impact is detailed in Sections 4 and 5.

Significant weather events

Whilst occasional flooding has occurred within the Ayrshire LPD over recent years, the area has generally not experienced the exceptional flooding witnessed in other parts of Scotland e.g. Ballater and the Scottish Borders. Storms over the 2015/16 winter period, including Storm Frank, brought some flooding to the area. When flooding does occur, resources are directed away from strategic planning to respond to the incident.

COVID-19 Pandemic

The COVID pandemic has impacted the delivery of Cycle 1 actions including a requirement to suspend flood risk management construction works as part of the national effort to minimise the spread of the virus during the first national lockdown. The pandemic also disrupted flood risk management studies and flood modelling due to the transition to home working and the challenges of effectively consulting and engaging with flood vulnerable communities. These impacts have resulted in higher implementation costs and programme delays.

Resources

Whilst the majority of actions have either been progressed in line or have advanced further than set out in the Plan, the primary reason for actions not progressing as far as intended was a challenging resource environment. A range of resources were required to progress the actions set out in the Plan to reduce flood risk. These include the authorities responsible for progressing individual actions being able to allocate sufficient funding for that purpose.

The available human resource, with the necessary skills to manage and develop solutions to reduce flood risk, has also constrained progress. Much of this human resource pressure has arisen from the increased level of investment in flood risk management across Scotland and the wider UK, leading to challenging recruitment. This pressure is compounded by flood risk management demanding particular technical skills. This human resource pressure has been observed within the authorities responsible for progressing individual actions and the engineering consultants that these authorities seek to engage to support the development of solutions.

Technical Complexity

Developing an understanding of how flooding occurs and the most appropriate combination of solutions to reduce flood risk is technically challenging, including the need to build complex computer models to understand how storm events, tides, watercourse geometry, topography, land use and climate change all interact to cause flooding. This challenge has impacted progress on a number of actions which has delayed progress on subsequent actions. More appropriate technical solutions have also been identified for a number of actions, compared to the way forward envisaged when the Plan was prepared but these enhanced solutions, particularly in relation to strategic mapping and modelling, have taken longer to implement.

Cyber-attack on SEPA

On 24 December 2020, SEPA was subject to a serious and complex cyber-attack, which significantly impacted the organisation, staff, public and private partners, and the communities who

rely on SEPA's services. Since the attack, SEPA has worked with Scottish Government, Police Scotland, the National Cyber Security Centre (NCSC) and the Scottish Business Resilience Centre (SBRC), to a clear recovery strategy. The incident has, however, temporarily impacted progress on a number of actions such as new flood warnings, mapping and modelling projects and some engagement activities. Many of these projects are still going ahead but the timescales for them have been adjusted.

The Next Planning Cycle

This report marks the completion of Cycle 1 and we are now transitioning into Cycle 2. The Flood Risk Management Plan for Cycle 2 can be accessed via the following link:

<https://www2.sepa.org.uk/frmplans/documents/lpd12-ayrshire-frmp-2021.pdf>

The Cycle 2 Local Flood Risk Management Plan is scheduled to be published during December 2022.

Many of the Cycle 1 actions were to undertake studies that have led to the identification of further actions to be implemented in Cycle 2 and beyond. For example, a flood protection study may recommend that a community flood action group is set up to increase resilience to flooding, or that flood defences are constructed.

Conclusions

Overall, through partnership working, by delivering the actions set out in the Ayrshire LFRMP we have reduced flood risk and helped to inform future actions to further reduce flood risk that will be progressed during Cycle 2 and subsequent cycles. Whilst the majority of actions have either been progressed in line or have advanced further than set out in the Plan, a number of actions have not progressed as far as intended, primarily due to a lack of resources. Other actions have been delayed where they have been dependent on the results from earlier studies. Some actions have also been superseded by a change in approach that will deliver better outputs but at a later date.

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. 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 Section 4.

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 Cumbræe 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

Note: N/A is used where there is no formal Flood Protection Scheme or Flood Warning Scheme present; ticked boxes confirm that the action is complete or that it is envisaged to be complete by the publication date of this final progress report.

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 (PVAs) within the Ayrshire Local Plan District.

DRAFT

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. Largs has not been exposed to any significant recent weather events.

Overview of actions to manage flooding in Noddsdale Water

PVA	Flood protection scheme / works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan / study	Strategic mapping & modelling	Strategic mapping & 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 Largs Culvert Realignment Feasibility Report completed in early 2016 in order to determine the outline design work for a flood protection scheme.	01/01/2016-31/12/2016	<p>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</p> <p>The completed study found that the prospective options for improving the culverts at Brisbane Glen Road would not be economically viable. No further studies are planned but the culverts shall continue to be assessed by North Ayrshire Council for clearance and repair works to minimise flood risk.</p>	N/A.

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 has been shared with the Local Authority.	N/A.
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 continues to improve the Scottish Flood Forecasting Service 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 in partnership with the Met Office has developed a public version of the daily Flood Guidance Statement, the Scottish Flood Forecast, to provide better and earlier information to the public. A beta version of this product was launched in May 2022. It will be refined in the wake of user feedback. A more focussed version of the product, producing guidance at a local level, is planned for the next flood risk management cycle. Options for developing forecasts of surface water	N/A.

				flooding have been published in 2022 to help urban areas and the transport network improve their resilience to and preparedness for flooding. The development and wider roll-out of this service is being considered alongside the technical, resource and communication challenges associated with providing surface water flooding guidance.	
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	01/06/2016-22/06/2022	North Ayrshire Council raised awareness about flood risk via a separate action noted for this PVA. Specific awareness raising about flood risk matters was achieved when the Council's flooding team responded to reported flood incidents, enquiries from prospective developers & flood risk consultants and when responding to planning application consultations.	N/A.

		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 engaged 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.	N/A.
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	22/12/2015-22/06/2022	SEPA continues to work with others to raise awareness of flood risk and its flood warning service. It has participated in local activities including school / education and community resilience activities when able. Some planned activities notably in person joint events have been limited or delayed due to Covid 19. North Ayrshire Council raised awareness about flood risk matters by updating the Council's website and by supporting Local Flood Emergency Groups.	N/A.

		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.		Project related public consultations affecting Largs were carried out by North Ayrshire Council.	
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	North Ayrshire Council inspected trash screens, watercourses and coastal flood protection structures in accordance with the published inspection programme throughout the 1 st Local Flood Risk Management Plan cycle.	N/A.

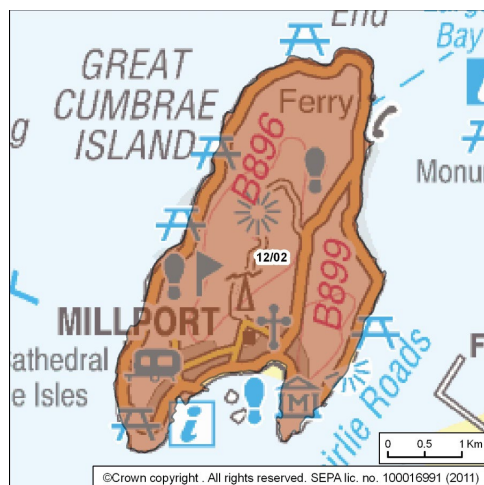
		including those which help to reduce flood risk.			
Emergency plans/response	G	Providing an emergency response to flooding is the responsibility of many organisations, including local authorities, the emergency services and SEPA. Effective management of an emergency response relies on emergency plans 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 supported by the work of voluntary organisations.	01/06/2016-01/06/2022	North Ayrshire Council commissioned emergency plans, aimed at Category 1 and 2 responders, for population centres within North Ayrshire that have a notable flood risk. These plans were completed in September 2020.	N/A.
Planning policies	G	Scottish Planning Policy and accompanying Planning Advice	01/06/2016-01/06/2022	SEPA continues to exercise its planning functions with a view to	N/A.

	<p>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>reducing overall flood risk. We effectively contribute to the delivery of sustainable flood risk management and we support the delivery of FRM Plans and Local FRM Plans. In line with the management actions that accord with national planning policies, we have and will continue to object to development at medium to high risk of flooding when it is contrary to the risk framework set out in Scottish Planning Policy. We have and will continue to engage from the start of the development plan process and encourage planning authorities to undertake a Strategic Flood Risk Assessment to inform their spatial strategy. We remain committed to exercising our planning functions with a view to reducing overall flood risk, and when a new national planning policy context is finalised later in 2022 via the National Planning Framework 4, we will take the same approach.</p> <p>North Ayrshire Council completed a Strategic Flood Risk Assessment for</p>	
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			<p>LDP2 in May 2018. In addition, the Ayrshire Shoreline Management Plan (SMP), which prompts land use, policy changes and further studies to allow physical protective measures to take place in the future was adopted by North Ayrshire Council and South Ayrshire Council in September 2018. National Planning Framework 4 is expected to be adopted by the Scottish Parliament later in 2022 and will become part of the Development Plan, ensuring national planning policies on flooding are applied in local decision making.</p>	
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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 confirmation of the Millport Coastal Flood Protection Scheme and the Mill Burn Flood Protection Scheme. The Ayrshire Shoreline Management Plan was adopted by both North and South Ayrshire Councils in September/October 2018.

Overview of actions to manage flooding in Great Cumbrae Island

PVA	Flood protection scheme / works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan / study	Strategic mapping & modelling	Strategic mapping & 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	A			G				A	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 protection scheme/works	A	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	North Ayrshire Council confirmed the Millport Coastal Flood Protection Scheme on the 10 th of November 2020. The detailed design is complete and the scheme is planned to be implemented during the 2 nd Local Flood Risk Management Plan cycle (2022-2028).	The scheme is planned to be implemented during the 2nd Local Flood Risk Management Plan cycle (2022-2028).
	A	It is recommended that the council progress work on the proposed flood protection work on the Mill Burn in Millport. The Mill Burn Flood Risk Assessment has provided information along with an economic appraisal which identifies potential options to mitigate flooding. Initial remedial work has helped to reduce	01/06/2016-01/06/2022	North Ayrshire Council confirmed the Mill Burn Flood Protection Scheme on the 15 th of June 2021. The detailed design is underway and the scheme is planned to be implemented during the 2nd Local Flood Risk Management Plan cycle (2022-2028).	The scheme is planned to be implemented during the 2nd Local Flood Risk Management Plan cycle (2022-2028).

Flood protection scheme/works		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 was completed and was adopted by both North Ayrshire Council and South Ayrshire Council in September/October 2018.	N/A.
Strategic mapping and modelling	A	SEPA will update strategic surface water mapping in some parts of this catchment to improve understanding of flood risk.	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 FEH22 methodology. The FEH22 dataset contains the latest science and	The national surface water flooding modelling project will be completed in 2023. The outputs from this will be used to update SEPA maps early in cycle 2 and will inform SEPA's flood risk

				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. A major national update of the surface water maps is underway which will deliver updated surface water flooding maps for Scotland representing the latest scientific understanding.	assessments for the next flood risk management cycle.
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 coastal flood defence structures were either inspected on an annual basis throughout the 1 st Local Flood Risk Management Plan cycle and were subject to a principal inspection every three years or were inspected in accordance with the inspection schedule published by North Ayrshire Council.	N/A.
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	22/12/2015-22/06/2022	SEPA has continued to operate the flood warning service.	N/A.

		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.			
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 continues to improve the Scottish Flood Forecasting Service 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 in partnership with the Met Office has developed a public version of the daily Flood Guidance Statement, the Scottish Flood Forecast, to provide better and earlier information to the public. A beta version of this product was launched in May 2022. It will be refined in the wake of user feedback. A more focussed version of the product, producing guidance at a local level, is planned for the next flood risk management cycle. Options for developing forecasts of surface water flooding have been published in 2022	N/A

				to help urban areas and the transport network improve their resilience to and preparedness for flooding. The development and wider roll-out of this service is being considered alongside the technical, resource and communication challenges associated with providing surface water flooding guidance.	
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</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</p>	01/06/2016-22/06/2022	<p>North Ayrshire Council raised awareness about flood risk via a separate action noted for this PVA. Specific awareness raising about flood risk matters was achieved when the Council's flooding team responded to reported flood incidents, enquiries from prospective developers & flood risk consultants and when responding to planning application consultations.</p>	N/A.

		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 information to the</p>	22/12/2015-22/06/2022	<p>SEPA continues to work with others to raise awareness of flood risk and its flood warning service. It has participated in local activities including school / education and community resilience activities when able. Some planned activities notably in person joint events have been limited or delayed due to Covid 19.</p> <p>North Ayrshire Council raised awareness about flood risk matters by updating the Council's website and by supporting Local Flood Emergency Groups.</p> <p>Project related public consultations affecting the Great Cumbrae PVA were carried out by North Ayrshire Council.</p>	N/A

		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	North Ayrshire Council inspected trash screens, watercourses and coastal flood protection structures in accordance with the published inspection programme throughout the 1st Local Flood Risk Management Plan cycle.	N/A.
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	01/06/2016-01/06/2022	North Ayrshire Council commissioned emergency plans, aimed at Category 1 and 2 responders, for population centres within North Ayrshire that have a notable flood risk. These plans were completed in September 2020.	N/A.

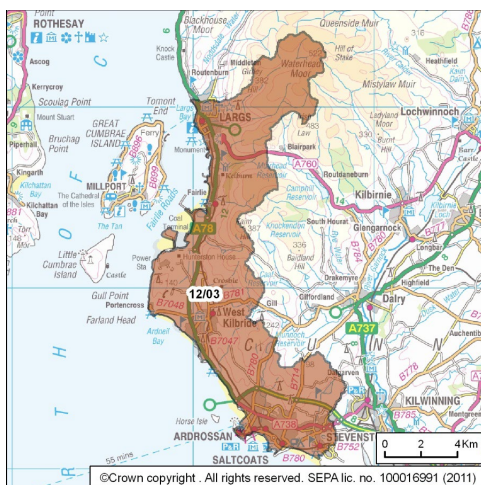
		<p>Responders. Scottish Water are a Category 2 responder under the Civil Contingencies Act 2004 and will support regional and local resilience partnerships as required. The emergency response by these organisations is coordinated through regional and local resilience partnerships. This response may be supported by the work of voluntary organisations.</p>			
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,</p>	01/06/2016-01/06/2022	<p>SEPA continues to exercise its planning functions with a view to reducing overall flood risk. We effectively contribute to the delivery of sustainable flood risk management and we support the delivery of FRM Plans and Local FRM Plans. In line with the management actions that accord with national planning policies, we have and will continue to object to development at medium to high risk of flooding when it is contrary to the risk framework set out in Scottish Planning Policy. We have and will continue to engage from the start of the development plan process and</p>	N/A.

	new development in areas with medium to high likelihood of flooding should be avoided.	encourage planning authorities to undertake a Strategic Flood Risk Assessment to inform their spatial strategy. We remain committed to exercising our planning functions with a view to reducing overall flood risk, and when a new national planning policy context is finalised later in 2022 via the National Planning Framework 4, we will take the same approach.	
		<p>North Ayrshire Council completed a Strategic Flood Risk Assessment for LDP2 in May 2018. In addition, the Ayrshire Shoreline Management Plan (SMP), which prompts land use, policy changes and further studies to allow physical protective measures to take place in the future was adopted by North Ayrshire Council and South Ayrshire Council in September 2018.</p> <p>National Planning Framework 4 is expected to be adopted by the Scottish Parliament later in 2022 and will become part of the Development Plan, ensuring national planning policies on</p>	

			floodings are applied in local decision making.	
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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 completion of the Stevenston Point ICS Study and the associated Saltcoats, Ardrossan, Stevenston & Kilwinning (SASK) Surface Water Management Plan. The Ayrshire Shoreline Management Plan was completed and adopted by both North and South Ayrshire Councils in September/October 2018.

The preferred option for the upgrade of the Keppen Burn culvert has been identified and the design of the Fairlie Flood Protection Scheme is an action in the published Cycle 2 Flood Risk Management Plan.

Overview of actions to manage flooding in Largs to Stevenston

PVA	Flood protection scheme / works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan / study	Strategic mapping & modelling	Strategic mapping & 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	A			A		G		A	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 protection scheme/works	A	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 prioritised 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 preferred option for the Keppen Burn Culvert upgrade has been identified and design work is programmed to be completed during the 2 nd Local Flood Risk Management Plan cycle (2022-2028), depending on the scheme qualifying for Scottish Government capital grant funding.	The design of the Fairlie Flood Protection Scheme is programmed to be completed during the 2nd Local Flood Risk Management Plan cycle (2022-2028), depending on the scheme qualifying for Scottish Government capital grant funding.
Flood protection 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	Network Rail repaired Saltcoats Coastal Defence (asset ref. CD 200/433) in 2016. The works included the filling of voids, wall toe protection and concrete repairs along 700m length of wall to prevent water ingress.	N/A.
Flood protection study	G	A study is planned to further investigate the river and coastal	01/06/2016-01/06/2022	The Gogo Water Flood Risk Assessment Update was completed in	N/A

		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.		2020, the Largs Coastal Flood Risk Appraisal was completed in 2019 the Ayrshire Shoreline Management Plan was completed in 2018. A Natural Flood Management Study for the Gogo Water has been 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 was completed and was adopted by both North Ayrshire Council and South Ayrshire Council in September/October 2018.	N/A.
Surface water plan/study	G	An integrated catchment study covering the Stevenston Point catchment will be carried out. This study will help support the surface water management planning	01/06/2016-01/06/2022	The Integrated Catchment Study for Stevenston Point has been completed. Outputs have been shared with local authorities to inform Surface Water Management Plans.	N/A.

		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.			
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 the surface water management planning process.	01/06/2016-01/06/2022	The Saltcoats, Ardrossan, Stevenston & Kilwinning (SASK) Surface Water Management Plan was completed in 2021.	N/A.

Strategic mapping and modelling	A	<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.</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>	22/12/2015-22/06/2022	Work completed to date includes the production of key data sets including extreme water levels and offshore wave and wind conditions to support future coastal modelling work.	SEPA will complete a review of coastal flood hazard mapping in south west Scotland including in this area. This includes identifying where taking account of the impact of waves on flooding from the sea may be required. SEPA will collect the required coastal defence asset and other information necessary to progress with improved flood modelling and mapping in the highest priority areas taking account of wave overtopping where required. SEPA will look for opportunities to progress future modelling work in a way that best supports improvements to SEPA's Coastal Flood Warning Schemes. Expected to progress to the next stage around the middle of cycle 2 and complete early in the following cycle, subject to funding.
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	01/01/2018-31/12/2020	The Scottish Water assessment of flood risk within the sewer catchment has been completed.	N/A.

		understanding of flood risk in this 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	The Largs coastal flood defence structures were inspected on an annual basis throughout the 1st Local Flood Risk Management Plan cycle and were subject to a principal inspection every three years. Other flood risk management assets were inspected in accordance with the inspection schedule published by North Ayrshire Council.	N/A.
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	The Saltcoats flood defences were either inspected on an annual basis throughout the 1st Local Flood Risk Management Plan cycle and were subject to a principal inspection every three years or were inspected in accordance with the inspection schedule published by North Ayrshire Council.	N/A.
Maintain flood warning Largs Fort Street, Largs Seafront and Saltcoats Harbour	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	22/12/2015-22/06/2022	SEPA has continued to operate the flood warning service.	N/A.

flood warning areas		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.			
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 continues to improve the Scottish Flood Forecasting Service 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 in partnership with the Met Office has developed a public version of the daily Flood Guidance Statement, the Scottish Flood Forecast, to provide better and earlier information to the public. A beta version of this product was launched in May 2022. It will be refined in the wake of user feedback. A more focussed version of the product, producing guidance at a local level, is planned for the next flood risk management cycle. Options for	N/A.

				developing forecasts of surface water flooding have been published in 2022 to help urban areas and the transport network improve their resilience to and preparedness for flooding. The development and wider roll-out of this service is being considered alongside the technical, resource and communication challenges associated with providing surface water flooding guidance.	
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</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</p>	01/04/2016-22/06/2022	<p>North Ayrshire Council raised awareness about flood risk via a separate action noted for this PVA. Specific awareness raising about flood risk matters was achieved when the Council's flooding team responded to reported flood incidents, enquiries from prospective developers & flood risk consultants and when responding to planning application consultations.</p>	N/A.

		those affected can be better prepared. Further detail can be found in the Councils 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 engaged 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.	N/A.
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	North Ayrshire Council inspected trash screens, watercourses and coastal flood protection structures in accordance with the published inspection programme throughout the 1st Local Flood Risk Management Plan cycle.	N/A.

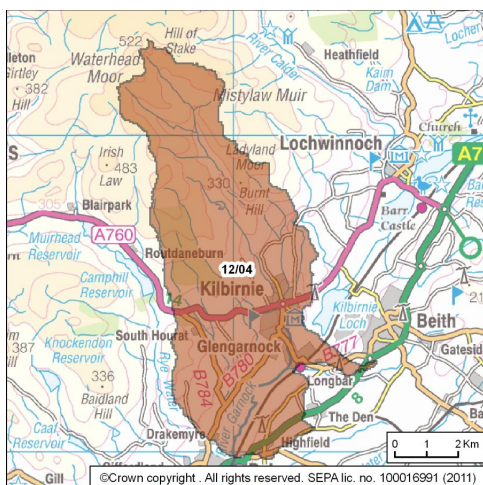
		including those which help to reduce flood risk.			
Emergency plans/response	G	<p>Providing an emergency response to flooding is the responsibility of many organisations, including local authorities, the emergency services and SEPA. Effective management of an emergency response relies on emergency plans 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	North Ayrshire Council commissioned emergency plans, aimed at Category 1 and 2 responders, for population centres within North Ayrshire that have a notable flood risk. These plans were completed in September 2020.	N/A.
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	SEPA continues to exercise its planning functions with a view to reducing overall flood risk. We effectively contribute to the delivery of sustainable flood risk management	

	<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>and we support the delivery of FRM Plans and Local FRM Plans. In line with the management actions that accord with national planning policies, we have and will continue to object to development at medium to high risk of flooding when it is contrary to the risk framework set out in Scottish Planning Policy. We have and will continue to engage from the start of the development plan process and encourage planning authorities to undertake a Strategic Flood Risk Assessment to inform their spatial strategy. We remain committed to exercising our planning functions with a view to reducing overall flood risk, and when a new national planning policy context is finalised later in 2022 via the National Planning Framework 4, we will take the same approach.</p> <p>North Ayrshire Council completed a Strategic Flood Risk Assessment for LDP2 in May 2018. In addition, the Ayrshire Shoreline Management Plan (SMP), which prompts land use, policy</p>	
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			changes and further studies to allow physical protective measures to take place in the future was adopted by North Ayrshire Council and South Ayrshire Council in September 2018. National Planning Framework 4 is expected to be adopted by the Scottish Parliament later in 2022 and will become part of the Development Plan, ensuring national planning policies on flooding are applied in local decision making.	
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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, which is under construction and is projected to be completed by Autumn 2022. The scheme includes the creation of a dam and upstream reservoir north of Kilbirnie and some limited flood walls throughout Glengarnock and Dalry that will protect over 200 properties and businesses in the Garnock Valley.

Overview of actions to manage flooding in Upper Garnock Catchment

PVA	Flood protection scheme / works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan / study	Strategic mapping & modelling	Strategic mapping & 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	A		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 protection scheme/works	A	North Ayrshire 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	North Ayrshire Council confirmed the Upper Garnock Flood Protection Scheme on the 2 nd of October 2018. The detailed design was completed and construction of the scheme began in August 2020. Construction work is ongoing and is due to be completed in 2022.	The Upper Garnock Flood Protection Scheme is under construction, which will be completed in the early part of 2 nd Local Flood Risk Management Plan cycle (2022-2028).
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 warnings will be determined during scheme development.	22/12/2015-31/12/2016	SEPA has continued to operate the flood warning service since it was completed earlier in the FRM cycle.	N/A.

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 Upper Garnock Natural Flood Management Study was completed in 2020.	N/A.
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 been completed.	The assessment is now completed and has been shared with Local Authority.
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 continues to improve the Scottish Flood Forecasting Service 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 in partnership with the Met Office has developed a public version of the daily Flood Guidance Statement, the Scottish Flood Forecast, to provide better	N/A

				and earlier information to the public. A beta version of this product was launched in May 2022. It will be refined in the wake of user feedback. A more focussed version of the product, producing guidance at a local level, is planned for the next flood risk management cycle. Options for developing forecasts of surface water flooding have been published in 2022 to help urban areas and the transport network improve their resilience to and preparedness for flooding. The development and wider roll-out of this service is being considered alongside the technical, resource and communication challenges associated with providing surface water flooding guidance.	
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	01/04/2016-22/06/2022	North Ayrshire Council raised awareness about flood risk via a separate action noted for this PVA. Specific awareness raising about flood risk matters was achieved when the Council's	N/A.

		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.		flooding team responded to reported flood incidents, enquiries from prospective developers & flood risk consultants and when responding to planning application consultations.	
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	22/12/2015-22/06/2022	SEPA continues to work with others to raise awareness of flood risk and its flood warning service. It has participated in local activities including school / education and community resilience activities when able. Some planned activities notably in person joint events have been limited or delayed due to Covid 19. North Ayrshire Council's general awareness raising was a	N/A

		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.		continuous activity via updates to the Council's website. Supporting Local Flood Emergency Groups was an occasional activity in the Upper Garnock PVA. Project related public consultations affecting the Upper Garnock PVA were carried out.	
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	North Ayrshire Council inspected trash screens, watercourses and coastal flood protection structures in accordance with the published inspection programme throughout the 1st Local Flood Risk Management Plan cycle.	N/A.
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	North Ayrshire Council commissioned emergency plans, aimed at Category 1 and 2	N/A.

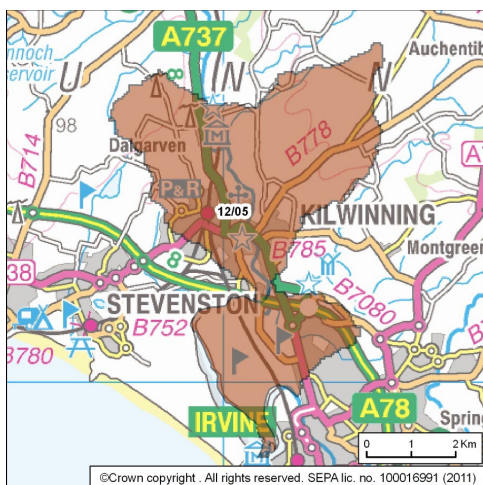
		<p>the emergency services and SEPA. Effective management of an emergency response relies on emergency plans that are prepared under the Civil Contingencies Act 2004 by Category 1 and 2 Responders. Scottish Water are a Category 2 responder under the Civil Contingencies Act 2004 and will support regional 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>responders, for population centres within North Ayrshire that have a notable flood risk. These plans were completed in September 2020.</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>SEPA continues to exercise its planning functions with a view to reducing overall flood risk. We effectively contribute to the delivery of sustainable flood risk management and we support the delivery of FRM Plans and Local FRM Plans. In line with the management actions that accord with national planning policies, we have and will continue to object to development at medium to high</p>	N/A

	<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.</p>	<p>risk of flooding when it is contrary to the risk framework set out in Scottish Planning Policy. We have and will continue to engage from the start of the development plan process and encourage planning authorities to undertake a Strategic Flood Risk Assessment to inform their spatial strategy. We remain committed to exercising our planning functions with a view to reducing overall flood risk, and when a new national planning policy context is finalised later in 2022 via the National Planning Framework 4, we will take the same approach.</p> <p>North Ayrshire Council completed a Strategic Flood Risk Assessment for LDP2 in May 2018.</p> <p>National Planning Framework 4 is expected to be adopted by the Scottish Parliament later in 2022 and will become part of the</p>	
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				Development Plan, ensuring national planning policies on flooding are applied in local decision making.	
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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 completion of the Stevenston Point Integrated Catchment Study and the Saltcoats, Ardrossan, Stevenston & Kilwinning (SASK) Surface Water Management Plan.

Overview of actions to manage flooding in Kilwinning

PVA	Flood protection scheme / works	Natural flood management management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan / study	Strategic mapping & modelling	Strategic mapping & 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 continued to operate the flood warning service since it was completed earlier in the FRM cycle.	N/A.
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	The Meadowhead ICS has been completed. No areas within this PVA were included to be taken forwards for	N/A.

		water management planning process in Kilbarnock, 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.		optioneering as priority areas under the ICS.	
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 Irvine surface water management plan was completed in 2020 and the Saltcoats, Ardrossan, Stevenston & Kilwinning (SASK) Surface Water Management Plan was completed in 2021.	N/A.
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	The Integrated Catchment Study for Stevenston Point has been completed. Outputs have been shared with local authorities to inform Surface Water Management Plans.	N/A

		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 Saltcoats, Ardrossan, Stevenston & Kilwinning (SASK) Surface Water Management Plan was completed in 2021.	N/A.
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 has been shared with the Local Authority.

		the Flood Risk Management (Scotland) Act 2009.			
Flood forecasting	G	<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). 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.</p>	22/12/2015-22/06/2022	<p>SEPA continues to improve the Scottish Flood Forecasting Service 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 in partnership with the Met Office has developed a public version of the daily Flood Guidance Statement, the Scottish Flood Forecast, to provide better and earlier information to the public. A beta version of this product was launched in May 2022. It will be refined in the wake of user feedback. A more focussed version of the product, producing guidance at a local level, is planned for the next flood risk management cycle. Options for developing forecasts of surface water flooding have been published in 2022 to help urban areas and the transport network improve their resilience to and preparedness for flooding. The development and wider roll-out of this</p>	N/A

				service is being considered alongside the technical, resource and communication challenges associated with providing surface water flooding guidance.	
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	North Ayrshire Council raised awareness about flood risk via a separate action noted for this PVA. Specific awareness raising about flood risk matters was achieved when the Council's flooding team responded to reported flood incidents, enquiries from prospective developers & flood risk consultants and when responding to planning application consultations.	N/A.
Awareness raising	G	North Ayrshire Council, SEPA and Scottish Water collectively work to	22/12/2015-22/06/2022	SEPA continues to work with others to raise awareness of flood risk and its	N/A.

		<p>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.</p>		<p>flood warning service. It has participated in local activities including school / education and community resilience activities when able. Some planned activities notably in person joint events have been limited or delayed due to Covid 19.</p> <p>North Ayrshire Council raised awareness about flood risk matters by updating the Council's website and by supporting Local Flood Emergency Groups.</p>	
Maintenance	G	Local authorities have a duty to assess watercourses and carry out	01/06/2016-01/06/2022	North Ayrshire Council inspected trash screens, watercourses and coastal	N/A.

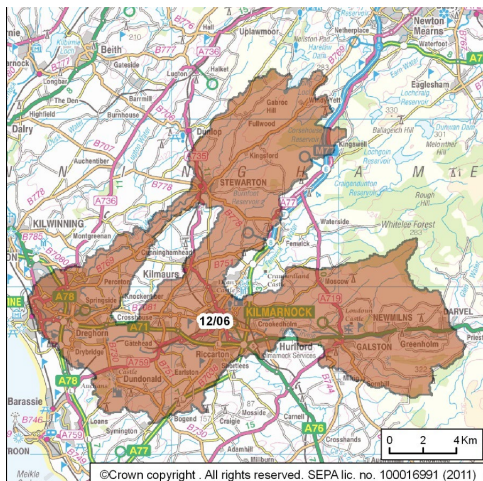
		clearance and repair works where such works would substantially reduce flood risk. They produce schedules of clearance and repair works and make these available for public inspection. Scottish Water undertake risk based inspection, maintenance and repair on the public sewer network. Asset owners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk.		flood protection structures in accordance with the published inspection programme throughout the 1st Local Flood Risk Management Plan cycle.	
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	North Ayrshire Council commissioned emergency plans, aimed at Category 1 and 2 responders, for population centres within North Ayrshire that have a notable flood risk. These plans were completed in September 2020.	N/A.

		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.			
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	SEPA continues to exercise its planning functions with a view to reducing overall flood risk. We effectively contribute to the delivery of sustainable flood risk management and we support the delivery of FRM Plans and Local FRM Plans. In line with the management actions that accord with national planning policies, we have and will continue to object to development at medium to high risk of flooding when it is contrary to the risk framework set out in Scottish Planning Policy. We have and will continue to engage from the start of the development plan process and encourage planning authorities to undertake a Strategic Flood Risk Assessment to inform their spatial strategy. We remain committed to	N/A

			<p>exercising our planning functions with a view to reducing overall flood risk, and when a new national planning policy context is finalised later in 2022 via the National Planning Framework 4, we will take the same approach.</p> <p>North Ayrshire Council completed a Strategic Flood Risk Assessment for LDP2 in May 2018.</p> <p>National Planning Framework 4 is expected to be adopted by the Scottish Parliament later in 2022 and will become part of the Development Plan, ensuring national planning policies on flooding are applied in local decision making.</p>	
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4.6 River Irvine and Annick Water (Potentially Vulnerable Area 12/06)

Local Plan District	Local authority	Main catchment
Ayrshire	East Ayrshire Council, East Renfrewshire Council, North Ayrshire Council, South Ayrshire Council,	River Irvine



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Summary of Progress for River Irvine and Annick Water

There are approximately 2,900 residential properties at risk of flooding. The Annual Average Damages are approximately £7.1 million. Further information can be found in the Ayrshire Local FRMP under PVA 12/06, please click [here](#).

Key progress has been made with the completion of the Upper and Lower Irvine Valley Flood Protection Studies, including option appraisal.

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 protection scheme / works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan / study	Strategic mapping & modelling	Strategic mapping & 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			G	G		G	G	A	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	G	<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	<p>The River Irvine flood forecasting system has been updated in Kilmarnock to include an operational warning at Burnside and a new flood warning area on the Kilmarnock Water in Kilmarnock and continues to cover the Queens drive, New Mill Road and Samson Avenue area.</p> <p>A new flood warning service for the Annick Water has been completed, with three new flood warning areas provided for Stewarton, Perceton and the Annick Water in Irvine.</p> <p>New flood warning areas have also been provided for Shewalton and Springbank industrial estates, as well as updating the Low Green (previously waterside) flood warning area.</p>	N/A.

		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.			
Flood protection study	G	Upper Irvine Valley Flood Study and option appraisal	01/06/2016-01/06/2022	<p>The Upper River Irvine Valley Flood Study including fluvial modelling is complete. The option appraisal is complete and a Scheme was submitted for prioritisation in December 2018.</p> <p>The submitted scheme offers a 1:100 year level of protection and was valued at £27M at time of submission.</p>	Awaiting outcome of Scottish Government Prioritisation of Flood Schemes and Funding Review.
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	01/06/2016-01/06/2022	Pre Optioneering Catchment Plan and prioritisation stages completed. The Optioneering Phase was completed. The implementation of the findings will be considered in	N/A.

		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.		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 Kilmarnock 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 Irvine Surface Water Management Plan was completed in 2020. The report was issued to Scottish Water and SEPA. Most issues are for either Scottish Water or East Ayrshire Council and both authorities will action as appropriate.	N/A.
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	01/01/2016-31/12/2020	Action complete. Updated river flood hazard mapping for the River Irvine was published on the SEPA website in November 2020.	N/A

		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 considered as these projects are completed.			
Strategic mapping and modelling Pluvial mapping update	A	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 FEH22 methodology. The FEH22 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. A major national update of the surface water maps is underway	The national surface water flooding modelling project will be completed in 2023. The outputs from this will be used to update SEPA maps early in cycle 2 and will inform SEPA's flood risk assessments for the next flood risk management cycle.

				which will deliver updated surface water flooding maps for Scotland representing the latest scientific understanding.	
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 16 of the Flood Risk Management (Scotland) Act 2009.	01/01/2016-31/12/2020	The Meadowhead ICS has been completed. No areas within this PVA were included to be taken forwards for optioneering as priority areas under the ICS.	N/A
Maintain flood protection scheme*	G	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: 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).	01/06/2016-01/06/2022	East Ayrshire Council continues to carry out its maintenance contracts. The Council will continue to inspect and maintain the flood protection structures within the catchment.	N/A.

Maintain flood protection scheme*	G	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 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. 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.	01/06/2016-01/06/2022	The flood defences at Waterside, Irvine were inspected by North Ayrshire Council in accordance with the Council's published inspection schedule.	N/A.
Maintain flood warning	G	SEPA will continue to maintain the Irvine Waterside/Low Green flood	22/12/2015-22/06/2022	The River Irvine flood forecasting system has been updated in	N/A

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		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 ensure that our flood warning service is timely and accurate.		<p>Kilmarnock to include an operational warning at Burnside and a new flood warning area on the Kilmarnock Water in Kilmarnock and continues to cover the Queens Drive, New Mill Road and Samson Avenue area.</p> <p>A new flood warning service for the Annick Water has been completed, with three new flood warning areas provided for Stewarton, Perceton and the Annick Water in Irvine.</p> <p>New flood warning areas have also been provided for Shewalton and Springbank industrial estates, as well as updating the Low Green (previously waterside) flood warning area.</p>	
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,	22/12/2015-22/06/2022	SEPA continues to improve the Scottish Flood Forecasting Service 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 in partnership with the Met Office has developed a public version of the daily	N/A

		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 Guidance Statement, the Scottish Flood Forecast, to provide better and earlier information to the public. A beta version of this product was launched in May 2022. It will be refined in the wake of user feedback. A more focussed version of the product, producing guidance at a local level, is planned for the next flood risk management cycle. Options for developing forecasts of surface water flooding have been published in 2022 to help urban areas and the transport network improve their resilience to and preparedness for flooding. The development and wider roll-out of this service is being considered alongside the technical, resource and communication challenges associated with providing surface water flooding guidance.	
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 raise awareness of flood risk and how	N/A.

		will liaise with the group through Community Council meetings and directly to the public.		those affected can be better prepared. EAC will continue the ongoing support for the Community Flood Group.	
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	North Ayrshire Council and East Ayrshire Council raised awareness about flood risk via a separate action noted for this PVA. Specific awareness raising about flood risk matters was achieved when the Councils' flooding teams responded to reported flood incidents, enquiries from prospective developers & flood risk consultants and when responding to planning application consultations.	N/A.
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	22/12/2015-22/06/2022	SEPA continues to work with others to raise awareness of flood risk and its flood warning service. It has participated in local activities including	N/A.

Awareness raising	<p>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. Further Information is provided on North Ayrshire Council, SEPA, Scottish Water websites.</p>		<p>school / education and community resilience activities when able. Some planned activities notably in person joint events have been limited or delayed due to Covid 19.</p> <p>North Ayrshire Council raised awareness about flood risk matters by updating the Council's website and by supporting Local Flood Emergency Groups.</p>	
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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, Scottish Water and Ayrshire Road Alliance websites.</p>	01/04/2016-22/06/2022	<p>East Ayrshire Council 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 (e.g. Neighbourhood Watch Scotland, Citizens Advice Scotland and others) to share our resources and help to</p>	<p>East Ayrshire Council 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>
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				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	North Ayrshire Council inspected trash screens, watercourses and coastal flood protection structures in accordance with the published inspection programme throughout the 1st Local Flood Risk Management Plan cycle.	N/A.
Maintenance	G	East Ayrshire Council in accordance with Section 18 of the FR Scotland Act 2009 undertake assessment of water bodies to determine whether	01/06/2016-01/06/2022	High risk locations such as those with screens and smaller culverts are inspected in a scheduled basis. The majority of inspections are to be	The Council will continue to inspect and maintain watercourses, screens and other relevant Council assets.

		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		undertaken in the winter months when flows are higher and water born debris can be an issue.	
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 supported by the work of voluntary organisations.	01/06/2016-01/06/2022	North Ayrshire Council commissioned emergency plans, aimed at Category 1 and 2 responders, for population centres within North Ayrshire that have a notable flood risk. These plans were completed in September 2020.	N/A.
Planning policies	G	Scottish Planning Policy and accompanying Planning Advice	01/06/2016-01/06/2022	SEPA continues to exercise its planning functions with a view to	N/A.

	<p>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>reducing overall flood risk. We effectively contribute to the delivery of sustainable flood risk management and we support the delivery of FRM Plans and Local FRM Plans. In line with the management actions that accord with national planning policies, we have and will continue to object to development at medium to high risk of flooding when it is contrary to the risk framework set out in Scottish Planning Policy. We have and will continue to engage from the start of the development plan process and encourage planning authorities to undertake a Strategic Flood Risk Assessment to inform their spatial strategy. We remain committed to exercising our planning functions with a view to reducing overall flood risk, and when a new national planning policy context is finalised later in 2022 via the National Planning Framework 4, we will take the same approach.</p>	
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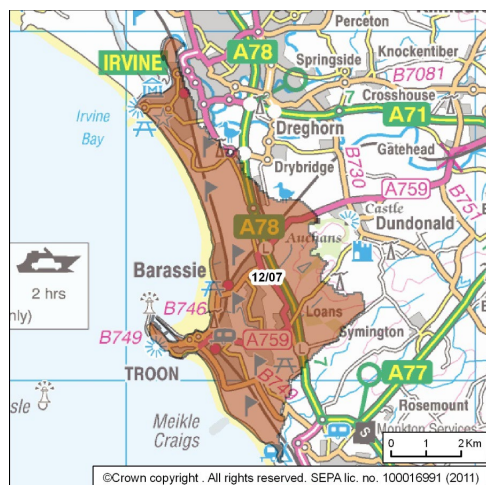
			<p>North Ayrshire Council completed a Strategic Flood Risk Assessment for LDP2 in May 2018.</p> <p>National Planning Framework 4 is expected to be adopted by the Scottish Parliament later in 2022 and will become part of the Development Plan, ensuring national planning policies on flooding are applied in local decision making.</p> <p>East Ayrshire Council are Planning to update their LDP in 2022 – 23.</p> <p>East Ayrshire Council has prepared and consulted on its Proposed Plan LDP2. As part of the preparation of the Plan, the Council engaged early with SEPA on sites it was considering allocating and took on board comments from SEPA. In addition, The Council has worked extensively with SEPA and the KAG on issues pertaining to flooding in Kilmarnock and has undertaken a series of flood workshops with the Key Agencies. The new proposed plan contains flood</p>	
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				policies reflective of SEPA's stance and of NPF4.	
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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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SEPA (December 2015).

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 was completed and adopted by both North and South Ayrshire Councils in September 2018. The Meadowhead Integrated Catchment Study and the Irvine Surface Water Management Plan were also completed. 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 protection scheme / works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan / study	Strategic mapping & modelling	Strategic mapping & 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	A	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 was completed and was adopted by both North Ayrshire Council and South Ayrshire Council in September/October 2018.	N/A.

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	The Meadowhead ICS has been completed. No areas of this PVA were included to be taken forwards for optioneering as priority areas under the ICS.	N/A.
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 Irvine Surface Water Management Plan was completed in 2020.	N/A.
	A	SEPA will seek to develop flood mapping in the Ayr to Ardrossan	22/12/2016 – 01/06/2022	Work completed to date includes the production of key data sets	SEPA will complete a review of coastal flood hazard mapping in

Strategic mapping and modelling		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.		including extreme water levels and offshore wave and wind conditions to support future coastal modelling work.	south west Scotland including in this area. This includes identifying where taking account of the impact of waves on flooding from the sea may be required. SEPA will collect the required coastal defence asset and other information necessary to progress with improved flood modelling and mapping in the highest priority areas taking account of wave overtopping where required. SEPA will look for opportunities to progress future modelling work in a way that best supports improvements to SEPA's Coastal Flood Warning Schemes. Expected to progress to the next stage around the middle of cycle 2 and complete early in the following cycle, subject to funding.
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	01/01/2016-31/12/2020	The Meadowhead ICS has been completed. No areas within this PVA were included to be taken forwards for optioneering as priority areas under the ICS.	N/A.

		the Flood Risk Management (Scotland) Act 2009.			
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. South Ayrshire Council will continue to inspect and maintain the flood protection structures within the catchment.	N/A.
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 continued to operate the flood warning service.	N/A

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>	22/12/2015-22/06/2022	<p>SEPA continues to improve the Scottish Flood Forecasting Service 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 in partnership with the Met Office has developed a public version of the daily Flood Guidance Statement, the Scottish Flood Forecast, to provide better and earlier information to the public. A beta version of this product was launched in May 2022. It will be refined in the wake of user feedback. A more focussed version of the product, producing guidance at a local level, is planned for the next flood risk management cycle. Options for developing forecasts of surface water flooding have been published in 2022 to help urban areas and the transport</p>	N/A
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				network improve their resilience to and preparedness for flooding. The development and wider roll-out of this service is being considered alongside the technical, resource and communication challenges associated with providing surface water flooding guidance.	
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</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</p>	01/04/2016-22/06/2022	<p>North Ayrshire Council and South Ayrshire Council raised awareness about flood risk via a separate action noted for this PVA. Specific awareness raising about flood risk matters was achieved when the Councils' flooding team responded to reported flood incidents, enquiries from prospective developers & flood risk consultants and when responding to planning application consultations.</p>	N/A.

		found in the Councils and Scottish Flood Forum websites.			
Awareness raising	G	<p>North 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. 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> <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</p>	22/12/2015-22/06/2022	<p>SEPA continues to work with others to raise awareness of flood risk and its flood warning service. It has participated in local activities including school / education and community resilience activities when able. Some planned activities notably in person joint events have been limited or delayed due to Covid 19.</p> <p>North Ayrshire Council raised awareness about flood risk matters by updating the Council's website and by supporting Local Flood Emergency Groups.</p> <p>Awareness raising is a continuous activity for South Ayrshire Council which is actioned by updating the Council's website, working with partners and engagement with</p>	N/A.

		supplying targeted information to the public on large capital projects and detailed local studies.		relevant stakeholders as appropriate.	
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 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	North Ayrshire Council inspected trash screens, watercourses and coastal flood protection structures in accordance with the published inspection programme throughout the 1st Local Flood Risk Management Plan cycle. 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.	N/A.
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	01/06/2016-01/06/2022	This work continues to be carried out on an annual basis.	N/A.

		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.		The Council will continue to inspect and maintain the flood protection structures within the catchment.	
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</p>	01/06/2016-01/06/2022	<p>North Ayrshire Council commissioned emergency plans, aimed at Category 1 and 2 responders, for population centres within North Ayrshire that have a notable flood risk. These plans were completed in September 2020.</p> <p>The Ayrshire Civil Contingency Team has developed emergency plans for major flooding incidents in the South Ayrshire Council area in partnership with Category 1 and 2 responders.</p>	N/A.

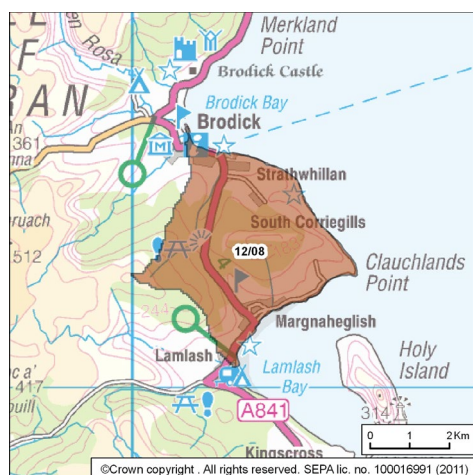
		supported by the work of voluntary organisations.			
Planning policies	G	<p>Scottish Planning Policy and accompanying Planning Advice Notes set out Scottish Ministers' priorities for the operation of the planning system and for the development and use of land. In terms of flood risk management, the policy 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>SEPA continues to exercise its planning functions with a view to reducing overall flood risk. We effectively contribute to the delivery of sustainable flood risk management and we support the delivery of FRM Plans and Local FRM Plans. In line with the management actions that accord with national planning policies, we have and will continue to object to development at medium to high risk of flooding when it is contrary to the risk framework set out in Scottish Planning Policy. We have and will continue to engage from the start of the development plan process and encourage planning authorities to undertake a Strategic Flood Risk Assessment to inform their spatial strategy. We remain committed to exercising our</p>	N/A.

			<p>planning functions with a view to reducing overall flood risk, and when a new national planning policy context is finalised later in 2022 via the National Planning Framework 4, we will take the same approach.</p> <p>North Ayrshire Council completed a Strategic Flood Risk Assessment for LDP2 in May 2018. In addition, the Ayrshire Shoreline Management Plan (SMP), which prompts land use, policy changes and further studies to allow physical protective measures to take place in the future was adopted by North Ayrshire Council and South Ayrshire Council in September 2018.</p> <p>National Planning Framework 4 is expected to be adopted by the Scottish Parliament later in 2022 and will become part of the Development Plan, ensuring</p>	
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			<p>national planning policies on flooding are applied in local decision making.</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 was published in February 2022.</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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Reproduced from Ayrshire Flood Risk Management Strategy, SEPA (December 2015).

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 study at Brodick and Lamlash. The design of the Brodick Flood Protection Scheme, which also includes measures in Lamlash is an action in the published Cycle 2 Flood Risk Management Plan .

Overview of actions to manage flooding in Isle of Arran

PVA	Flood protection scheme / works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan / study	Strategic mapping & modelling	Strategic mapping & 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	<p>The study identified a preferred option for the Brodick Flood Protection Scheme, which includes measures in the neighbouring village of Lamlash.</p> <p>The design of the Brodick Flood Protection Scheme is an action identified in the Flood Risk Management Plan, published by SEPA in 2021.</p>	N/A.
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	01/06/2016-01/06/2022	The Ayrshire Shoreline Management Plan was completed and was adopted by both North Ayrshire Council and South Ayrshire Council in September/October 2018.	N/A.

		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 coastal flood defence structures in Brodick and Lamlash were either inspected on an annual basis throughout the 1st Local Flood Risk Management Plan cycle and were subject to a principal inspection every three years or were inspected in accordance with the inspection schedule published by North Ayrshire Council.	N/A.
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 continued to operate the flood warning service.	N/A
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	22/12/2015-22/06/2022	SEPA continues to improve the Scottish Flood Forecasting Service with the Met Office, with daily Flood Guidance Statements and regional Flood Alerts issued as required to enable communities and responders to	N/A.

		<p>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>		<p>reduce the impacts of flooding. SEPA in partnership with the Met Office has developed a public version of the daily Flood Guidance Statement, the Scottish Flood Forecast, to provide better and earlier information to the public. A beta version of this product was launched in May 2022. It will be refined in the wake of user feedback. A more focussed version of the product, producing guidance at a local level, is planned for the next flood risk management cycle. Options for developing forecasts of surface water flooding have been published in 2022 to help urban areas and the transport network improve their resilience to and preparedness for flooding. The development and wider roll-out of this service is being considered alongside the technical, resource and communication challenges associated with providing surface water flooding guidance.</p>	
Self help	G	<p>Everyone is responsible for protecting themselves and their property from flooding. Property and</p>	01/04/2016-22/06/2022	<p>North Ayrshire Council raised awareness about flood risk via a separate action noted for this PVA.</p>	N/A.

		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.		Specific awareness raising about flood risk matters was achieved when the Council's flooding team responded to reported flood incidents, enquiries from prospective developers & flood risk consultants and when responding to planning application consultations.	
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	22/12/2015- 22/06/2022	SEPA continues to work with others to raise awareness of flood risk and its flood warning service. It has participated in local activities including school / education and community resilience activities when able. Some planned activities notably in person joint events have been limited or delayed due to Covid 19.	N/A.

		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.		North Ayrshire Council raised awareness about flood risk matters by updating the Council's website and by supporting Local Flood Emergency Groups.	
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	01/06/2016-01/06/2022	North Ayrshire Council inspected trash screens, watercourses and coastal flood protection structures in accordance with the published inspection programme throughout the 1st Local Flood Risk Management Plan cycle.	N/A.

		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.			
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	North Ayrshire Council commissioned emergency plans, aimed at Category 1 and 2 responders, for population centres within North Ayrshire that have a notable flood risk. These plans were completed in September 2020.	N/A.

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>SEPA continues to exercise its planning functions with a view to reducing overall flood risk. We effectively contribute to the delivery of sustainable flood risk management and we support the delivery of FRM Plans and Local FRM Plans. In line with the management actions that accord with national planning policies, we have and will continue to object to development at medium to high risk of flooding when it is contrary to the risk framework set out in Scottish Planning Policy. We have and will continue to engage from the start of the development plan process and encourage planning authorities to undertake a Strategic Flood Risk Assessment to inform their spatial strategy. We remain committed to exercising our planning functions with a view to reducing overall flood risk, and when a new national planning policy context is finalised later in 2022 via the National Planning Framework 4, we will take the same approach.</p>	N/A.
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			<p>North Ayrshire Council completed a Strategic Flood Risk Assessment for LDP2 in May 2018. In addition, the Ayrshire Shoreline Management Plan (SMP), which prompts land use, policy changes and further studies to allow physical protective measures to take place in the future was adopted by North Ayrshire Council and South Ayrshire Council in September 2018.</p> <p>National Planning Framework 4 is expected to be adopted by the Scottish Parliament later in 2022 and will become part of the Development Plan, ensuring national planning policies on flooding are applied in local decision making.</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 was 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 complete.

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 protection scheme / works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan / study	Strategic mapping & modelling	Strategic mapping & 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		A	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	<p>This work continues to be carried out on an annual basis.</p> <p>The Council will continue to undertake sand dune propagation.</p>	N/A.
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	<p>The Ayrshire Shoreline Management Plan is completed and adopted by both North and South Ayrshire Councils in September/October 2018.</p> <p>The Ayrshire Shoreline Management Plan will be reviewed every 6 years.</p>	N/A.

		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	<p>Pre Optioneering Catchment Plan and prioritisation stages completed.</p> <p>The Optioneering Phase was completed in June 2021.</p> <p>The implementation of the findings are currently being considered in coordination with Scottish Water and detailed design has commenced. This will continue in the next cycle of the FRM Plan.</p>	N/A.
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 was completed in November 2021.	N/A.

		risk and identify the most sustainable actions to achieve the objectives.		The implementation of the findings will be considered in the next cycle of FRM Plan.	
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 Optioneering phase of the ICS has been completed. This has identified potential solutions to reduce surface water flood risk in priority areas within Prestwick.	N/A.
Strategic mapping and modelling	A	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	Work completed to date includes the production of key data sets including extreme water levels and offshore wave and wind conditions to support future coastal modelling work.	SEPA will complete a review of coastal flood hazard mapping in south west Scotland including in this area. This includes identifying where taking account of the impact of waves on flooding from the sea may be required. SEPA will collect the required coastal defence asset and other information necessary to progress with improved flood modelling and mapping in the highest priority areas taking account of wave overtopping where required. SEPA will look for opportunities to progress future modelling work in

					a way that best supports improvements to SEPA's Coastal Flood Warning Schemes. Expected to progress to the next stage around the middle of cycle 2 and complete early in the following cycle, subject to funding.
Maintain flood protection scheme*	G	The South Pier protects the entrance of Ayr Harbour from the action of waves while also reducing 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	01/06/2016-01/06/2022	<p>The coastal protection structures are on a scheduled inspection and maintenance programme.</p> <p>The Council will continue to inspect and maintain the flood protection structures within the catchment.</p>	N/A.
Maintain flood warning Ayr Seafield and Prestwick Links	G	SEPA will continue to maintain the Ayr Seafield the Prestwick Links Road flood warning areas which are		SEPA has continued to operate the flood warning service.	N/A

Road flood warning areas		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		
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 continues to improve the Scottish Flood Forecasting Service 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 in partnership with the Met Office has developed a public version of the daily Flood Guidance Statement, the Scottish Flood Forecast, to provide better and earlier information to the public. A beta version of this product was launched in May 2022. It will be refined in the wake of user feedback. A more focussed version of the product, producing guidance at a local level, is planned for the next flood risk	N/A

				management cycle. Options for developing forecasts of surface water flooding have been published in 2022 to help urban areas and the transport network improve their resilience to and preparedness for flooding. The development and wider roll-out of this service is being considered alongside the technical, resource and communication challenges associated with providing surface water flooding guidance.	
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.</p> <p>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</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 support, PLP training, Flood Warden and resilience group promotion.

		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 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	22/12/2015-22/06/2022	SEPA continues to work with others to raise awareness of flood risk and its flood warning service. It has participated in local activities including school / education and community resilience activities when able. Some planned activities notably in person joint events have been limited or delayed due to Covid 19. Awareness raising is a continuous activity for South Ayrshire Council which is actioned by updating the Council's website, working with partners and engagement with relevant stakeholders as appropriate.	N/A.

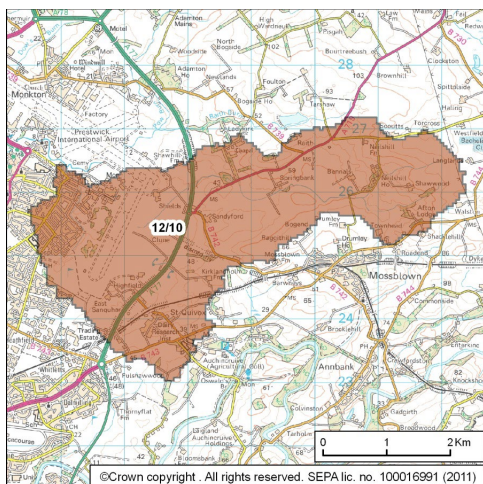
		specific activities and raise awareness by producing and supplying targeted information to the public on large capital projects and detailed local studies.			
Maintenance	G	Local authorities have a duty to assess watercourses and carry out clearance and repair works where such works would substantially 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	<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. 25km of coastal protection structures are inspected annually.</p> <p>The Council will continue to inspect and maintain watercourses, screens and other relevant Council assets.</p>	N/A.
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	01/06/2016-01/06/2022	For South Ayrshire Council, the 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	N/A.

		<p>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>relevant department and external agency.</p> <p>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.</p>	
	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</p>	<p>01/06/2016- 01/06/2022</p>	<p>SEPA continues to exercise its planning functions with a view to reducing overall flood risk. We effectively contribute to the delivery of sustainable flood risk management and we support the delivery of FRM Plans and Local FRM Plans. In line with the management actions that accord with national planning policies, we have and will continue to object to</p>	<p>N/A.</p>

Planning policies	<p>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>development at medium to high risk of flooding when it is contrary to the risk framework set out in Scottish Planning Policy. We have and will continue to engage from the start of the development plan process and encourage planning authorities to undertake a Strategic Flood Risk Assessment to inform their spatial strategy. We remain committed to exercising our planning functions with a view to reducing overall flood risk, and when a new national planning policy context is finalised later in 2022 via the National Planning Framework 4, we will take the same approach.</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 was published in February 2022.</p>	
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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 complete.

Overview of actions to manage flooding in Pow Burn Catchment

PVA	Flood protection scheme / works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan / study	Strategic mapping & modelling	Strategic mapping & 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		A			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
New Flood Warning	G	The area under consideration includes properties in Prestwick affected by flooding from the Pow Burn. Further feasibility assessment will be required to assess the delivery potential of a flood warning scheme in this location.	01/01/2016-31/12/2016	Action not progressed (action not going ahead after initial scoping).	N/A
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	01/06/2016-01/06/2022	Pre Optioneering Catchment Plan and prioritisation stages completed. The Optioneering Phase was completed in June 2021. The implementation of the findings are currently being considered in coordination with Scottish Water.	N/A.

		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 was completed in November 2021. The implementation of the findings will be considered in the next cycle of FRM Plan	N/A.
Strategic mapping and modelling	A	SEPA will seek to incorporate additional surface water data into the flood maps to improve understanding of flood risk. Approximately 1,300km ² 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 FEH22 methodology. The FEH22 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. A major national update of the surface water maps is underway	The national surface water flooding modelling project will be completed in 2023. The outputs from this will be used to update SEPA maps early in cycle 2 and will inform SEPA's flood risk assessments for the next flood risk management cycle.

				which will deliver updated surface water flooding maps for Scotland representing the latest scientific understanding.	
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 Meadowhead ICS has been completed. No areas within this PVA were included to be taken forwards for optioneering as priority areas under the ICS.	
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	22/12/2015-01/06/2022	SEPA continues to improve the Scottish Flood Forecasting Service 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 in partnership with the Met Office has	N/A

		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.		developed a public version of the daily Flood Guidance Statement, the Scottish Flood Forecast, to provide better and earlier information to the public. A beta version of this product was launched in May 2022. It will be refined in the wake of user feedback. A more focussed version of the product, producing guidance at a local level, is planned for the next flood risk management cycle. Options for developing forecasts of surface water flooding have been published in 2022 to help urban areas and the transport network improve their resilience to and preparedness for flooding. The development and wider roll-out of this service is being considered alongside the technical, resource and communication challenges associated with providing surface water flooding guidance.	
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	01/06/2016-22/06/2022	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>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>			
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</p>	22/12/2015-22/06/2022	<p>SEPA continues to work with others to raise awareness of flood risk and its flood warning service. It has participated in local activities including school / education and community resilience activities when able. Some planned activities notably in person joint events have been limited or delayed due to Covid 19.</p> <p>Awareness raising is a continuous activity for South Ayrshire Council</p>	N/A.

		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.		which is actioned by updating the Council's website, working with partners and engagement with relevant stakeholders as appropriate.	
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	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.	N/A.

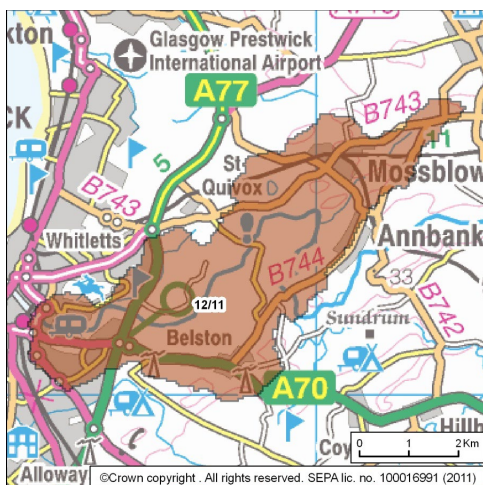
		responsible for the maintenance and management of their own assets including those which help to reduce flood risk.		The Council will continue to inspect and maintain watercourses, screens and other relevant Council assets.	
Emergency plans/response	G	<p>Providing an emergency response to flooding is 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	<p>For South Ayrshire Council, the 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.</p> <p>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.</p>	N/A.

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>SEPA continues to exercise its planning functions with a view to reducing overall flood risk. We effectively contribute to the delivery of sustainable flood risk management and we support the delivery of FRM Plans and Local FRM Plans. In line with the management actions that accord with national planning policies, we have and will continue to object to development at medium to high risk of flooding when it is contrary to the risk framework set out in Scottish Planning Policy. We have and will continue to engage from the start of the development plan process and encourage planning authorities to undertake a Strategic Flood Risk Assessment to inform their spatial strategy. We remain committed to exercising our planning functions with a view to reducing overall flood risk, and when a new national planning policy context is finalised later in 2022 via the National Planning Framework 4, we will take the same approach.</p>	N/A.
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				<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 was published in February 2022</p>	
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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 complete, which has identified surface water flood risk in the area.

Overview of actions to manage flooding in River Ayr

PVA	Flood protection scheme / works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan / study	Strategic mapping & modelling	Strategic mapping & 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			G			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	G	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.	01/06/2016-30/09/2018	A new flood warning service for the River Ayr has been delivered, with three new flood warning areas provided in Sorn, Catrine and Failford. SEPA has continued to operate the flood warning service since it was completed.	N/A
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 was completed in June 2021. The implementation of the findings are currently being considered in coordination with Scottish Water.	N/A.

		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 was completed in November 2021. The implementation of the findings will be considered in the next cycle of FRM Plan.	N/A.
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 has been 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 continues to improve the Scottish Flood Forecasting Service with the Met Office, with daily Flood Guidance Statements and regional	N/A

	<p>guidance statements which are issued to Category 1 and 2 Responders. The service</p>	<p>Flood Alerts issued as required to enable communities and responders to reduce the impacts of flooding. SEPA in partnership with the Met Office has developed a public version of the daily Flood Guidance Statement, the Scottish Flood Forecast, to provide better and earlier information to the public. A beta version of this product was launched in May 2022. It will be refined in the wake of user feedback. A more focussed version of the product, producing guidance at a local level, is planned for the next flood risk management cycle. Options for developing forecasts of surface water flooding have been published in 2022 to help urban areas and the transport network improve their resilience to and preparedness for flooding. The development and wider roll-out of this service is being considered alongside the technical, resource and communication challenges associated with providing surface water flooding guidance.</p>	
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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	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,	22/12/2015-22/06/2022	SEPA continues to work with others to raise awareness of flood risk and its flood warning service. It has participated in local activities including school / education and community resilience activities when able. Some planned activities notably in person	N/A.

		<p>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>joint events have been limited or delayed due to Covid 19.</p> <p>Awareness raising is a continuous activity for South Ayrshire Council which is actioned by updating the Council's website, working with partners and engagement with relevant stakeholders as appropriate.</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 schedules of clearance and repair works and make these available for</p>	<p>01/06/2016-01/06/2022</p> <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</p>	N/A.

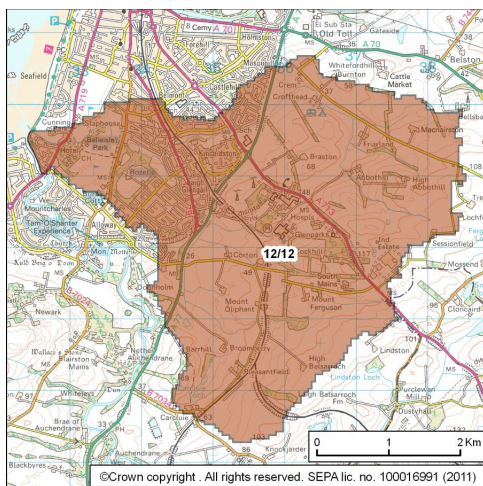
		public inspection. Scottish Water undertake risk based inspection, maintenance and repair on the public sewer network. Asset owners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk.		flood risk issues. 25km of coastal protection structures are inspected annually. South Ayrshire 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 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	For South Ayrshire Council, the 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	N/A.

		supported by the work of voluntary organisations.		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>	01/06/2016-01/06/2022	<p>SEPA continues to exercise its planning functions with a view to reducing overall flood risk. We effectively contribute to the delivery of sustainable flood risk management and we support the delivery of FRM Plans and Local FRM Plans. In line with the management actions that accord with national planning policies, we have and will continue to object to development at medium to high risk of flooding when it is contrary to the risk framework set out in Scottish Planning Policy. We have and will continue to engage from the start of the development plan process and encourage planning authorities to undertake a Strategic Flood Risk Assessment to inform their spatial strategy. We remain committed to exercising our planning functions with a view to reducing overall flood risk,</p>	N/A.

			<p>and when a new national planning policy context is finalised later in 2022 via the National Planning Framework 4, we will take the same approach.</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 was published in February 2022.</p>	
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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 complete. A new 'Ayr to Troon' flood warning area was added to the existing Firth of Clyde coastal flood warning scheme.

Overview of actions to manage flooding in Ayr East

PVA	Flood protection scheme / works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan / study	Strategic mapping & modelling	Strategic mapping & 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								A			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	A	<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. 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>	01/01/2016-31/12/2018	<p>Work completed to date includes the production of key data sets including extreme water levels and offshore wave and wind conditions to support future coastal modelling work. Although this work has not been completed to the timescale described in the plan, the work that will be progressed will deliver a more comprehensive update of the coastal flood hazard maps across the whole area.</p>	<p>SEPA will complete a review of coastal flood hazard mapping in south west Scotland including in this area. This includes identifying where taking account of the impact of waves on flooding from the sea may be required. SEPA will collect the required coastal defence asset and other information necessary to progress with improved flood modelling and mapping in the highest priority areas taking account of wave overtopping where required. SEPA will look for opportunities to progress future modelling work in a way that best supports improvements to SEPA's Coastal Flood Warning Schemes. Expected to progress to the next stage around the middle of cycle</p>

					2 and complete early in the following cycle, subject to funding.
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 has been 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	22/12/2015-01/06/2022	SEPA continues to improve the Scottish Flood Forecasting Service with the Met Office, with daily Flood Guidance Statements and regional Flood Alerts issued as required to enable communities and responders to	N/A

		<p>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>		<p>reduce the impacts of flooding. SEPA in partnership with the Met Office has developed a public version of the daily Flood Guidance Statement, the Scottish Flood Forecast, to provide better and earlier information to the public. A beta version of this product was launched in May 2022. It will be refined in the wake of user feedback. A more focussed version of the product, producing guidance at a local level, is planned for the next flood risk management cycle. Options for developing forecasts of surface water flooding have been published in 2022 to help urban areas and the transport network improve their resilience to and preparedness for flooding. The development and wider roll-out of this service is being considered alongside the technical, resource and communication challenges associated with providing surface water flooding guidance.</p>	
Self help	G	<p>Everyone is responsible for protecting themselves and their property from flooding. Property and</p>	01/06/2016-22/06/2022	<p>Community Engagement includes, PLP exhibitions, selection, surveys and appropriate and relevant</p>	<p>Ongoing community PLP training, Flood Warden and resilience group promotion.</p>

		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 continues to work with others to raise awareness of flood risk and its flood warning service. It has participated in local activities including school / education and community resilience activities when able. Some planned activities notably in person joint events have been limited or delayed due to Covid 19.	N/A.

		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.		Awareness raising is a continuous activity for South Ayrshire Council which is actioned by updating the Council's website, working with partners and engagement with relevant stakeholders as appropriate.	
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	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.	N/A.

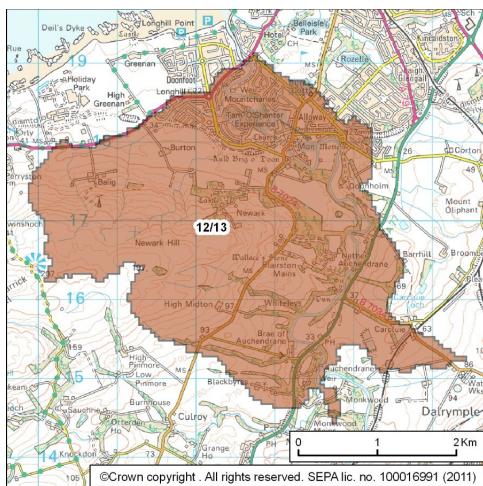
		public sewer network. Asset owners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk.		South Ayrshire Council will continue to inspect and maintain watercourses, screens and other relevant Council assets.	
Emergency 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	<p>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.</p> <p>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</p>	N/A.

				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>	01/06/2016-01/06/2022	<p>SEPA continues to exercise its planning functions with a view to reducing overall flood risk. We effectively contribute to the delivery of sustainable flood risk management and we support the delivery of FRM Plans and Local FRM Plans. In line with the management actions that accord with national planning policies, we have and will continue to object to development at medium to high risk of flooding when it is contrary to the risk framework set out in Scottish Planning Policy. We have and will continue to engage from the start of the development plan process and encourage planning authorities to undertake a Strategic Flood Risk Assessment to inform their spatial strategy. We remain committed to exercising our planning functions with a view to reducing overall flood risk, and when a new national planning policy context is finalised later in 2022</p>	N/A.

			<p>via the National Planning Framework 4, we will take the same approach.</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 was published in February 2022.</p>	
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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 complete.

Overview of actions to manage flooding in Ayr South

PVA	Flood protection scheme / works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan / study	Strategic mapping & modelling	Strategic mapping & 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 has been 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 continues to improve the Scottish Flood Forecasting Service 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 in partnership with the Met Office has developed a public version of the daily Flood Guidance Statement, the Scottish Flood Forecast, to provide better and earlier information to the public. A beta version of this product was launched in May 2022. It will be	N/A

				refined in the wake of user feedback. A more focussed version of the product, producing guidance at a local level, is planned for the next flood risk management cycle. Options for developing forecasts of surface water flooding have been published in 2022 to help urban areas and the transport network improve their resilience to and preparedness for flooding. The development and wider roll-out of this service is being considered alongside the technical, resource and communication challenges associated with providing surface water flooding guidance.	
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 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 resources will include awareness campaigns, media and marketing	22/12/2015-22/06/2022	SEPA continues to work with others to raise awareness of flood risk and its flood warning service. It has participated in local activities including school / education and community resilience activities when able. Some planned activities notably in person joint events have been limited or delayed due to Covid 19. Awareness raising is a continuous activity for South Ayrshire Council which is actioned by updating the Council's website, working with partners and engagement with relevant stakeholders as appropriate.	N/A.

		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.			
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	<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>South Ayrshire Council will continue to inspect and maintain watercourses, screens and other relevant Council Assets.</p>	N/A.

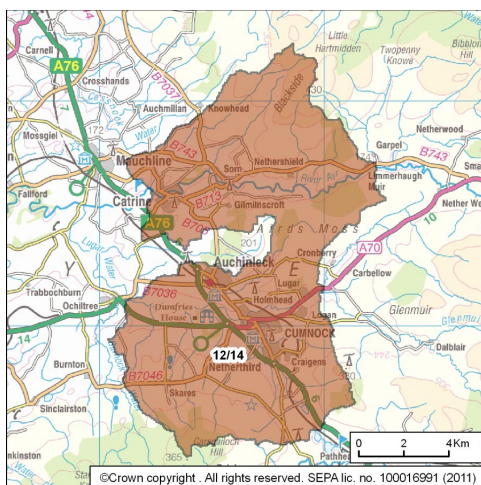
Emergency plans/response	G	<p>Providing an emergency response to flooding is the responsibility of many organisations, including local authorities, the emergency services and SEPA. Effective management of an emergency response relies on emergency plans that are prepared under the Civil Contingencies 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</p>	01/06/2016-01/06/2022	<p>For South Ayrshire Council, the 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.</p> <p>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.</p>	N/A.
Planning policies	G	<p>Scottish Planning Policy and accompanying Planning Advice Notes set out Scottish Ministers' priorities for the operation of the</p>	01/06/2016-01/06/2022	<p>SEPA continues to exercise its planning functions with a view to reducing overall flood risk. We effectively contribute to the delivery of</p>	N/A.

	<p>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>sustainable flood risk management and we support the delivery of FRM Plans and Local FRM Plans. In line with the management actions that accord with national planning policies, we have and will continue to object to development at medium to high risk of flooding when it is contrary to the risk framework set out in Scottish Planning Policy. We have and will continue to engage from the start of the development plan process and encourage planning authorities to undertake a Strategic Flood Risk Assessment to inform their spatial strategy. We remain committed to exercising our planning functions with a view to reducing overall flood risk, and when a new national planning policy context is finalised later in 2022 via the National Planning Framework 4, we will take the same approach.</p> <p>The South Ayrshire Council Local Development Plan recognises the importance of sustainable flood risk management in both urban and rural</p>	
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				developments and is in alignment with Scottish Planning Policy. The Local Development Plan was published in February 2022.	
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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 -2023) 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 protection scheme / works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan / study	Strategic mapping & modelling	Strategic mapping & 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				A			G	A			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	A	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	A	SEPA will seek to incorporate additional surface water data into the flood maps to improve understanding of flood risk. Approximately 1,300km ² 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 FEH22 methodology. The FEH22 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	The national surface water flooding modelling project will be completed in 2023. The outputs from this will be used to update SEPA maps early in cycle 2 and will inform SEPA's flood risk assessments for the next flood risk management cycle.

				longer consider appropriate to deliver this action as originally intended. This action will not be taken forwards as described. A major national update of the surface water maps is underway which will deliver updated surface water flooding maps for Scotland representing the latest scientific understanding.	
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.	The assessment is now completed and has been 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 continues to improve the Scottish Flood Forecasting Service 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 in partnership with the Met Office has developed a public version of the daily	N/A

		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 Guidance Statement, the Scottish Flood Forecast, to provide better and earlier information to the public. A beta version of this product was launched in May 2022. It will be refined in the wake of user feedback. A more focussed version of the product, producing guidance at a local level, is planned for the next flood risk management cycle. Options for developing forecasts of surface water flooding have been published in 2022 to help urban areas and the transport network improve their resilience to and preparedness for flooding. The development and wider roll-out of this service is being considered alongside the technical, resource and communication challenges associated with providing surface water flooding guidance.	
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	01/06/2016-22/06/2022	The Flood Study for the River Ayr for Catrine and Lugar and Glaisnock in Cumnock informed property level protection requirements for the area and the monitors will form the basis for	N/A.

		<p>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.</p>		<p>a Flood Warning scheme to support the placement.</p> <p>East Ayrshire Council made PLP available to all residents in EAC, who would benefit from there use, and will continue to do so.</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 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</p>	01/04/2016-22/06/2022	<p>Community Engagement included, 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 will continue to be supported.</p>	N/A.

		those affected can be better prepared. Further detail can be found in the Councils and Scottish Flood Forum websites.			
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>Ayr & Annick Flood Warning Scheme, which includes the communities of Catrine and Sorn, launched in 2020. It was a soft launch due to Covid-19 pandemic but awareness raising to promote the new service was carried out in February 2022.</p> <p>Ayr & Annick Flood Warning Scheme, which includes the communities of Catrine and Sorn, launched in 2020. It was a soft launch due to Covid-19 pandemic but awareness raising to promote the new service was carried out in February 2022.</p> <p>East Ayrshire Council 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</p>	<p>East Ayrshire Council 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>

	<p>Scottish Water and Ayrshire Road Alliance websites.</p>	<p>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 Forum and worked closely with UK agencies to develop joint flooding information.</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	<p>High risk locations such as those with screens and some smaller culverts were inspected on a scheduled basis. The majority of inspections tended to be undertaken in the winter months when flows are higher, and leaves and other waterborne debris can be an issue.</p> <p>Works of clearance were carried out during these inspections which are not specifically "scheduled". The main water bodies, and other water bodies, within urban areas were subject to an annual visual inspection and any works were undertaken where it would be expedient and in the interests of good flood risk management to do so.</p> <p>East Ayrshire Council will continue to inspect and maintain watercourses, screens and other relevant Council assets.</p>	N/A.
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,	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	N/A.

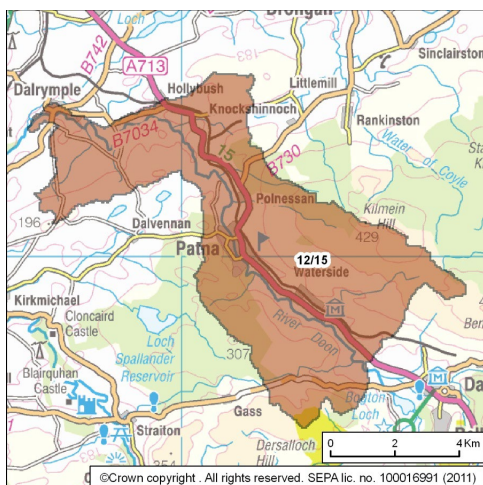
	<p>South and East Ayrshire teams are a shared service team known as the Ayrshire Civil Contingencies Team. If disaster strikes, or if emergencies develop in Ayrshire, communities will look to the Council for support and advice. The Ayrshire Civil Contingencies Team ensures that the Council will be able 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 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"> 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 	<p>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) is maintained who are tasked to monitor and report back on status on receipt of any alarm.</p> <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</p>	
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		encourage all agencies and organisations to prepare for their role.		regional and local resilience partnerships. 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.	01/06/2016-22/06/2022	SEPA continues to exercise its planning functions with a view to reducing overall flood risk. We effectively contribute to the delivery of sustainable flood risk management and we support the delivery of FRM Plans and Local FRM Plans. In line with the management actions that accord with national planning policies, we have and will continue to object to development at medium to high risk of flooding when it is contrary to the risk framework set out in Scottish Planning Policy. We have and will continue to engage from the start of the development plan process and encourage planning authorities to undertake a Strategic Flood Risk Assessment to inform their spatial strategy. We remain committed to exercising our planning functions with a view to reducing overall flood risk, and when a new national planning	N/A.

		<p>policy context is finalised later in 2022 via the National Planning Framework 4, we will take the same approach.</p> <p>East Ayrshire Council has prepared and consulted on its Proposed Plan LDP2. As part of the preparation of the Plan, the Council engaged early with SEPA on sites it was considering allocating and took on board comments from SEPA. In addition, The Council has worked extensively with SEPA and the KAG on issues pertaining to flooding in Kilmarnock and has undertaken a series of flood workshops with the Key Agencies. The new proposed plan contains flood policies reflective of SEPA's stance and of NPF4.</p> <p>National Planning Framework 4 is expected to be adopted by the Scottish Parliament later in 2022 and will become part of the Development Plan, ensuring national planning policies on flooding are applied in local decision making.</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 completed combined Flood study (2020 -2022) for these watercourses. The Flood study has informed Cycle 2 flooding actions for these locations.

Overview of actions to manage flooding in Dalrymple and Patna

PVA	Flood protection scheme / works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan / study	Strategic mapping & modelling	Strategic mapping & 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				G				A	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	G	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	<p>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 completed combined Flood study (2020 -2022) for these watercourses. The Flood study will inform Cycle 2 flooding actions for these locations.</p> <p>Additional resourcing was required in order to procure these works. This study has now been completed. The anticipated rescheduling is not envisaged to affect the ability to report as intended in Cycle 2.</p>	N/A.
Strategic mapping and modelling Pluvial mapping updates	A	SEPA will seek to incorporate additional surface water data into the	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 FEH22 methodology. The FEH22 dataset	The national surface water flooding modelling project will be completed in 2023. The outputs from this will be used to update SEPA maps early in cycle 2 and

		<p>flood maps to improve understanding of flood risk.</p> <p>Approximately 1,300km² of improved surface water data is currently available within this Local Plan District.</p>		<p>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. A major national update of the surface water maps is underway which will deliver updated surface water flooding maps for Scotland representing the latest scientific understanding.</p>	<p>will inform SEPA's flood risk assessments for the next flood risk management cycle.</p>
Maintain flood protection scheme*	G	<p>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.</p>	01/06/2016-22/06/2022	<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, maintenance and repair on the public sewer network. Asset owners and riparian landowners are responsible for the maintenance and management of</p>	N/A.

		<p>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 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>		<p>their own assets including those which help to reduce flood risk.</p> <p>The Council will continue to inspect and maintain the flood protection structures within the Catchment.</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</p>	22/12/2015-01/06/2022	<p>SEPA continues to improve the Scottish Flood Forecasting Service 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 in partnership with the Met Office has developed a public version of the daily Flood Guidance Statement, the</p>	N/A

		reducing the impact of flooding on their home or business. For more information please visit SEPA's website.		Scottish Flood Forecast, to provide better and earlier information to the public. A beta version of this product was launched in May 2022. It will be refined in the wake of user feedback. A more focussed version of the product, producing guidance at a local level, is planned for the next flood risk management cycle. Options for developing forecasts of surface water flooding have been published in 2022 to help urban areas and the transport network improve their resilience to and preparedness for flooding. The development and wider roll-out of this service is being considered alongside the technical, resource and communication challenges associated with providing surface water flooding guidance.	
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 included, PLP exhibitions, selection, surveys and appropriate and relevant information to enable clients to make the right decisions. Responsible Authorities shall continue to provide ongoing community PLP	N/A.

		<p>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>training, Flood Warden and resilience group promotion.</p>	
Awareness raising	G	<p>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.</p>	<p>01/06/2016-22/06/2022</p>	<p>SEPA continues to work with others to raise awareness of flood risk and its flood warning service. It has participated in local activities including school / education and community resilience activities when able. Some planned activities notably in person joint events have been limited or delayed due to Covid 19.</p> <p>East Ayrshire Council and SEPA has delivered a range of awareness raising activities through campaigning, education activities and partnership</p>	<p>N/A.</p>

			<p>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 (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>	
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				<p>Forum and worked closely with UK agencies to develop joint flooding information.</p> <p>Awareness raising is a continuous activity for South Ayrshire Council which is actioned by updating the Council's website, working with partners and engagement with relevant stakeholders as appropriate.</p>	
Maintenance	G	<p>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.</p>	<p>01/06/2016-22/06/2022</p>	<p>High risk locations such as those with screens and some smaller culverts were inspected on a scheduled basis. The majority of inspections tended to be undertaken in the winter months when flows are higher, and leaves and other waterborne debris can be an issue. Works of clearance were carried out during these inspections which are not specifically "scheduled". The main water bodies, and other water bodies, within urban areas were subject to an annual visual inspection and any works were undertaken where it would be expedient and in the interests of good flood risk management to do so.</p>	N/A.

				East Ayrshire Council will continue to inspect and maintain watercourses, screens and other relevant Council assets.	
Emergency plans/response	G	<p>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 comprehensive and robust contingency plans and procedures irrespective of the nature of the</p>	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> <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</p>	N/A.

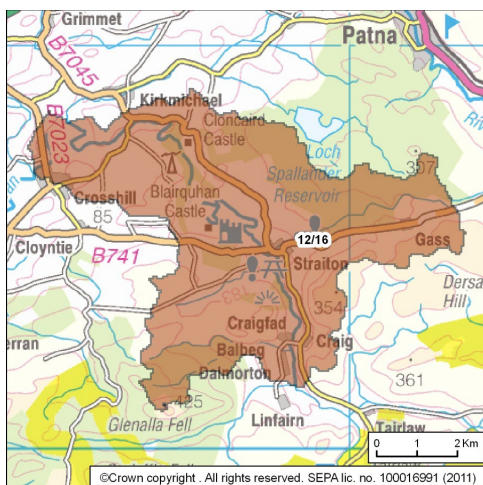
		<p>emergency. The main aim is to preserve life and property. Every emergency plan also sets out to:</p> <p>Mitigate the harmful effects of the emergency on the environment; bring about a swift return to normal life in the communities and environment affected; and encourage all agencies and organisations to prepare for their role.</p>		<p>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>	
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>SEPA continues to exercise its planning functions with a view to reducing overall flood risk. We effectively contribute to the delivery of sustainable flood risk management and we support the delivery of FRM Plans and Local FRM Plans. In line with the management actions that accord with national planning policies, we have and will continue to object to development at medium to high risk of flooding when it is contrary to the risk framework set out in Scottish Planning</p>	N/A.

	<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.</p>	<p>Policy. We have and will continue to engage from the start of the development plan process and encourage planning authorities to undertake a Strategic Flood Risk Assessment to inform their spatial strategy. We remain committed to exercising our planning functions with a view to reducing overall flood risk, and when a new national planning policy context is finalised later in 2022 via the National Planning Framework 4, we will take the same approach.</p> <p>East Ayrshire Council has prepared and consulted on its Proposed Plan LDP2. As part of the preparation of the Plan, the Council engaged early with SEPA on sites it was considering allocating and took on board comments from SEPA. In addition, The Council has worked extensively with SEPA and the KAG on issues pertaining to flooding in Kilmarnock and has undertaken a series of flood workshops with the Key Agencies. The new proposed plan contains flood</p>	
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			<p>policies reflective of SEPA's stance and of NPF4.</p> <p>National Planning Framework 4 is expected to be adopted by the Scottish Parliament later in 2022 and will become part of the Development Plan, ensuring national planning policies on flooding are applied in local decision making.</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 was published in February 2022.</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 protection scheme / works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan / study	Strategic mapping & modelling	Strategic mapping & 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 continues to improve the Scottish Flood Forecasting Service 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 in partnership with the Met Office has developed a public version of the daily Flood Guidance Statement, the Scottish Flood Forecast, to provide better and earlier information to the public. A beta version of this product was launched in May 2022. It will be refined in the wake of user feedback. A more focussed version of the product, producing guidance at a local level, is planned for the next flood risk management cycle. Options for developing forecasts of surface water flooding have been published in 2022 to help urban areas and the transport	N/A

				network improve their resilience to and preparedness for flooding. The development and wider roll-out of this service is being considered alongside the technical, resource and communication challenges associated with providing surface water flooding guidance.	
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	01/06/2016-22/06/2022	Community Engagement included, PLP exhibitions, selection, surveys and appropriate and relevant information to enable clients to make the right decisions. Responsible Authorities shall continue to support Ongoing community PLP training, Flood Warden and resilience group promotion.	N/A.

		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 supplying targeted information to the</p>	22/12/2015-22/06/2022	<p>SEPA continues to work with others to raise awareness of flood risk and its flood warning service. It has participated in local activities including school / education and community resilience activities when able. Some planned activities notably in person joint events have been limited or delayed due to Covid 19.</p> <p>Awareness raising is a continuous activity for South Ayrshire Council which is actioned by updating the Council's website, working with partners and engagement with relevant stakeholders as appropriate.</p>	N/A.

		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	<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>South Ayrshire Council will continue to inspect and maintain the flood protection structures within the Catchment.</p>	N/A.
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	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.	N/A.

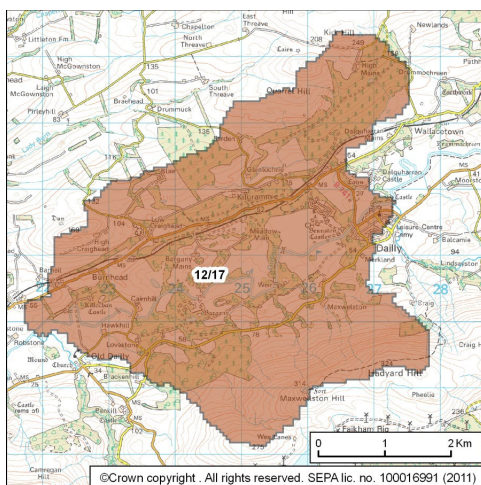
		<p>2004 by Category 1 and 2 Responders. Scottish Water are a Category 2 responder under the Civil Contingencies Act 2004 and will support regional and local resilience partnerships as required. The emergency response by these organisations is coordinated through regional and local resilience partnerships. This response may be supported by the work of voluntary organisations.</p>		<p>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.</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>SEPA continues to exercise its planning functions with a view to reducing overall flood risk. We effectively contribute to the delivery of sustainable flood risk management and we support the delivery of FRM Plans and Local FRM Plans. In line with the management actions that accord with national planning policies, we have and will continue to object to development at medium to high risk of flooding when it is contrary to the risk framework set out in Scottish Planning</p>	N/A.

	<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.</p>	<p>Policy. We have and will continue to engage from the start of the development plan process and encourage planning authorities to undertake a Strategic Flood Risk Assessment to inform their spatial strategy. We remain committed to exercising our planning functions with a view to reducing overall flood risk, and when a new national planning policy context is finalised later in 2022 via the National Planning Framework 4, we will take the same approach.</p> <p>East Ayrshire Council has prepared and consulted on its Proposed Plan LDP2. As part of the preparation of the Plan, the Council engaged early with SEPA on sites it was considering allocating and took on board comments from SEPA. In addition, The Council has worked extensively with SEPA and the KAG on issues pertaining to flooding in Kilmarnock and has undertaken a series of flood workshops with the Key Agencies. The new proposed plan contains flood</p>	
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			<p>policies reflective of SEPA's stance and of NPF4.</p> <p>National Planning Framework 4 is expected to be adopted by the Scottish Parliament later in 2022 and will become part of the Development Plan, ensuring national planning policies on flooding are applied in local decision making.</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 was published in February 2022.</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 reporting 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 protection scheme / works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan / study	Strategic mapping & modelling	Strategic mapping & 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 continues to improve the Scottish Flood Forecasting Service 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 in partnership with the Met Office has developed a public version of the daily Flood Guidance Statement, the Scottish Flood Forecast, to provide better and earlier information to the public. A beta version of this product was launched in May 2022. It will be refined in the wake of user feedback. A more focussed version of the product, producing guidance at a local level, is planned for the next flood risk management cycle. Options for developing forecasts of surface water flooding have been published in 2022 to help urban areas and the transport	N/A

				network improve their resilience to and preparedness for flooding. The development and wider roll-out of this service is being considered alongside the technical, resource and communication challenges associated with providing surface water flooding guidance.	
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	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.	N/A.

		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 supplying targeted information to the</p>	22/12/2015-22/06/2022	<p>SEPA continues to work with others to raise awareness of flood risk and its flood warning service. It has participated in local activities including school / education and community resilience activities when able. Some planned activities notably in person joint events have been limited or delayed due to Covid 19.</p> <p>Awareness raising is a continuous activity for South Ayrshire Council which is actioned by updating the Council's website, working with partners and engagement with relevant stakeholders as appropriate.</p>	N/A.

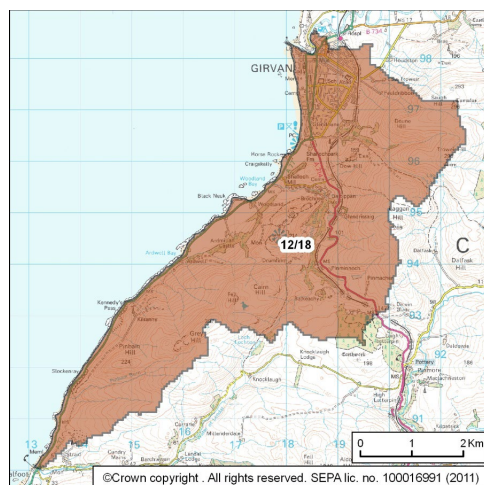
		public on large capital projects and detailed local studies			
Maintenance	G	Local authorities have a duty to assess watercourses and carry out clearance and repair works where such works would substantially reduce flood risk. They produce schedules of clearance and repair works and make these available 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	<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>South Ayrshire Council will continue to inspect and maintain watercourses, screens and other relevant Council assets.</p>	N/A.
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	01/06/2016-01/06/2022	For South Ayrshire Council, the 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.	

		<p>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>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.</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>SEPA continues to exercise its planning functions with a view to reducing overall flood risk. We effectively contribute to the delivery of sustainable flood risk management and we support the delivery of FRM Plans and Local FRM Plans. In line with the management actions that accord with national planning policies, we have and will continue to object to development at medium to high risk of flooding when it is contrary to the risk framework set out in Scottish Planning</p>	N/A.

	<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.</p>	<p>Policy. We have and will continue to engage from the start of the development plan process and encourage planning authorities to undertake a Strategic Flood Risk Assessment to inform their spatial strategy. We remain committed to exercising our planning functions with a view to reducing overall flood risk, and when a new national planning policy context is finalised later in 2022 via the National Planning Framework 4, we will take the same approach.</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 was published in February 2022.</p>	
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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 has been completed and adopted by both North and South Ayrshire Councils in September/October 2018.

The Mill Burn and Girvan Water Flood Study has been completed.

Overview of actions to manage flooding in Girvan

PVA	Flood protection scheme / works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan / study	Strategic mapping & modelling	Strategic mapping & 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	A	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.	N/A.
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	Mill Burn & Girvan Water Flood Study including fluvial modelling has been completed. The options appraisal has been completed and a flood scheme was submitted for national prioritisation in December 2018. The submitted	N/A.

		<p>detailed investigation of the current and future flood risk. The study should examine the most sustainable combinations of actions to manage flooding.</p>		<p>flood scheme would provide a 1 in 200 year level of flood protection and was valued at £3M at the time of submission.</p> <p>Awaiting the outcome of the Scottish Government prioritisation process and scheme funding review.</p>	
Strategic mapping and modelling	A	<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</p>	01/01/2016-31/12/2018.	<p>Work completed to date includes the production of key data sets including extreme water levels and offshore wave and wind conditions to support future coastal modelling work. Although this work has not been completed to the timescale described in the plan, the work that will be progressed will deliver a more comprehensive update of the coastal flood hazard maps across the whole area.</p>	<p>SEPA will complete a review of coastal flood hazard mapping in south west Scotland including in this area. This includes identifying where taking account of the impact of waves on flooding from the sea may be required. SEPA will collect the required coastal defence asset and other information necessary to progress with improved flood modelling and mapping in the highest priority areas taking account of wave overtopping where required. SEPA will look for opportunities to progress future modelling work in a way that best supports improvements to SEPA's Coastal Flood Warning Schemes.</p>

		the final mapping improvements that can be made in the area.			Expected to progress to the next stage around the middle of cycle 2 and complete early in the following cycle, subject to funding.
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 has been 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	01/06/2016- 01/06/2022	This work continues to be carried out on an annual basis. South Ayrshire Council will continue to inspect and maintain the flood protection structures within the catchment.	N/A.

		reports or following severe storm events.			
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 continued to operate the flood warning service.	N/A.
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	22/12/2015- 01/06/2022	SEPA continues to improve the Scottish Flood Forecasting Service 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 in partnership with the Met Office has developed a public version of the daily Flood Guidance Statement, the Scottish Flood Forecast, to provide better and earlier information to the	N/A

		information please visit SEPA's website.		public. A beta version of this product was launched in May 2022. It will be refined in the wake of user feedback. A more focussed version of the product, producing guidance at a local level, is planned for the next flood risk management cycle. Options for developing forecasts of surface water flooding have been published in 2022 to help urban areas and the transport network improve their resilience to and preparedness for flooding. The development and wider roll-out of this service is being considered alongside the technical, resource and communication challenges associated with providing surface water flooding guidance.	
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	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.

		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	22/12/2015-22/06/2022	SEPA continues to work with others to raise awareness of flood risk and its flood warning service. It has participated in local activities including school / education and community resilience activities when able. Some planned activities notably in person joint events have been limited or delayed due to Covid 19. Awareness raising is a continuous activity for South Ayrshire Council which is actioned by updating the Council's website, working with	N/A.

		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		partners and engagement with relevant stakeholders as appropriate.	
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	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>South Ayrshire Council will continue to inspect and maintain watercourses, screens and other Council assets.</p>	N/A.

		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	<p>For South Ayrshire Council, the 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.</p> <p>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.</p>	N/A.

Planning policies	<p>G</p> <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>SEPA continues to exercise its planning functions with a view to reducing overall flood risk. We effectively contribute to the delivery of sustainable flood risk management and we support the delivery of FRM Plans and Local FRM Plans. In line with the management actions that accord with national planning policies, we have and will continue to object to development at medium to high risk of flooding when it is contrary to the risk framework set out in Scottish Planning Policy. We have and will continue to engage from the start of the development plan process and encourage planning authorities to undertake a Strategic Flood Risk Assessment to inform their spatial strategy. We remain committed to exercising our planning functions with a view to reducing overall flood risk, and when a new national planning policy context is finalised later in 2022 via the National Planning Framework 4, we will take the same approach.</p>	N/A.
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				<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 was published in February 2022.</p>	
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4.19 Dalmellington (Potentially Vulnerable Area 12/19c)

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



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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 completed 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 protection scheme / works	Natural flood management works	New flood warning	Flood protection study	Natural flood management study	Surface water plan / study	Strategic mapping & modelling	Strategic mapping & 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				G							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	G	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.	01/06/2016-22/06/2022	<p>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> <p>Additional resourcing was required in order to procure these works.</p> <p>This study has now been completed.</p> <p>The anticipated rescheduling is not envisaged to affect the ability to report as intended in Cycle 2.</p>	N/A.

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>	20/122015-22/06/2022	<p>SEPA continues to improve the Scottish Flood Forecasting Service 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 in partnership with the Met Office has developed a public version of the daily Flood Guidance Statement, the Scottish Flood Forecast, to provide better and earlier information to the public. A beta version of this product was launched in May 2022. It will be refined in the wake of user feedback. A more focussed version of the product, producing guidance at a local level, is planned for the next flood risk management cycle. Options for developing forecasts of surface water flooding have been published in 2022 to help urban areas and the transport network improve their resilience to and preparedness for flooding. The development and wider roll-out of this service is being considered alongside the technical, resource and</p>	N/A
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				communication challenges associated with providing surface water flooding guidance.	
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. Responsible Authorities shall continue to support 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	SEPA continues to work with others to raise awareness of flood risk and its flood warning service. It has participated in local activities including	N/A.

	how those affected can be better prepared.	<p>school / education and community resilience activities when able. Some planned activities notably in person joint events have been limited or delayed due to Covid 19.</p> <p>East Ayrshire Council 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-</p>	
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				<p>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>	
Maintenance	G	<p>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.</p>	<p>01/06/2016-22/06/2022</p>	<p>High risk locations such as those with screens and some smaller culverts were inspected on a scheduled basis. The majority of inspections tended to be undertaken in the winter months when flows are higher, and leaves and other waterborne debris can be an issue.</p> <p>Works of clearance were carried out during these inspections which are not specifically "scheduled". The main water bodies, and other water bodies, within urban areas were subject to an annual visual</p>	<p>The Council will continue to inspect and maintain watercourses, screens and other relevant Council assets.</p>

				inspection and any works	
Emergency plans/response	G	<p>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 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>	01/06/2016-22/06/2022	<p>Emergency Response Planning (ERP) 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, East Ayrshire Council has implemented a system of river monitors in known areas and a rota of Flood Scouts is maintained. The Flood Scouts are tasked to monitor and report back on status on receipt of any alarm.</p>	N/A.

		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.			
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.	01/06/2016-22/06/2022	SEPA continues to exercise its planning functions with a view to reducing overall flood risk. We effectively contribute to the delivery of sustainable flood risk management and we support the delivery of FRM Plans and Local FRM Plans. In line with the management actions that accord with national planning policies, we have and will continue to object to development at medium to high risk of flooding when it is contrary to the risk framework set out in Scottish Planning Policy. We have and will continue to engage from the start of the development plan process and encourage planning authorities to undertake a Strategic Flood Risk Assessment to inform their spatial	N/A.

			<p>strategy. We remain committed to exercising our planning functions with a view to reducing overall flood risk, and when a new national planning policy context is finalised later in 2022 via the National Planning Framework 4, we will take the same approach.</p> <p>East Ayrshire Council has prepared and consulted on its Proposed Plan LDP2. As part of the preparation of the Plan, the Council engaged early with SEPA on sites it was considering allocating and took on board comments from SEPA. In addition, The Council has worked extensively with SEPA and the KAG on issues pertaining to flooding in Kilmarlock and has undertaken a series of flood workshops with the Key Agencies. The new proposed plan contains flood policies reflective of SEPA's stance and of NPF4.</p>	
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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.

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 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 complete. The study included a regional climate change sensitivity assessment and was approved by SEPA in July 2018. The option appraisal is complete, and the design of a flood protection scheme is an action that has been identified in the Flood Risk Management Plan, published in 2021 by SEPA.	N/A

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 - 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 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

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

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.

- **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 Plans Strategies have been re-named **Flood Risk Management Plans** in 2021.

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 Plans. 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 was reviewed and updated in 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).

DRAFT

Flood Risk Management (Scotland) Act 2009:

Ayrshire Local Plan District Draft Local Flood Risk Management Plan (2022-2028)



Prepared by: North Ayrshire Council



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Section 1

1. Flood Risk Management in Ayrshire Local Plan District

1.1. What is a Local Flood Risk Management Plan?

This Local Flood Risk Management Plan for the Ayrshire Local Plan District (the 'Local FRM Plan') has been developed to describe how the actions set out in the Ayrshire Flood Risk Management Plan published by SEPA (the 'SEPA FRM Plan') will be delivered.

The SEPA FRM Plan was published in December 2021 and sets out the long-term ambitions for flood risk management across the Ayrshire Local Plan District. The SEPA FRM Plan has set objectives for tackling flooding in high-risk areas and has identified the actions needed to work towards those objectives. These actions were agreed by the responsible authorities and are based on the best available evidence on the causes and consequences of flooding.

The actions contained in both plans are updated every 6 years. This Local FRM Plan describes how these actions will be implemented between 2022 and 2028. The SEPA FRM Plan replaced the earlier strategy published by SEPA in 2015 while this Local FRM Plan replaces the earlier Local FRM Plan published by North Ayrshire Council in 2016. The updated plans continue to build on the established risk-based, plan-led approach of the earlier plans.

The Local FRM Plan is published by North Ayrshire Council, lead authority for the Ayrshire Local Plan District. This Local FRM Plan has been prepared in close collaboration with East Ayrshire Council, South Ayrshire Council and any other organisations with a responsibility or interest in managing flooding. This plan is a requirement under the Flood Risk Management (Scotland) Act 2009.

There are 13 other Local Plan Districts and covering other parts of Scotland. Each will have a SEPA FRM Plan and Local FRM Plan.

1.2. How to read this plan

This Local FRM Plan should be read in parallel with the SEPA FRM Plan for the Ayrshire Local Plan District, which is publicly available on SEPA's website at:

<https://www2.sepa.org.uk/frmplans/documents/lpd12-ayrshire-frmp-2021.pdf>.

Extracts or other formats can be made available from SEPA on request.

The layout of this Local FRM Plan is broadly similar to the SEPA FRM Plan and uses the same objective and action identification references (IDs).

This Local Flood Risk Management Plan has two sections:

Section 1 contains background information on the approach taken in Scotland to manage flood risk. It explains the duties and aims of relevant organisations, including how they work together and how flood risk management planning is linked to other government policies and initiatives. It also describes how flood risk management planning is delivered locally through a Local FRM Plan.

Section 2 is the most important section for those individuals and communities seeking to understand their flood risk and its management. This section contains information on the 21 separate catchments within the Ayrshire Local Plan District that have the most significant flood risk. These catchments are termed 'Potentially Vulnerable Areas'.

Within each Potentially Vulnerable Area (PVA), objectives and actions have been set for defined areas, termed Target Areas. For each Target Area there is a short description of the causes and consequences of flooding; the agreed goals or objectives are clearly defined; and actions that will help to deliver these goals are explained in more detail, focusing on responsibility, coordination, timing and funding.

Section 2 also contains details about area wide actions. These actions apply across the entire Ayrshire Local Plan District, including areas that are not within PVAs or Target Areas.

Annexes to the plan provide supporting documents and references.

1.3 How we have developed the Local Flood Risk Management Plan?

1.3.1 Coordination, collaboration and partnership working

Many organisations and individuals are involved in flood risk management in Scotland. The causes and effects of flooding are complex, and issues cross the boundaries of neighbouring authorities as well as the responsibilities of different organisations. To be successful, flood risk management needs coordination, as set out in the flood risk management plans and the local flood risk management plans. Collaboration by those responsible for flood management is essential along with a commitment to work in partnership with the other organisations and stakeholders who can contribute to the sustainable management of flooding. Partnership working is at the heart of these plans and will be central to delivery of the objectives and actions they set out.

This Local FRM Plan has been developed in partnership, which has provided the evidence through data sharing and improved understanding of each organisations objectives to allow informed joint decisions.

The Local FRM Plan has been developed by:

North Ayrshire Council (lead authority);
 East Ayrshire Council,
 South Ayrshire Council,
 Scottish Water;
 SEPA; and
 Any other responsible authority

1.3.2 Roles and responsibilities for flood risk management planning

Individuals have a personal responsibility to protect themselves and their property from flooding. However, public bodies have responsibilities too and are working together to reduce the impacts of flooding in Scotland. Some of the key roles are outlined below and more information is available from the organisations listed.

a) Your responsibilities It is your responsibility to manage your own flood risk and protect yourself, your family, property or business. There are steps you can take now to be flood prepared and reduce the damage and disruption flooding can have on your life.

- View SEPA's maps to check if your area is affected by flooding
<https://map.sepa.org.uk/floodmaps>
- Sign up to Floodline to receive messages when flooding is forecast in your area.
<https://www.floodlinescotland.org.uk/>
- Know who to contact if flooding happens_
https://www.sepa.org.uk/media/28952/who_to_contact_2014.pdf

Other useful tools and advice on how to be prepared are available on the Floodline website.

b) Local Authorities are responsible for working together to produce Scotland's local flood risk management plans and work in partnership with SEPA, Scottish Water and other responsible authorities to develop these. It is the responsibility of your local authority to implement any of the identified actions within the Local FRM Plan that they lead on.

Local authorities also inspect, clear and repair watercourses to reduce flood risk and routinely maintain road gullies on public roads and highways. During severe flooding, local authorities will work with the emergency services and coordinate shelter for people evacuated from their homes.

c) SEPA is Scotland's national flood forecasting, flood warning authority and strategic flood risk management authority.

SEPA works in partnership with the Met Office to forecast for flooding and operate Floodline in Scotland to warn the public and emergency responders when flooding is likely. SEPA produces Scotland's Flood Risk Management Plans and works closely with other organisations responsible for managing flood risk to ensure that a nationally consistent approach to flood risk management is adopted. SEPA provides flood risk advice to land use planning in Scotland when requested and raises awareness of flooding at a national level through education initiatives, community engagement and campaigns.

d) Scottish Water Scottish Water is a responsible authority for flood risk management and is working closely with SEPA, local authorities and others to coordinate plans to manage flood risk. Scottish Water has the public drainage duty and is responsible for draining wastewater from properties and businesses, and rainwater run-off from roofs and paved areas within the boundary of properties. Pipework and guttering within the boundary, are the responsibility of the property owner.

Scottish Water helps to protect homes from flooding caused by sewers either overflowing or becoming blocked. This is done in a way that is fair and consistent to customers across the country, with sewer flooding investment prioritised to provide the biggest benefit for customers and the environment first. Currently investment to reduce the risk of sewer flooding is prioritised towards properties that have experienced internal sewer flooding and are at the highest risk of repeat occurrence of sewer flooding during frequent rainfall events.

e) Other organisations

The **Scottish Government** oversees the implementation of the Flood Risk Management (Scotland) Act 2009, which requires the production of flood risk management plans and local flood risk management plans. Scottish Ministers are responsible for setting the policy framework for how organisations collectively manage flooding in Scotland. Scottish Ministers have also approved the SEPA FRM Plan for Ayrshire.

NatureScot has provided general and local advice in the development of this Flood Risk Management Plan. Flooding is seen as natural process that can maintain the features of

interest at many designated sites, so NatureScot helps to ensure that any changes to patterns of flooding do not adversely affect the environment. NatureScot also provides advice on the impact of Flood Protection Schemes and other land use development on designated sites and species.

Scottish Forestry and **Forestry and Land Scotland** took over the roles of Forestry Commission Scotland in 2018 when the Forestry and Land Management (Scotland) Act 2018 came into force. While these executive agencies of Scottish Government are not formally designated as a responsible authority under the Flood Risk Management (Scotland) Act 2009, they support Scottish Government in delivering its flood risk related duties. This includes engaging in the development of the SEPA FRM Plans through national and local advisory groups, Local Plan District partnerships, and collaborative projects. This reflects the widely held view that forestry can play a significant role in managing flooding.

There is the opportunity for further works to be undertaken during the second flood risk management planning cycle by **Utility Companies**, **Network Rail** and **Transport Scotland** 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.

Historic Environment Scotland considers flooding as part of their regular site assessments. As such, flooding is considered as one of the many factors which inform the development and delivery of its management and maintenance programmes.

1.3.3 Consultation, engagement and advice

Two public consultations have been held during the development of the SEPA FRM Plan and this Local FRM Plan. The first by SEPA was on the national flood risk assessment and the identification of PVAs (2018); the second, held jointly with local authorities, was on the understanding of flooding in these priority areas and on the objectives and actions to manage flooding (2021).

The second, most recent consultation ran from December 2020 to October 2021 in 2 parts. From December 2020, information on the Local Plan Districts, the PVAs and the communities identified as target areas was made available. Further information on the objectives and actions planned for each target area was added in July 2021. The consultation was advertised widely by both SEPA and the local authorities. 678 responses were received, and these helped shape the content of the SEPA FRM Plan and this Local FRM Plan.

A summary of the consultation was submitted to Scottish Ministers and a more detailed report on what contributors said and what SEPA did in response will be available on SEPA's website from March 2022.

The consultation responses were noted and considered by the three local authorities within the Ayrshire Local Plan District. While it was considered that the responses from members of the public would not have a material impact on the planned funding, timing or coordination of the actions, the responses were passed to the relevant local authority for consideration in the development or implementation of the actions.

NatureScot responded to the consultation to share the locations where there is potential for partnership working. In response, an informative was added to the relevant pages of Section 2 of this plan.

Some of the work carried out by SEPA on the production of the FRM Plan has been complex and technical in nature for which they sought professional advice. Through membership of the Scottish Advisory and Implementation Forum for Flooding (SAIFF), SEPA has received assistance from local authorities, Scottish Water, Scottish Forestry, the National Park Authorities and other key interested organisations. SEPA has also developed some of its methods by working with other organisations with similar responsibilities within the UK and Europe, more specifically with the Environment Agency and English local authorities in the cross-border areas.

1.3.4 Strategic Environmental Assessment and Habitats Regulations Appraisal

North Ayrshire Council submitted a Strategic Environmental Assessment (SEA) Screening Report to the SEA Gateway. The consultation authority responses agreed that a follow-up Strategic Environmental Assessment was not required for the Local FRM Plan and that the FRM Plan could rely on the SEA for the SEPA FRM Plan. The assessment for the Ayrshire Local Plan District is available on SEPA's website at:

<https://www2.sepa.org.uk/frmplans/documents/environmental-report-appendicies-e-to-r.pdf>

No significant adverse effects have been identified.

A Habitats Regulations Appraisal (HRA) was undertaken for the SEPA FRM Plan and this has been used to inform the Local FRM Plan. This approach has been agreed with NatureScot. Where the HRA identified mitigation measures to protect Natura sites or interests, these have been incorporated into the Local FRM Plan.

The Local FRM Plan only includes further detail on the implementation of the actions identified in the SEPA FRM Plan and does not propose any additional actions.

Further studies or works in future planning cycles (i.e. after 2028) will be the subject of future flood risk management plans, which would need to be supported by a full habitats regulations appraisal.

1.3.5 Identifying objectives and selecting actions

The objectives in both the SEPA FRM Plan and this Local FRM Plan provide the long-term vision for delivering flood risk management in Scotland, and the actions give the practical steps required to achieve those objectives.

A community perspective was used to identify where flood risk management actions should target their benefits. Those areas are described as target areas.

A whole catchment approach was then used to understand the flood risk and the steps needed towards managing the risk. Objectives and actions have been set for each target area within each PVA. National actions have also been identified, which apply across all Local Plan Districts including to areas that are not within PVAs.

Objectives were set by SEPA in collaboration with other flood risk management authorities and partners and follow a set of national principles designed to deliver sustainable flood management. The national principles are:

- Take a long term, risk-based approach to decisions, considering the impacts of climate change and how we will be able to adapt;
- Deliver coordinated management of flood risk by engaging with communities and working in partnership with others; and
- Consider whole catchments and coastlines, working with natural processes and the environment to deliver multiple benefits.

These national principles sit alongside the more specific target area objectives. The target area objectives fall into the following four categories in the 2021 plans:

- Avoid increasing flood risk;
- Improve understanding of the flood risk;
- Prepare for current flood risk and future flooding; and
- Reduce the risk of flooding.

Actions are required to achieve the objectives set for each community. To identify the most sustainable actions, SEPA created a long list of all potential structural and non-structural actions. A decision framework was used to identify the most appropriate set of actions taking account of how well flood risk is currently understood in the area, what the scale of the risk is and whether the options meet the national principles set out above. Indicative costs for different types of action can be found in Annex 1.

The potential for natural flood management and blue-green infrastructure measures was explored in developing the most sustainable actions. However, these actions are not specifically noted as the need to consider such options is built into all actions for detailed flood studies, and all actions to appraise potential options for managing risk.

The overall long-term aim is to reduce the impact of flooding across Scotland as far as is reasonable, taking full account of environmental, economic, and social priorities and needs.

1.4 Links with other plans, policies, strategies and legislative requirements

1.4.1 River basin management planning

River basin management aims to protect and improve the condition of Scotland's rivers, lochs, estuaries, coastal waters and groundwater. Taking action to reduce flood risk in Scotland provides opportunities to deliver joint objectives for restoration and flood risk management. Coordination between river basin management and flood risk management can reduce flood risk, while also improving water quality and biodiversity. SEPA is leading the delivery of both the river basin management plan and the flood risk management plans so has worked to ensure that there is integration and coordination between them. This coordination, particularly in regard to consultation and engagement, is important for stakeholders who have an interest in the objectives of both plans.

1.4.2 Scottish Water Investment Plan

There is a close relationship between flood risk management plans and Scottish Water's 25 year strategic plan. Sewer flooding is not considered in detail in the flood risk management plans as it remains a high priority for Scottish Water and its customers. Scottish Water's close involvement in flood risk management planning aims to ensure that there is strong coordination between the management of sewer flooding and wider surface water flood risk, and the actions to be taken forward by local authorities and others.

1.4.3 Land Use and Spatial Planning

Land use planning decisions are one of the most powerful tools available to manage flood risk, and the alignment of flood risk management and land use planning policy is pivotal to achieving sustainable flood risk management. Decisions relating to flood risk management can have significant implications for the location of development and, likewise, decisions relating to the location of development can impact on flood risk. Flood risk management plans must take account of local development plans relating to the district, and the need for development plans to take account of flood risk management plans is included in the Town and Country Planning (Development Planning) (Scotland) Regulations 2008 (as amended). SEPA is a key agency in the land use planning process with a duty to cooperate with planning authorities in the preparation of development plans and a statutory role to provide flood advice for appropriate development management applications. The advice we give seeks to promote flood avoidance. In addition, land use planning objectives and actions have been agreed with responsible authorities, which will ensure flood risk is adequately considered in local planning decisions.

1.4.4 Emergency Planning Response

Many organisations across Scotland, including local authorities, the emergency services and SEPA provide an emergency response to flooding. Emergency plans are prepared and maintained under the Civil Contingencies Act 2004 by Category 1 and 2 Responders and are coordinated through regional and local resilience partnerships, often supported by voluntary organisations. They set out the steps to be taken to maximise safety and minimise impacts during flooding, ensuring the effective management of response to emergencies. Emergency plans may also be prepared by individuals, businesses, organisations or communities. Scottish Water is a Category 2 responder under the Civil Contingencies Act 2004 and will support regional and local resilience partnerships as required.

1.5 Next steps and monitoring progress

1.5.1 Monitoring and progress reporting

The Plan runs for six years from 2022-2028. Over this period the Ayrshire Local Plan District partnership will continue to meet periodically to monitor progress towards implementing the actions detailed in Section 2 of this Plan.

Between years 2 and 3 of the FRM cycle (i.e. before December 2025), North Ayrshire Council, as lead authority will publish a report on the conclusions of a review of the Plan, including information on the progress that has been made towards implementing the measures identified in the implementation part of the Plan.

Between years 5 and 6 of the FRM cycle (i.e. before December 2028), North Ayrshire Council, as lead authority will publish a report on the Plan containing an assessment of the progress made towards implementing the current measures, a summary of the current measures which were not implemented, with reasons for their non-implementation, and a description of any other measures implemented since the plan was finalised which the lead authority considers have contributed to the achievement of the objectives summarised in the Plan.

The lead authority will make these reports available for public inspection.

Unless otherwise stated, the actions in Section 2 of this plan will either be delivered on an ongoing basis throughout the plan period or will be delivered in the middle part of the plan period or will be delivered in the second part of the plan period. For future monitoring purposes, the key dates for action deliver will be as follows:

1. The end of the plan period is the 22nd of June 2028
2. The first half of the cycle will end on the 20th of June 2025
3. The second half of the cycle will run from 21st of June 2025 until the end of the plan period.

1.5.2 Funding review

SEPA has carried out a national prioritisation exercise based on the best available understanding of flood risk and the capacity of lead organisations to deliver actions.

Funding for flood risk management actions typically come either directly from the lead organisations or as happened in 2016, through an allocation of capital grant from the Scottish Government. However, funding can be procured from other sources.

The distribution of Scottish Government grant funding for flood protection scheme actions in the plan for the period 2022-2028 is currently being considered by a flood risk management working group. This group will put forward options and recommendations to Scottish Ministers and COSLA, through the Settlement and Distribution Group, for consideration.

A decision on future funding has not yet been made. As such, it should be noted that it may not be possible for all flood protection scheme actions identified in this draft flood risk management plan to be grant funded. Inclusion of an action in this plan does not formally commit a Council to implement it, if reasons arise which make any actions undeliverable, including inability to secure adequate funding.

A decision on grant funding is expected in time for the publication of the final local flood risk management plan, which is required by Ministerial Direction to be published before the 31st of December 2022.

A funding statement is expected by the 4th of November to allow this plan to be finalised.

Given all of the above, there may be changes to the detail of actions, or the ability to deliver actions in the identified timescales contained within Section 2 of this draft plan.

1.6 Acknowledgements

A list of acknowledgements can be found in Annex 3 of this Plan.

Section 2

The Ayrshire Local Plan District covers around 3,100km² and has a population of approximately 370,000 people. The coastline has a length of around 300km from Largs in the North to North Eastern Edge of Lochryan in the south and includes the Isle of Arran and Great Cumbrae. Urban areas are mainly concentrated along the coast and include Kilmarnock, Irvine and Ayr.

The area is largely rural with the main land use being agricultural in the lower catchments whilst upland areas have large sections of woodland and heather grassland. There are many lochs and reservoirs in the area including Loch Doon, Loch Bradan, Loch Riecawr and Loch Finlas. The main rivers are the Ayr, the Doon, the Garnock, the Girvan and the Irvine.

There is a river, surface water and coastal flood risk in the Local Plan District. There have been several large floods, including Storm Desmond and Storm Frank in December 2015 and Storm Caroline in December 2017. More recently, in August 2019, the Local Plan District was subject to river and surface water flooding affecting many areas.

Currently it is estimated there are around 39,000 people and 23,000 homes and businesses at risk from flooding. This may increase to 47,000 people and 28,000 homes and businesses by the 2080s due to climate change. The expected annual cost of flooding is around £18 million. Note however that flooding from wave overtopping is not fully represented in the assessment of flood risk and the impact of coastal flooding may be underestimated.

SEPA lead development of the flood risk management plans for Scotland and delivery of flood warning services. North Ayrshire Council are the Lead Local Authority for the Ayrshire Local Plan District which comprises of North Ayrshire Council, East Ayrshire Council and South Ayrshire Council. Other responsible authorities include Scottish Water. They are supported by Scottish Government agencies including Forestry and Land Scotland, Scottish Forestry and Transport Scotland.

Within this Local Plan District, actions are regularly carried out by SEPA and responsible authorities to help prepare communities for potential flooding and reduce the impact of any flooding that does occur.

Actions across the Local Plan District

SEPA and responsible authorities carry out actions in all areas of the Local Plan District which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. The following actions are due to take place over the next 6 years, and most of these are carried out on an ongoing basis.

	Awareness raising
Action	<p>SEPA, the responsible authorities and other organisations such as the Scottish Flood Forum work together through national and local initiatives to help communities understand the risk of flooding and what actions individuals can take. Improved awareness of flood risk and actions that prepare individuals, homes and businesses for flooding can reduce the overall impact of flooding.</p> <p>Local authorities undertake additional awareness raising activities when developing any specific project proposals and will engage with community resilience groups and local communities.</p> <p>Scottish Flood Forum support flood risk communities by raising community awareness, promoting self-help, developing community groups and establish a recovery support programme after a flood.</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>
Indicative Delivery	Ongoing throughout the plan period (2022-2028)
Funding	<p>SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.</p> <p>Scottish Water is funded by customer charges as set by our economic regulator. All business activities required under this action by Scottish Water are accounted for in their capital or operational expenditure.</p>
Coordination	Delivery of actions to raise awareness will be coordinated by the responsible authorities through the Local Plan District Partnership.

	Data to support climate resilience
Action	<p>As Scotland's hydrometric authority, SEPA operates a network of stations to measure river level, flow, rainfall, sea level, loch and groundwater level. The data goes into a long term data archive and is critical to underpin all flood risk management activities including flood warning, flood mapping, design of flood protection and sustainable development as well as supporting a range of regulatory and recreational uses.</p> <p>SEPA will continue to maintain and develop its hydrometric network, contribute to UK and international data archives, and improve and update the datasets used for flood frequency analysis.</p> <p>SEPA will support research and development of data, methods and guidance to improve the evidence on which decisions can be made, and to enable the impact of climate change to be included in all flood risk management activities.</p>
Indicative Delivery	Ongoing throughout the plan period (2022-2028)
Funding	SEPA will coordinate with a range of other parties as required to deliver better and more accessible data, and ongoing improvements to the use of the data to underpin flood risk management activities and decisions.
Coordination	SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.

	Emergency plans
Action	Many organisations, including local authorities, the emergency services and SEPA provide an emergency response to flooding. Emergency plans are prepared and maintained under the Civil Contingencies Act 2004 by Category 1 and 2 Responders and are coordinated through regional and local resilience partnerships, often supported by voluntary organisations. They set out the steps to be taken to maximise safety and minimise impacts during flooding. Emergency plans may also be prepared by individuals, businesses, organisations or communities. Scottish Water is a Category 2 responder under the Civil Contingencies Act 2004 and will support regional and local resilience partnerships as required.
Indicative Delivery	Ongoing throughout the plan period (2022-2028)
Funding	The Scottish Government provides civil contingencies funding for local authority emergency planning activities through grant aided expenditure. SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	Coordination when required will be via local resilience partnerships. The Ayrshire Civil Contingencies Team ensures that North Ayrshire, East Ayrshire and South Ayrshire Councils will be able to respond in accordance with the Civil Contingencies Act 2004 (Contingency Planning) (Scotland) Regulations 2005.

	Flood forecasting
Action	<p>The Scottish Flood Forecasting Service is a partnership between SEPA and the Met Office. The service continues to produce a daily, national flood guidance statement, issued to emergency responders, local authorities, and other organisations with flood risk management duties. In 2022 a new 3-day daily Scottish Flood Forecast was launched for the public.</p> <p>As the flood warning authority for Scotland SEPA continues to provide its flood warning service issuing flood alerts and warnings when required, giving people a better chance of reducing the impact of flooding on their home or business.</p>
Indicative Delivery	Ongoing throughout the plan period (2022-2028)
Funding	SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	SEPA work in partnership with the Met Office and will work closely with all other authorities involved in emergency response to flooding.

	Flood warning development framework
Action	<p>SEPA published a new flood warning development framework in 2022, which details the ambition and strategic actions to maintain and improve the flood warning service across Scotland.</p> <p>SEPA will further develop phase 1 of the Scottish Flood Forecast based on feedback gathered during public beta release before fully launching the service to the public formally in early 2023. Phase 1 is the national 3-day flood forecast and the starting point of our journey in providing the public with earlier and improved flood information.</p> <p>SEPA will continue to follow the service design approach for phase 2 of the Scottish Flood Forecast, which will provide the public with more localised flood forecast information. User research will determine what information will be displayed on the regional flood forecast webpages. It is anticipated that the final service will bring together all live information such as flood warnings, river levels and rainfall data into a central hub that is easily accessible for the public.</p> <p>Working in close partnership with the Met Office through the Scottish Flood Forecasting Service, SEPA will develop its capability in surface water flooding forecasting, focusing initially on the transport sector to support climate-ready infrastructure. SEPA will also undertake a prioritised improvement programme of existing river and coastal flood warning schemes to provide more accurate forecasting with improved lead time.</p>
Indicative Delivery	Ongoing throughout the plan period (2022-2028)
Funding	SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	SEPA work in partnership with the Met Office. Appropriate engagement with the other authorities involved in emergency response will happen as the flood warning developments are progressed.

	Future flood risk management planning
Action	<p>The years covered by the lifetime of this plan are crucial. Radical progress is needed in how we reduce our impact on the climate and respond to the effects of climate change. How we plan to manage flooding to our communities is on the front line of the challenges of this decade. The 2027 flood risk management plans will be more ambitious than ever before. The plans will look to develop long term plans for more flood resilient communities prepared for the impacts of climate change.</p> <p>The priority areas which will be the focus points of the next flood risk management plans will be identified in 2024 with the designation of PVAs. A 3-month public consultation will be held to inform the PVA designation.</p> <p>We will plan for a better future by publishing our flooding services strategy in 2023 with a clear and measurable delivery plan. We will put greener, fairer communities at the heart of our ambitions.</p> <p>SEPA has set its own target to be a regenerative organisation by 2030 and the next set of plans will further this ambition.</p> <p>During this plan cycle, SEPA will work to develop new partnerships with a wider range of stakeholders, including businesses and commercial sectors. We will investigate alternative sources of finance to tackle flooding and drive forward practical options for adaptation.</p>
Indicative Delivery	<p>Ongoing throughout the plan period (2022-2028).</p> <p>Flooding services strategy will be delivered in 2023 and the next flood risk management plans will be published in 2027.</p>
Funding	<p>SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.</p>
Coordination	<p>SEPA will lead the work, in partnership with the Scottish Government and other responsible authorities. A wider range of partners and stakeholders will be developed to support the action. SEPA will carry out a full consultation on the next draft flood risk management plans in 2026.</p>

	Guidance development
Action	<p>The Scottish Government and SEPA will develop and update guidance to inform flood risk management projects. This guidance will be produced in 2022 and will look at how best to adapt to the long-term impacts of climate change and the most appropriate methods of assessing the benefits of flood risk management actions.</p> <p>Technical guidance to support flood risk management partners will be reviewed and updated by SEPA where required.</p> <p>Scottish Forestry, in collaboration with its UK counterparts, will produce guidance on designing and managing forests to reduce flood risk.</p> <p>Guidance will be developed to help local authorities understand the requirements for mapping relevant bodies of water and sustainable urban drainage systems in their areas.</p>
Indicative Delivery	<p>Draft flood studies guidance will be delivered by SEPA in 2023; Options appraisal & adaptation guidance will be delivered by the Scottish Government and SEPA in 2023; other guidance & updates will be delivered between 2023-2028.</p>
Funding	<p>SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.</p>
Coordination	<p>The Scottish Government, SEPA and Scottish Forestry all have lead roles in delivering the new or updated guidance outlined. A range of forums will be used to help coordinate and develop the guidance with the appropriate input from others, including SAIFF (The Scottish Advisory Implementation Forum for Flooding) and cross-party working groups.</p>

	Hazard mapping updates
Action	<p>An understanding of flooding is essential to develop a plan led risk-based approach to flood risk management. SEPA will continue to update their national hazard mapping, which shows the likelihood of flooding in Scotland from different flooding sources:</p> <p>https://www.sepa.org.uk/environment/water/flooding/flood-maps/. SEPA will continue to develop the hazard mapping viewer to make it easier for the public, partners and stakeholders to access data on the likelihood of flooding. SEPA will also review how modelling and mapping updates are undertaken to develop a more effective method of regional and national updates for the hazard maps.</p>
Indicative Delivery	Ongoing throughout the plan period (2022-2028)
Funding	SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	SEPA will work with other relevant parties - including authorities who have ownership of data used in flood mapping - to develop the quality and accessibility of flood hazard mapping.

	Land use planning
Action	Local authorities, SEPA and Scottish Water all have a responsibility under the Flood Risk Management (Scotland) Act 2009 to support sustainable flood risk management through the land use planning process. National planning policies set out the Scottish Ministers' priorities for the development and use of land. Under this approach, new development in areas with medium to high likelihood of flooding should generally be avoided. Current national planning policies aim to restrict development within the floodplain and limit exposure of new receptors to flood risk, promote flood reduction via natural and structural flood management measures and restoration of natural features, and avoid increased surface water flooding through sustainable drainage and the minimisation of impermeable surfaces. Locally determined planning policies may place further requirements within their area of operation to restrict inappropriate development and prevent unacceptable risk.
Indicative Delivery	Ongoing throughout the plan period (2022-2028)
Funding	North Ayrshire, East Ayrshire and South Ayrshire Councils' statutory development planning and development management activities will be funded through revenue budgets provided by the Scottish Government. SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	SEPA delivery statutory advice on flooding on both planning applications and Local Development Plans and will continue to work with the other responsible authorities to support the land use planning process.

	Maintenance
Action	<p>Local authorities have a duty to assess bodies of water and to carry out clearance and repair works where such works would substantially reduce flood risk. Local authorities are also responsible for the drainage of roads. In addition, local authorities may also be responsible for maintenance of any existing flood protection schemes or works.</p> <p>Scottish Water will continue to undertake risk-based inspection, maintenance and repair on the public sewer network.</p> <p>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>
Indicative Delivery	Ongoing throughout the plan period (2022-2028)
Funding	<p>North Ayrshire, East Ayrshire and South Ayrshire Councils' routine clearance and repair work, routine maintenance of road drainage systems and the maintenance of other Council owned flood risk management assets will be funded through revenue budgets provided by the Scottish Government.</p> <p>Funding for this action is secured within Scottish Water's business plan.</p>
Coordination	<p>North Ayrshire, East Ayrshire and South Ayrshire Councils' will work in coordination with all relevant stakeholders identified through the planning and implementation of routine maintenance works.</p> <p>Scottish Water will keep responsible authorities informed of large-scale capital maintenance work to identify opportunities for co-ordination.</p>

	Natural flood management mapping
Action	<p>SEPA will continue to support activities that improve our understanding of how to effectively target and deliver natural flood management. As part of this, SEPA will review and update the opportunities mapping for natural flood management. This will include linking blue-green infrastructure with the surrounding natural catchment and coastline.</p> <p>Natural flood management seeks to store or slow down flood waters through measures such as the planting of woodlands, wetland creation, river restoration, or the creation of intertidal habitats.</p> <p>In addition to flooding benefits, natural flood management measures can also provide many additional benefits to biodiversity, water quality, recreation, and carbon storage.</p>
Indicative Delivery	By the end of 2025.
Funding	SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	<p>SEPA will work with key stakeholders to review and update the opportunities mapping.</p> <p>NatureScot are very supportive of the principle of Natural Flood Management (NFM). The agency's view is that NFM could be widely promoted throughout the implementation of the action contained in this plan and would welcome further engagement on this with SEPA and other key stakeholders in realising the potential of this important nature-based solution.</p>

	National flood risk assessment
Action	SEPA will use the most suitable data to review and update the national flood risk assessment (NFRA) undertaken in 2018. This update will be used to identify future potentially vulnerable areas and focus flood risk management planning.
Indicative Delivery	December 2024
Funding	SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	SEPA will work with others as the NFRA is updated, including to keep other responsible authorities informed through the Local Plan District Partnerships.

	National surface water mapping
Action	The national flood risk assessment 2018 identified that surface water flooding has the potential to impact more properties in Scotland than any other source of flooding. Over the next 6 year cycle SEPA will look to vastly improve its national understanding of surface flood risk by undertaking a wholesale update of the national surface water maps to reflect developments in data and understanding, including the impact of climate change.
Indicative Delivery	2024
Funding	SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	SEPA is currently working with a contractor to develop the modelling needed to deliver the flood maps. As the mapping is developed, local authorities and Scottish Water will continue to be engaged in opportunities to verify, shape and understand the new mapping products.

	Reservoirs
Action	SEPA will continue to develop its assessment of flood risk from dam failure and use these assessments to direct a proportionate regulatory approach to ensure reservoir safety. Over the next management cycle we will implement further developments of our flood warning capabilities in the unlikely event of reservoir failure.
Indicative Delivery	Ongoing throughout the plan period (2022-2028). Flood warning developments 2022-2024
Funding	SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	SEPA will work with others as required, to deliver the regulatory duties and to develop flood warning capabilities. Others will include reservoir managers and operators, and Civil Contingencies Act responders who share duties for emergency response.

	Scottish Flood Defence Asset Database
Action	The Scottish Flood Defence Asset Database provides information on existing flood protection schemes. National data on flood protection infrastructure is needed to understand flood risk and to develop adaptation planning for Scotland. SEPA will continue to host SFDAD and look for opportunities to support the development of our understanding of how and when Scotland's flood defence assets should be adapted to continue to maintain protection from flooding in the future.
Indicative Delivery	Ongoing throughout the plan period (2022-2028)
Funding	SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	SEPA will work with the local authorities to ensure accurate data on existing and new schemes is made available for the Scottish Flood Defence Asset Database.

	Self help
Action	<p>Everyone is responsible for protecting themselves and their property from flooding. People can take 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 flood resilience measures, signing up to Floodline, engaging with their local flood group, and ensuring that properties and businesses are insured against flood damage. The following places offer help with taking steps to protect yourself:</p> <p>https://www.floodre.co.uk/</p> <p>https://www.biba.org.uk/current-issues/flood-insurance/</p> <p>https://floodlinescotland.org.uk/</p> <p>https://scottishfloodforum.org/</p> <p>Responsible authorities and SEPA will continue to develop the understanding of flood risk to communities and promote measures to help individuals and businesses to reduce their risk.</p>
Indicative Delivery	Ongoing throughout the plan period (2022-2028)
Funding	<p>SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.</p> <p>North Ayrshire, East Ayrshire and South Ayrshire's role in this action will be funded through revenue budgets provided by the Scottish Government.</p>
Coordination	Work by the responsible authorities to develop understanding and help communities reduce their risk will be coordinated through the Local Plan District Partnership.

More specific local actions to manage flood risk in target areas are detailed in the potentially vulnerable areas (PVAs) sections below.

Potentially vulnerable areas

Potentially vulnerable areas (PVA) were designated in 2018 based on the potential current or future risk from all sources of flooding. This designation was informed by the national flood risk assessment (available to view at: <https://www.sepa.org.uk/data-visualisation/nfra2018/>). As part of continued analysis of flood risk, the national flood risk assessment and potentially vulnerable areas (PVA) will be reviewed every 6 years to take on board any new information. There are 21 potentially vulnerable areas (PVA) in this Local Plan District. Following sections provide more information on these areas.

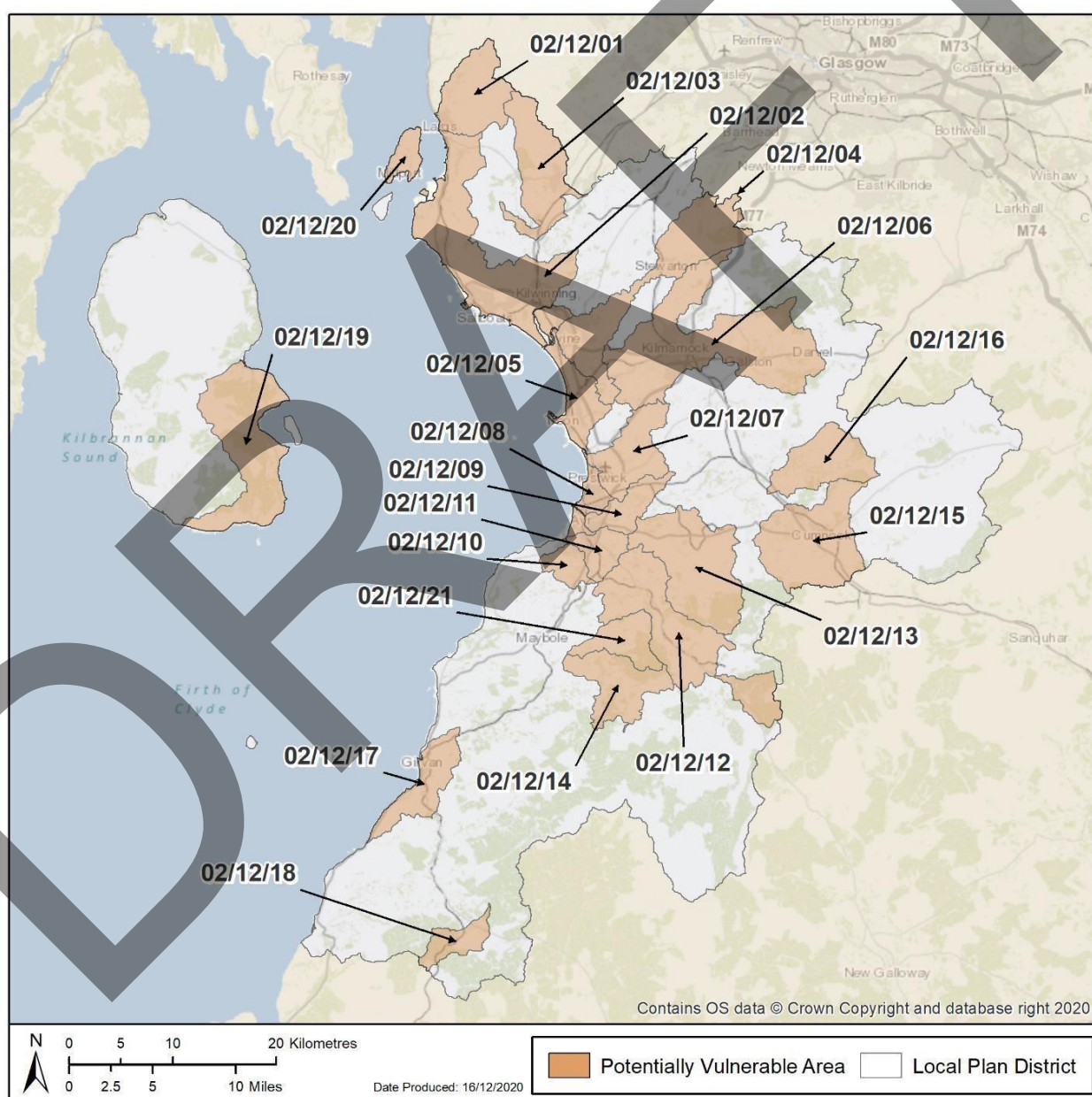


Figure 1. Potentially vulnerable areas in Ayrshire Local Plan District

LPD 12 Ayrshire – List of PVAs

PVA Ref	PVA Name	Local authority area	Page number
02/12/01	Largs	North Ayrshire	30
02/12/02	Largs to Kilwinning	North Ayrshire	36
02/12/03	Upper Garnock catchment	North Ayrshire	54
02/12/04	Lower Irvine and Annick Water catchment	East Ayrshire, North Ayrshire, South Ayrshire	64
02/12/05	Irvine to Troon	North Ayrshire, South Ayrshire	79
02/12/06	Kilmarnock and Upper Irvine catchment	East Ayrshire	88
02/12/07	Pow Burn catchment	South Ayrshire	113
02/12/08	Prestwick and Ayr	South Ayrshire	120
02/12/09	River Ayr catchment	South Ayrshire	133
02/12/10	Ayr south	South Ayrshire	138
02/12/11	Ayr east	South Ayrshire	143
02/12/12	Dalrymple to Dalmellington	East Ayrshire	149
02/12/13	Drongan	East Ayrshire	157
02/12/14	Straiton	South Ayrshire	161
02/12/15	Cumnock	East Ayrshire	165
02/12/16	Catrine	East Ayrshire	172
02/12/17	Girvan	South Ayrshire	180

PVA Ref	PVA Name	Local authority area	Page number
02/12/18	Barrhill	South Ayrshire	186
02/12/19	Isle of Arran	North Ayrshire	190
02/12/20	Great Cumbrae Island	North Ayrshire	206
02/12/21	Kirkmichael	South Ayrshire	214

02/12/01 (Largs)

This area is designated as a potentially vulnerable area due to flood risk in Largs. There is flooding from river, coastal and surface water. Recent floods have been caused by surface water.

There is 1 target area in this potentially vulnerable area, which has been the focus of further assessment, this is identified below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

Largs north

(target area 148)

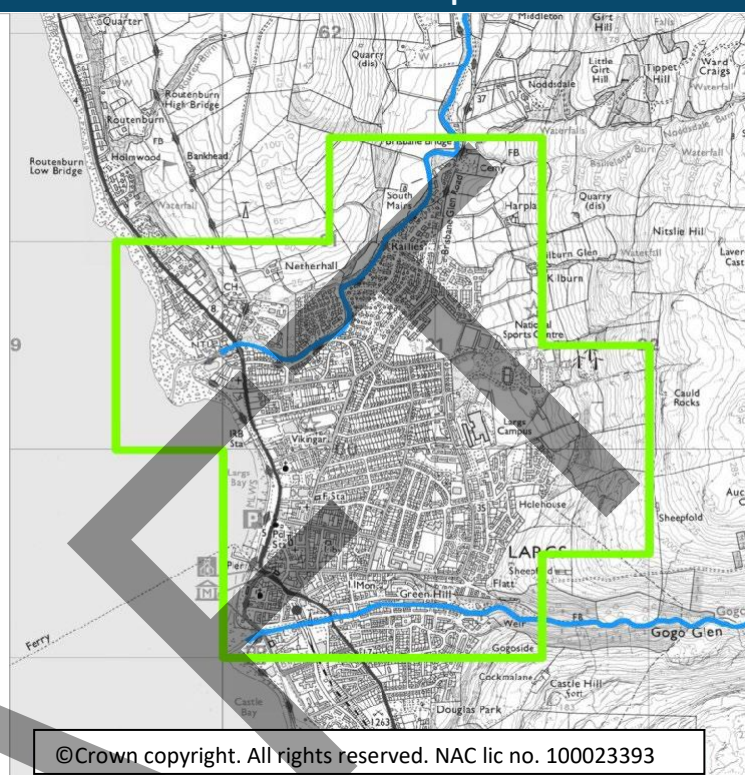
Largs north (target area 148)

Summary

Largs North covers the coastal town of Largs which is located on the banks of Noddsdale Water and Gogo Water. The area is located within the North Ayrshire local authority area. The main source of flooding in Largs North is surface water flooding, however, there is also risk from coastal flooding which is currently not well understood and river flooding from the burns.

There are approximately 2,700 people and 1,400 homes and businesses currently at risk from flooding. This is likely to increase to 3,000 people and 1,700 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for river flooding by the Gogo Water (2013) and Noddsdale Water (2015) flood studies and for coastal flooding by the shoreline management plan. There is a long record of flooding in this target area.

The Dynamic Coast project has shown that parts of the shoreline in or adjacent to this target area are subject to erosion at present or are considered likely to erode in the future. Consideration should be given to how erosion might impact flood risk. Any actions taken should aim to support building natural resilience to flooding and not lead to an increase in erosion.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

- Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.
- Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.
- Consider whole catchments and coastlines and work with natural processes and the environment to deliver

Objective ref	Objective type	Objective Description
1481	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of Largs Coastal Flood Protection Scheme 2002 and Gogo Street Flood Protection Scheme 2013
1482	Avoid flood risk	Avoid inappropriate development that increases flood risk in Largs
1483	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Largs
1484	Reduce flood risk	Reduce the risk of flooding in Largs

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area.

NatureScot has identified that they have 'place priorities' for this Target Area. During the implementation of the following actions, the delivery lead should consider engaging with NatureScot to investigate opportunities to deliver on shared priorities especially when connected to protected areas.

Actions proposed to start between 2022 and 2028

Flood study (options appraisal) (14801)

Action	In areas where flood risk is confirmed, a range of possible options to manage flood risk are to be identified, including natural flood management actions where suitable, and a preferred approach is to be chosen. This should include adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	Following the outcome of the Largs wave overtopping study, a further study should be undertaken to investigate options for coastal flood risk mitigation. The flood modelling should quantify the flood risk from all sources (as per objectives), identifying all flooding mechanisms. The existing coastal flood protection scheme should be considered for all flood sources and scenarios. Flood risk should be quantified for present day and future flood risk. If coastal and/or surface water flood risk is confirmed in the target area a scoping study should be carried out to identify the future studies and works required that will achieve the Prepare, Avoid and Reduce objectives set.
Delivery Lead	North Ayrshire Council.
Indicative Delivery Funding	This action will be delivered during the first half of Cycle 2 (2022 - 2025). This study shall be funded through North Ayrshire Council's budget provided by Scottish Government, subject to any future funding review.
Coordination	North Ayrshire Council will deliver this flood study with information provided by other relevant responsible authorities. SEPA will work with the local authority on the potential to coordinate this action with work on coastal flood mapping and flood warning actions.
Local Detail	The completed Largs Wave Overtopping Study will be reviewed to include other flood sources and mechanisms. This information along with the established predicted standard of protection of the existing Largs Flood Protection Scheme will guide future flood studies in this location.

Community engagement (14802)

Appendix 2

Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	Awareness raising should be developed based on the findings of the flood modelling. Update the community resilience plan including accounting for expected changes in flood risk over the lifespan of the flood protection scheme. This should consider the need for a community resilience group and the need for a resilience and self help plan.
Delivery Lead	North Ayrshire Council.
Indicative Delivery	Community engagement will be an ongoing action throughout Cycle 2 (2022 - 2028).
Funding	This action shall be funded through North Ayrshire Council's budget provided by Scottish Government, subject to any future funding review.
Coordination	Work by the responsible authorities to develop understanding and help communities reduce their risk will be coordinated through the Local Plan District Partnership.
Local Detail	North Ayrshire Council shall update the relevant community flood resilience plan to account for expected changes in flood risk over the lifespan of the Flood Protection Scheme.

Flood defence maintenance (14803)

Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Description	Largs Flood Protection Scheme was constructed in 2002 and consists of a concrete seawall from Old Fish Quay to Gogo Water. This scheme provides protection to the area for up to a 200 year flood. The Gogo Street Flood Protection Scheme was completed in 2013 to mitigate flooding from the Gogo Water to a standard of protection of a 1 in 75 year flood. These schemes will continue to be maintained.
Delivery Lead	North Ayrshire Council.
Indicative Delivery	Flood defence maintenance will be an ongoing action throughout Cycle 2 (2022 - 2028).
Funding	Maintenance works as required will be funded through North Ayrshire Council's budget provided by Scottish Government.
Coordination	North Ayrshire Council will work in coordination with all relevant stakeholders identified through the planning and implementation of maintenance works.
Local Detail	North Ayrshire Council shall continue to inspect and maintain the Largs Flood Protection Scheme and the Gogo Street Flood Protection Scheme to secure the performance of these assets.

Flood warning maintenance (14804)

Appendix 2

Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Description	SEPA should maintain the Firth of Clyde coastal flood warning scheme.
Delivery Lead	SEPA.
Indicative Delivery	Ongoing.
Funding	SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	SEPA will work with the local authorities on the potential to use information from the flood schemes and studies along the Firth of Clyde to inform ongoing flood warning. SEPA will continue to raise awareness of flood warning, and engage with communities about the service when required.
Local Detail	N/A.

Strategic mapping improvements (14805)

Action	SEPA will continue to update flood maps based on new information.
Description	SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.
Delivery Lead	SEPA.
Indicative Delivery	2025-2028.
Funding	SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	SEPA will work with the local authority on the potential to coordinate the flood map update with any other actions being carried out to understand or reduce coastal flooding.
Local Detail	N/A.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

Data collection (14806)	
Action	Equipment that measures rainfall, river levels, erosion, ground levels or wave height may be installed and maintained to improve our understanding of flood risk. This can be done over short term or to measure longer term impacts.
Description	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.
Delivery Lead	North Ayrshire Council.
Indicative Delivery	This action will be delivered during Cycle 3 (2028 - 2034)
Funding	This action will be funded through North Ayrshire Council's budget provided by Scottish Government, subject to any future funding review.
Coordination	North Ayrshire Council and SEPA will work on the potential to coordinate opportunities for joint data collection activities.
Local Detail	To inform any future long term flood study, appropriate gauging equipment may be installed, as appropriate. Further details of this action will be informed by developments in flood risk management planning between 2022-2028.

Shoreline management plan (coastal adaptive plan) (14807)	
Action	The existing assessment of coastal flood and erosion risk is to be reviewed and updated as required. The plan should include assessment of climate change and develop adaptive approaches to allow for the impacts of climate change to be monitored, understood and managed.
Description	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.
Delivery Lead	North Ayrshire Council.
Indicative Delivery	This action will be delivered during Cycle 3 (2028 - 2034)
Funding	This action will be funded through North Ayrshire Council's budget provided by Scottish Government, subject to any future funding review.
Coordination	North Ayrshire Council will work with other relevant responsible authorities, statutory bodies and key stakeholders identified through the scoping stage of the planned update to the shoreline management plan.
Local Detail	Details of this action will be informed by developments in flood risk management planning between 2022-2028.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

02/12/02 (Largs to Kilwinning)

This area is designated as a potentially vulnerable area due to flood risk in Fairlie, Kilwinning and Dalgarven, Largs, Saltcoats and Stevenston and West Kilbride. There is flooding from coastal, river and surface water. Recent surface water and river flooding has occurred in this area.

There are 5 target areas in this potentially vulnerable area, which have been the focus of further assessment, these are listed below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

Kilwinning and Dalgarven
Saltcoats and Stevenston
West Kilbride
Largs south
Fairlie

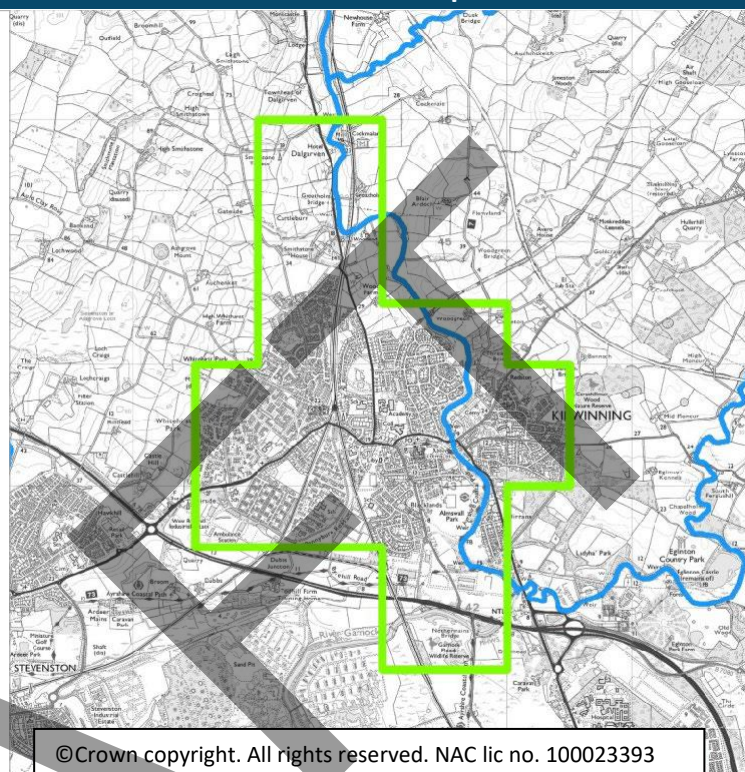
(target area 80)
(target area 121)
(target area 124)
(target area 149)
(target area 155)

Kilwinning and Dalgarven (target area 80)

Summary

Kilwinning and Dalgarven are located west of Glasgow. They are located within the North Ayrshire local authority area. The main sources of flooding in Kilwinning and Dalgarven are river and surface water flooding. There are approximately 1,500 people and 810 homes and businesses currently at risk from flooding. This is estimated to increase to 1,700 people and 890 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for surface water flooding by the sewer flood risk assessment, integrated catchment study and the ongoing surface water management plan. There is a long record of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

- Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.
- Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.
- Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
801	Avoid flood risk	Avoid inappropriate development that increases flood risk in Kilwinning and Dalgarven
802	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Kilwinning and Dalgarven
803	Reduce flood risk	Reduce the risk of flooding in Kilwinning and Dalgarven

Appendix 2

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area.

NatureScot has identified that they have 'place priorities' for this Target Area. During the implementation of the following actions, the delivery lead should consider engaging with NatureScot to investigate opportunities to deliver on shared priorities.

Actions proposed to start between 2022 and 2028

Surface water management plan (8001)	
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	North Ayrshire Council completed the development of the plan pre-2022. The next steps in managing water ponding or over-whelmed drainage systems within the priority areas shall be identified by either North Ayrshire Council or Scottish Water depending on the predominant flood source / mechanisms.
Delivery Lead	North Ayrshire Council.
Indicative Delivery	This action will be delivered during the second half of Cycle 2 (2025 - 2028).
Funding	Surface water flood risk options appraisals will be funded through North Ayrshire Council's budget provided by Scottish Government or funded by Scottish Water's budget as appropriate.
Coordination	North Ayrshire Council will work with Scottish Water to identify which organisation should lead on managing surface water flood risk in each identified priority area. There is potential to work with SEPA's River Basin Management team to improve the physical condition of the water environment.
Local Detail	The Saltcoats, Ardrossan, Stevenston and Kilwinning (SASK) surface water management plan and the Stevenston Point integrated catchment study were completed in Cycle 1 (2016 - 2022). Options to reduce surface water flood risk shall be progressed by either North Ayrshire Council or Scottish Water depending on the source / mechanism of flood risk.

Sewer flood risk assessment (8002)

Appendix 2

Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network.
Description	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Stevenston sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Delivery Lead	Scottish Water.
Indicative Delivery	2025-2027
Funding	Funding for this action is secured within Scottish Water's business plan.
Coordination	Outputs of this modelling assessment will be shared with local authorities and SEPA.
Local Detail	Scottish Water will undertake a modelling assessment in the Stevenston 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.

Flood warning maintenance (8003)

Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Description	SEPA should maintain the River Garnock flood warning scheme. The scheme should be investigated for improvement and/or recalibration.
Delivery Lead	SEPA.
Indicative Delivery	Second half of cycle.
Funding	SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	The action delivery lead is SEPA. SEPA will maintain the River Garnock flood warning scheme. SEPA will continue to raise awareness of flood warning, and engage with communities about the service when required.
Local Detail	N/A.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

Coordination with the river basin management plan

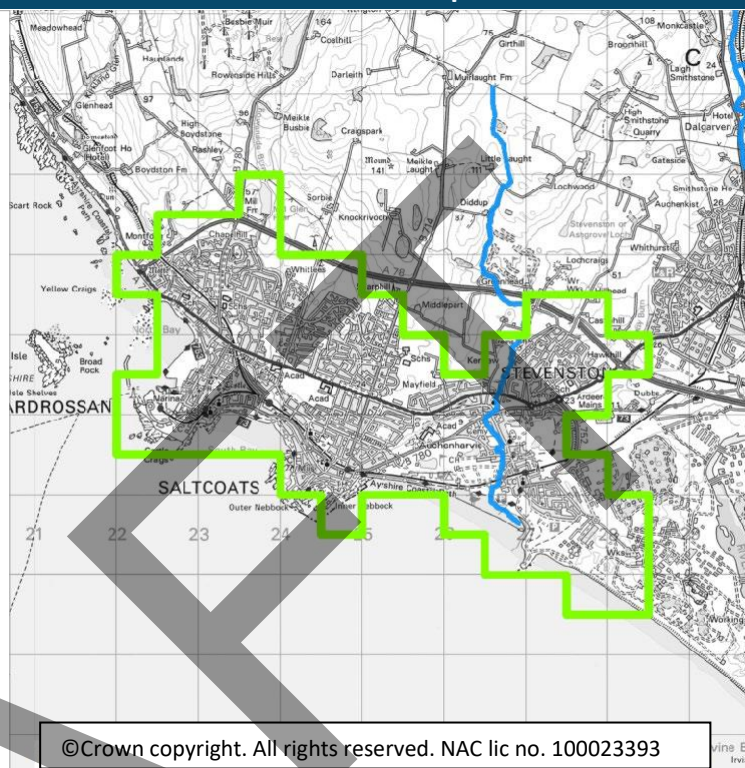
This area has been identified as having potential for restoration in Scotland's river basin management plan. Actions should be coordinated to deliver any potential joint objectives for restoration and flood risk management. This should be considered in the earliest stages of any projects.

Saltcoats and Stevenston (target area 121)

Summary

This area covers the coastal towns of Saltcoats, Stevenston and Ardrossan. The area is located within the North Ayrshire local authority area. The main source of flooding is surface water, however there are also risks from coastal and river flooding. There are approximately 4,400 people and 2,500 homes and businesses currently at risk from flooding. This is likely to increase to 5,300 people and 3,000 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for surface water flooding by the sewer flood risk assessment, integrated catchment study and the ongoing surface water management plan. Understanding of coastal flooding is improved by the shoreline management plan and Saltcoats Coastal Defence works in 2006 performance review. There is a long record of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

- Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.
- Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.
- Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
1211	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of Saltcoats flood protection scheme 2006
1212	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
1213	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
1214	Reduce flood risk	Reduce the risk of flooding in this target area

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area.

NatureScot has identified that they have 'place priorities' for this Target Area. During the implementation of the following actions, the delivery lead should consider engaging with NatureScot to investigate opportunities to deliver on shared priorities.

Actions proposed to start between 2022 and 2028

Flood study (12101)	
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Description	Following the outcomes of the surface water management plan, a flood study to further investigate the interaction between surface water flooding and other sources should be carried out. The impacts of climate change on flood risk should be evaluated. If flood risk is confirmed, scoping of the next steps should be completed.
Delivery Lead	North Ayrshire Council.
Indicative Delivery	This study will be delivered during the first half of Cycle 2 (2022 - 2025).
Funding	This study will be funded through North Ayrshire Council's budget provided by Scottish Government.
Coordination	North Ayrshire Council will deliver this flood study with information provided by other relevant responsible authorities, which may include Scottish Water and SEPA.
Local Detail	Following the completed Saltcoats, Ardrossan, Stevenston and Kilwinning (SASK) Surface Water Management Plan, this study shall investigate all sources of flood risk in Saltcoats and Stevenston. Where flood risk is confirmed, a second phase of the study shall be commissioned to scope the next steps towards reducing flood risk.

Sewer flood risk assessment (12102)

Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network.
Description	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Stevenston sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Delivery Lead	Scottish Water.
Indicative Delivery	2025-2027
Funding	Funding for this action is secured within Scottish Water's business plan.
Coordination	Outputs of this modelling assessment will be shared with local authorities and SEPA.
Local Detail	Scottish Water will undertake a modelling assessment in the Stevenston 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.

Flood defence maintenance (12103)

Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Description	Maintenance to the Saltcoats Flood Protection Scheme 2006 and Saltcoats coastal defence works 2006 should continue and updates to the maintenance regime be made based on the findings of the flood study.
Delivery Lead	North Ayrshire Council.
Indicative Delivery	Flood defence maintenance will be an ongoing action throughout Cycle 2 (2022 - 2028).
Funding	Maintenance works as required will be funded through North Ayrshire Council's budget provided by Scottish Government.
Coordination	North Ayrshire Council will work in coordination with all relevant stakeholders identified through the planning and implementation of maintenance works.
Local Detail	North Ayrshire Council shall continue to inspect and maintain the Saltcoats Flood Protection Scheme (2006) and the Saltcoats coastal defence works (2006) to preserve the performance of these assets.

Flood warning maintenance (12104)	
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Description	SEPA should maintain the Firth of Clyde coastal flood warning scheme.
Delivery Lead	SEPA.
Indicative Delivery	Ongoing.
Funding	SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	SEPA will maintain the Firth of Clyde coastal flood warning scheme. SEPA will continue to raise awareness of flood warning, and engage with communities about the service when required.
Local Detail	N/A.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document

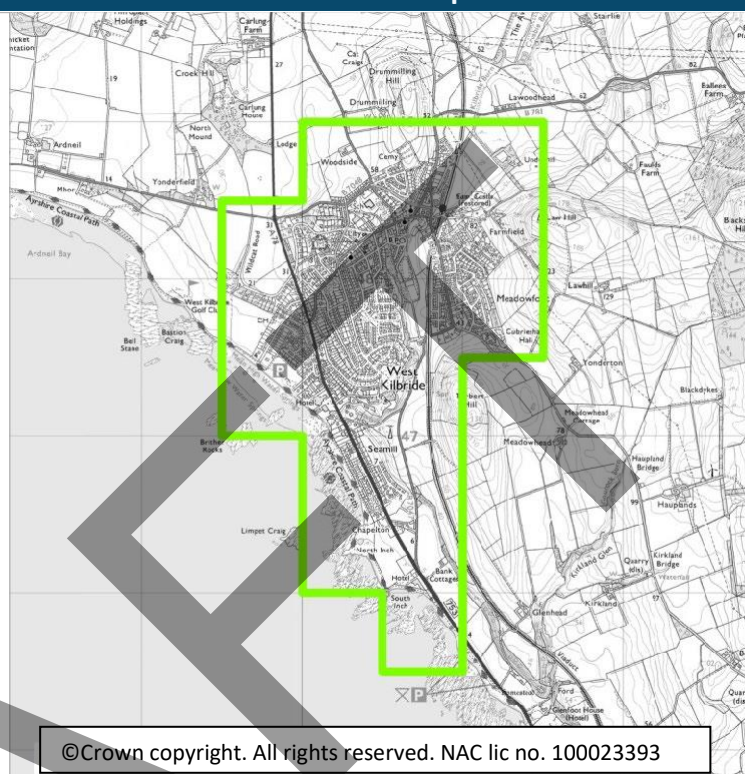
West Kilbride (target area 124)

Summary

The coastal village of West Kilbride is located within the North Ayrshire local authority area. The main source of flooding in West Kilbride is surface water flooding, however there is also a risk from coastal and river flooding. There are approximately 270 people and 150 homes and businesses at risk of flooding.

This is likely to increase to 320 people and 180 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for coastal flooding by the shoreline management plan. There are periodic records of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

- Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.
- Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.
- Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
1241	Avoid flood risk	Avoid inappropriate development that increases flood risk in West Kilbride
1242	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in West Kilbride
1243	Reduce flood risk	Reduce the risk of flooding in West Kilbride

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area.

Actions proposed to start between 2022 and 2028

Sewer flood risk assessment (12401)	
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network.
Description	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Stevenston sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Delivery Lead	Scottish Water.
Indicative Delivery	2023-2025
Funding	Funding for this action is secured within Scottish Water's business plan.
Coordination	Outputs of this modelling assessment will be shared with local authorities and SEPA.
Local Detail	Scottish Water will undertake a modelling assessment in the Stevenston 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.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

Flood study (12402)

Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Description	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.
Delivery Lead	North Ayrshire Council.
Indicative Delivery	This study will be delivered during Cycle 3 (2028 - 2034).
Funding	This study will be funded through North Ayrshire Council's budget provided by Scottish Government.
Coordination	North Ayrshire Council will deliver this flood study with information provided by other relevant responsible authorities, which may include Scottish Water and SEPA.
Local Detail	<p>Following the proposed review of the Ayrshire Shoreline Management Plan and the proposed Scottish Water sewer flood risk assessment, this study shall investigate Flood Risk in West Kilbride.</p> <p>Where flood risk is confirmed, a second phase of the study shall be commissioned to scope the next steps towards reducing flood risk.</p>

Shoreline management plan (coastal adaptive plan) (12403)

Action	The existing assessment of coastal flood and erosion risk is to be reviewed and updated as required. The plan should include assessment of climate change and develop adaptive approaches to allow for the impacts of climate change to be monitored, understood and managed.
Description	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.
Delivery Lead	North Ayrshire Council.
Indicative Delivery	This action will be delivered during Cycle 3 (2028 - 2034)
Funding	This action will be funded through North Ayrshire Council's budget provided by Scottish Government, subject to any future funding review.
Coordination	North Ayrshire Council will work with other relevant responsible authorities, statutory bodies and key stakeholders identified through the scoping stage of the planned update to the shoreline management plan.
Local Detail	Details of this action will be informed by developments in flood risk management planning between 2022-2028.

Community engagement (12404)	
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.
Delivery Lead	North Ayrshire Council.
Indicative Delivery	This action will be delivered during Cycle 3 (2028 - 2034).
Funding	This action shall be funded through North Ayrshire Council's budget provided by Scottish Government, subject to any future funding review.
Coordination	Work by the responsible authorities to develop understanding and help communities reduce their risk will be coordinated through the Local Plan District Partnership.
Local Detail	Community engagement will be carried out to inform stakeholders about the latest understanding of flood risk following the updated Shoreline Management Plan and the proposed Scottish Water sewer flood risk assessment.

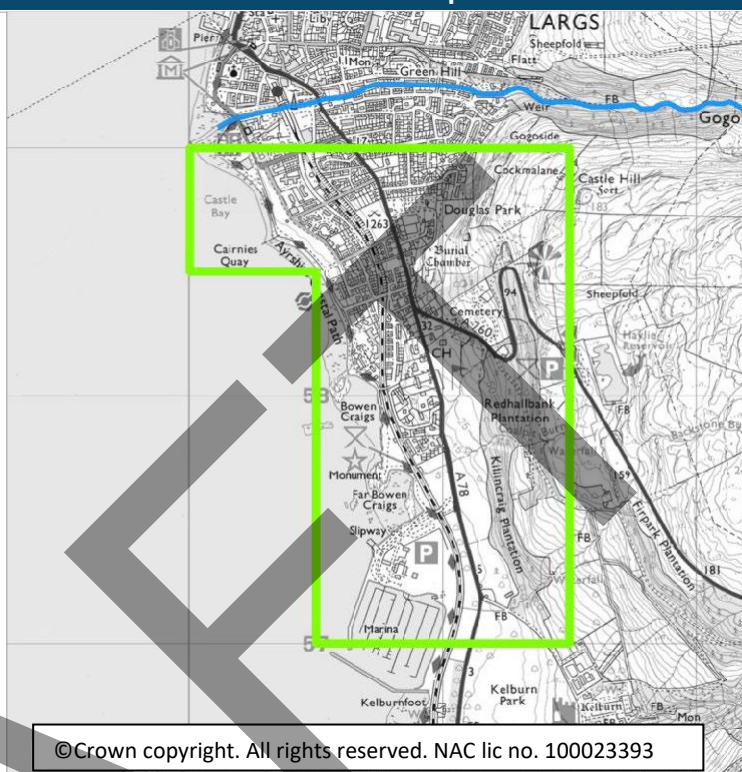
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

Largs south (target area 149)

Summary

Largs South includes the southern part of the coastal town of Largs, which is located near Haylie Reservoir. The area is located within the North Ayrshire local authority area. The main source of flooding in Largs South is from surface water flooding, however there is also a risk of coastal flooding. There are approximately 110 people and 70 homes and businesses currently at risk from flooding. This is likely to increase to 160 people and 141 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for coastal flooding by the shoreline management plan and for surface water flooding by the sewer flood risk assessment. There are periodic records of flooding in this target area.

The Dynamic Coast project has shown that parts of the shoreline in or adjacent to this target area are subject to erosion at present or are considered likely to erode in the future. Consideration should be given to how erosion might impact flood risk. Any actions taken should aim to support building natural resilience to flooding and not lead to an increase in erosion.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

- Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.
- Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.
- Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple benefits.

Objective ref	Objective type	Objective Description
1491	Avoid flood risk	Avoid inappropriate development that increases flood risk in Largs
1492	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Largs
1493	Reduce flood risk	Reduce the risk of flooding in Largs

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area.

Actions proposed to start between 2022 and 2028

Flood warning maintenance (14901)	
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Description	SEPA should maintain the Firth of Clyde coastal flood warning scheme.
Delivery Lead	SEPA.
Indicative Delivery	Ongoing.
Funding	SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	SEPA will work with the local authorities on the potential to use information from the flood schemes and studies along the Firth of Clyde to inform ongoing flood warning. SEPA will continue to raise awareness of flood warning, and engage with communities
Local Detail	N/A.
Strategic mapping improvements (14902)	
Action	SEPA will continue to update flood maps based on new information.
Description	SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.
Delivery Lead	SEPA.
Indicative Delivery	2025-2028.
Funding	SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	SEPA will work with the local authority on the potential to coordinate the flood map update with any other actions being carried out to understand or reduce coastal flooding.
Local Detail	N/A.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

Shoreline management plan (coastal adaptive plan) (14903)	
Action	The existing assessment of coastal flood and erosion risk is to be reviewed and updated as required. The plan should include assessment of climate change and develop adaptive approaches to allow for the impacts of climate change to be monitored, understood and managed.
Description	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.
Delivery Lead	North Ayrshire Council.
Indicative Delivery	This action will be delivered during Cycle 3 (2028 - 2034)
Funding	This action will be funded through North Ayrshire Council's budget provided by Scottish Government, subject to any future funding review.
Coordination	North Ayrshire Council will work with other relevant responsible authorities, statutory bodies and key stakeholders identified through the scoping stage of the planned update to the shoreline management plan.
Local Detail	Details of this action will be informed by developments in flood risk management planning between 2022-2028.

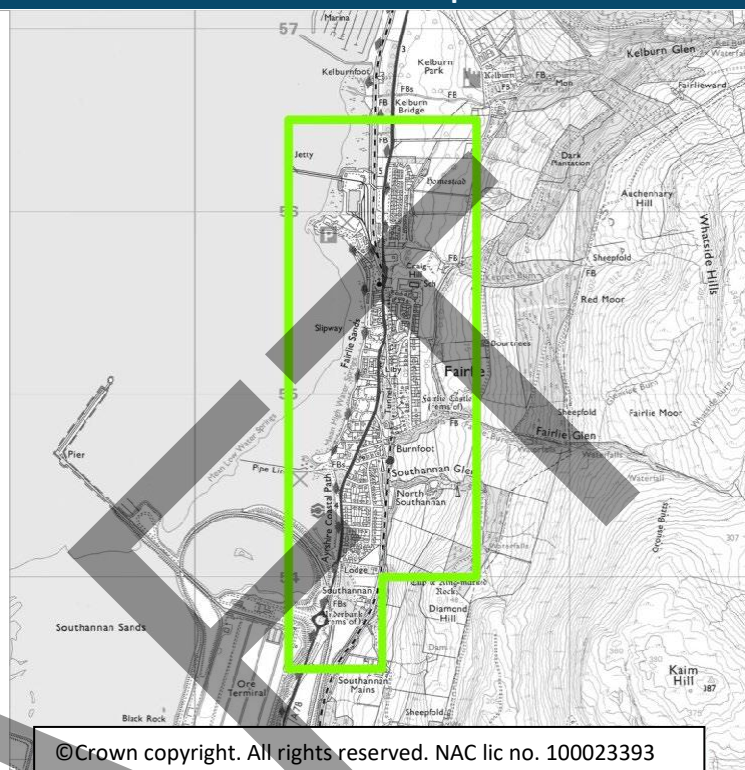
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

Fairlie (target area 155)

Summary

The coastal village of Fairlie is located within the North Ayrshire Council area. The main sources of flooding in Fairlie are coastal and surface water flooding. There are approximately 380 people and 200 homes and businesses at risk from flooding. This is likely to increase to 480 people and 260 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for river flooding by the Fairlie Flood Alleviation Project Option Review and Appraisal (2019) and for coastal flooding by the shoreline management plan. There is a long record of flooding in this target area.

The Dynamic Coast project has shown that parts of the shoreline in or adjacent to this target area are subject to erosion at present or are considered likely to erode in the future. Consideration should be given to how erosion might impact flood risk. Any actions taken should aim to support building natural resilience to flooding and not lead to an increase in erosion.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

- Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.
- Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.
- Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple benefits.

Objective ref	Objective type	Objective Description	Appendix 2
1551	Avoid flood risk	Avoid inappropriate development that increases flood risk in Fairlie	
1552	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Fairlie	
1553	Reduce flood risk	Reduce the risk of flooding in Fairlie	

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area.

NatureScot has identified that they have 'place priorities' for this Target Area. During the implementation of the following actions, the delivery lead should consider engaging with NatureScot to investigate opportunities to deliver on shared priorities.

Actions proposed to start between 2022 and 2028

Flood scheme or works design (15501)	
Action	The selected preferred approach for managing flood risk is to be designed following the completion of the flood study, including consideration of the long-term impacts of climate change. These can include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	North Ayrshire Council to develop detailed design for Fairlie Flood Protection Scheme based on the preferred option from the flood study and stakeholder engagement. The preferred option provides a standard of protection for the 1 in 200 year (0.5% annual exceedance probability) event plus a 20% allowance for climate change and consists of channel widening, regrading and culvert enlarging. The responsible authority proposes this action as the best viable option for managing flood risk in this community. The delivery of this action is subject to capital funding being made available.
Delivery Lead	North Ayrshire Council.
Indicative Delivery	The flood scheme design shall be completed during Cycle 2 (2022 - 2028). The delivery of this action is subject to Scottish Government capital grant funding being made available.
Funding	The funding arrangements for Cycle 2 'flood scheme or works design' actions are still to be confirmed by the Scottish Government and COSLA joint funding group. Until the funding arrangements for these actions and the community engagement actions related to flood scheme or works design are confirmed, the draft Local FRM Plan for the Ayrshire Local Plan District cannot be fully finalised.
Coordination	North Ayrshire Council will deliver this action in coordination with the Scottish Government and SEPA along with Network Rail and Transport Scotland as the detailed design would affect their assets. SEPA will work with the local authority on the potential to coordinate this action with work on coastal flood mapping.
Local Detail	The detailed design of the Fairlie Flood Protection Scheme is to include joint working with Network Rail and Transport Scotland to provide a scheme that will reduce flood risk to the nearby railway line and the trunk

road network as well as providing protection to 41 properties in a 1 in 200-year flood event plus a 20% allowance for climate change. Appendix 2
North Ayrshire Council proposes this action as the best viable option for managing flood risk in this community.

Community engagement (15502)

Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	North Ayrshire Council to carry out community engagement linked to the proposed (funding dependant) Fairlie Flood Protection Scheme. A community engagement plan will be created to cover the time period from detailed design to implementation of the flood protection solution.
Delivery Lead	North Ayrshire Council.
Indicative Delivery	Community engagement will be an ongoing action throughout Cycle 2 (2022 - 2028).
Funding	The funding arrangements for Cycle 2 'flood scheme or works design' actions are still to be confirmed by the Scottish Government and COSLA joint funding group. Until the funding arrangements for these actions and the community engagement actions related to flood scheme or works design are confirmed, the draft Local FRM Plan for the Ayrshire Local Plan District cannot be fully finalised.
Coordination	Work by the responsible authorities to develop understanding and help communities reduce their risk will be coordinated through the Local Plan District Partnership.
Local Detail	Community engagement will be carried out where issues, constraints, aspirations and opportunities are identified through the development of the detailed design and the implementation of the Fairlie Flood Protection Scheme.

Strategic mapping improvements (15503)

Action	SEPA will continue to update flood maps based on new information.
Description	SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.
Delivery Lead	SEPA.
Indicative Delivery	2025-2028.
Funding	SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	SEPA will work with the local authority on the potential to coordinate the flood map update with any other actions being carried out to understand or reduce coastal flooding.
Local Detail	N/A.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

02/12/03 (Upper Garnock catchment)

This area is designated as a potentially vulnerable area due to flood risk to Dalry and Kilbirnie. The main source of flooding is the River Garnock and its tributaries, with some risk from surface water flooding. There is a history of flooding in this area, with recent flooding being caused by flooding from the River Garnock.

There are 2 target areas in this potentially vulnerable area, which have been the focus of further assessment, these are listed below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

Dalry

Kilbirnie and Glengarnock

(target area 76)

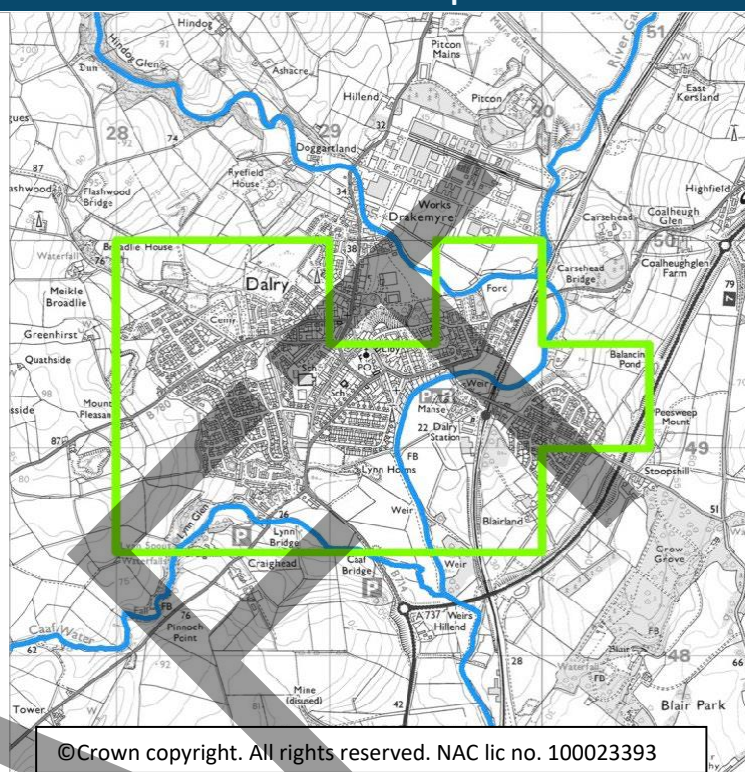
(target area 97)

Dalry (target area 76)

Summary

Dalry is a small town located on the banks of the River Garnock, Caaf Water and Rye Water. The area is located within the North Ayrshire local authority area. The main source of flooding in Dalry is river flooding, however there is also a risk from surface water. There are approximately 300 people and 150 homes and businesses currently at risk from flooding. This is likely to increase to 380 people and 190 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for river flooding by the studies supporting the present development of the Upper Garnock Flood Protection Scheme. There is a long record of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

- Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.
- Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.
- Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
761	Avoid flood risk	Avoid inappropriate development that increases flood risk in Dalry
762	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Dalry
763	Reduce flood risk	Reduce the risk of flooding in Dalry

Appendix 2

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area.

NatureScot has identified that they have 'place priorities' for this Target Area. During the implementation of the following actions, the delivery lead should consider engaging with NatureScot to investigate opportunities to deliver on shared priorities.

Actions proposed to start between 2022 and 2028

Flood scheme or works implementation (7601)	
Action Description	The flood scheme is currently under construction. The flood scheme in Dalry consists of a flood defence wall between the Mill Park residential estate and Beith Road and a low flood defence embankment to the south. The estate will be protected by the railway embankment to the east. This requires the construction of embankment stabilisation measures. Limited works are also being undertaken to protect infrastructure within the DSM plant.
Delivery Lead	North Ayrshire Council.
Indicative Delivery	The Upper Garnock Flood Protection Scheme is under construction, which will be completed in the early part of Cycle 2.
Funding	80% of eligible scheme costs qualify for Scottish Government capital grant funding. The remaining 20% of eligible costs and any other associated costs shall be met by North Ayrshire Council's budget.
Coordination	North Ayrshire Council will coordinate with SEPA, Scottish Water, local residents, landowners and other stakeholders throughout the implementation of the flood scheme. SEPA will work with the local authority on the potential to coordinate this action with an update to SFDAD and flood warning actions.
Local Detail	The Flood Protection Scheme measures in this target area shall be fully implemented by the end of 2022 / first half of 2023.

Community engagement (7602)

Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	North Ayrshire Council began engagement in the community in Dalry associated with the Upper Garnock Flood Protection Scheme which began construction in August 2020.
Delivery Lead	North Ayrshire Council.
Indicative Delivery	Community engagement will be an ongoing action throughout Cycle 2 (2022 - 2028).
Funding	This action shall be funded through North Ayrshire Council's budget provided by Scottish Government, subject to any future funding review.
Coordination	Work by the responsible authorities to develop understanding and help communities reduce their risk will be coordinated through the Local Plan District Partnership.
Local Detail	North Ayrshire Council shall update the relevant community flood resilience plan to account for expected changes in flood risk over the lifespan of the Flood Protection Scheme.

Sewer flood risk assessment (7603)

Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network.
Description	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Stevenston sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Delivery Lead	Scottish Water
Indicative Delivery	2025-2027
Funding	Funding for this action is secured within Scottish Water's business plan.
Coordination	Outputs of this modelling assessment will be shared with local authorities and SEPA.
Local Detail	Scottish Water will undertake a modelling assessment in the Stevenston 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.

Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Description	SEPA should maintain the River Garnock flood warning scheme. The scheme should be investigated for improvement and/or recalibration.
Delivery Lead	SEPA.
Indicative Delivery	Second half of cycle.
Funding	SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	SEPA will work with North Ayrshire Council on the potential coordinate flood warning improvements with flood scheme and flood studies work. SEPA will continue to raise awareness of flood warning, and engage with communities about the service when required.
Local Detail	N/A.

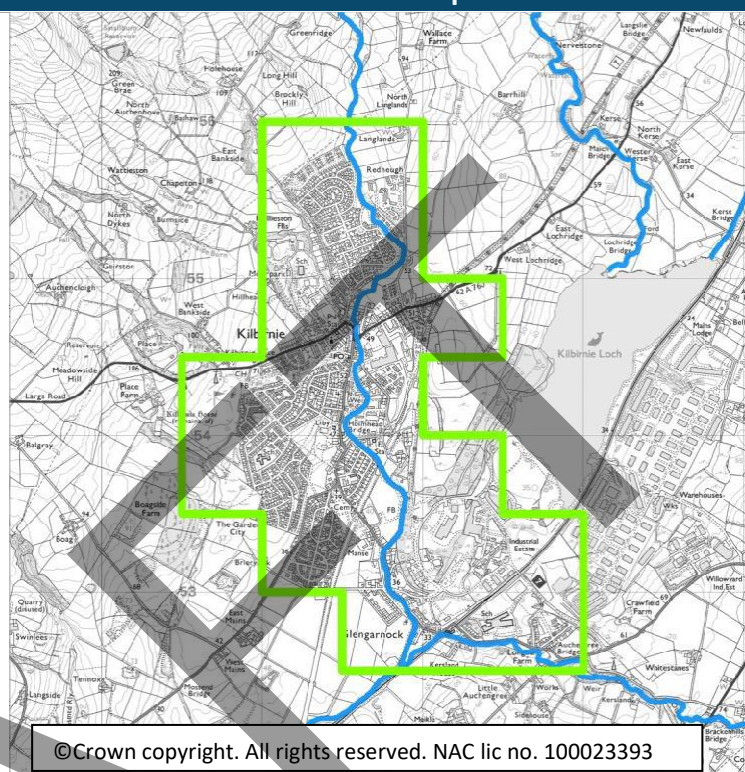
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

Kilbirnie and Glengarnock (target area 97)

Summary

Kilbirnie and Glengarnock are located near Kilbirnie Loch at the banks of the River Garnock. They are located within the North Ayrshire local authority area. The main sources of flooding in this area are river and surface water flooding. There are approximately 2,100 people and 1,200 homes and businesses currently at risk of flooding. This is likely to increase to 2,400 people and 1,300 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for river flooding by the studies supporting the present development of the Upper Garnock Flood Protection Scheme. There is a long record of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

- Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.
- Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.
- Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes

Objective ref	Objective type	Objective Description
971	Avoid flood risk	Avoid inappropriate development that increases flood risk in Kilbirnie and Glengarnock
972	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Kilbirnie and Glengarnock
973	Reduce flood risk	Reduce the risk of surface water and river flooding in Kilbirnie and Glengarnock

Appendix 2

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area.

NatureScot has identified that they have 'place priorities' for this Target Area. During the implementation of the following actions, the delivery lead should consider engaging with NatureScot to investigate opportunities to deliver on shared priorities.

Actions proposed to start between 2022 and 2028

Flood scheme or works implementation (9701)	
Action Description	<p>The flood scheme is currently under construction.</p> <p>The flood scheme in north of Kilbirnie involves the construction of the flood storage dam across the River Garnock at Greenridge and Langlands Farms just north of Kilbirnie. This will temporarily reduce river flow during periods of high rainfall, to reduce flood risk to properties downstream. Works at Paddockholm Industrial Estate Kilbirnie include the reinstatement of flood defence walls and the construction of a new flood defence embankment, in order to reduce flood risk to this area. Works at Powgree Burn, Glengarnock include the construction of a formal flood defence wall adjacent to the Powgree Burn and the Glendale Arms.</p>
Delivery Lead	North Ayrshire Council.
Indicative Delivery	The Upper Garnock Flood Protection Scheme is under construction, which will be completed in the early part of Cycle 2.
Funding	80% of eligible scheme costs qualify for Scottish Government grant funding. The remaining 20% of eligible costs and any other associated costs shall be met by North Ayrshire Council's budget.
Coordination	North Ayrshire Council will coordinate with SEPA, Scottish Water, local residents, landowners and other stakeholders throughout the implementation of the flood scheme. SEPA will work with the local authority on the potential to coordinate this action with an update to SFDAD and flood warning actions.
Local Detail	The Flood Protection Scheme measures in this target area shall be fully implemented by the end of 2022 / first half of 2023.

Community engagement (9702)

Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	The local flood risk management plans published in December 2022 will establish further detail on the actions.
Delivery Lead	North Ayrshire Council.
Indicative Delivery	Community engagement will be an ongoing action throughout Cycle 2 (2022 - 2028).
Funding	This action shall be funded through North Ayrshire Council's budget provided by Scottish Government, subject to any future funding review.
Coordination	Work by the responsible authorities to develop understanding and help communities reduce their risk will be coordinated through the Local Plan District Partnership.
Local Detail	North Ayrshire Council shall update the relevant community flood resilience plan to account for expected changes in flood risk over the lifespan of the Flood Protection Scheme.

Flood study (9703)

Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Description	The existing models for the flood protection scheme should be reviewed and flood warning operations to assess the existence of any residual risks from river, surface water and sewer sources. The impacts of climate change on flood risk should be evaluated. If flood risk is confirmed, scoping of the next steps should be completed.
Delivery Lead	North Ayrshire Council.
Indicative Delivery	This study will be delivered during the first half of Cycle 2 (2022 - 2025).
Funding	This study will be funded through North Ayrshire Council's budget provided by the Scottish Government.
Coordination	North Ayrshire Council will deliver this flood study with information provided by other relevant responsible authorities, which may include Scottish Water and SEPA. SEPA will work with the local authority on the potential to coordinate this action with flood warning actions.
Local Detail	Following the completion of the Upper Garnock Flood Protection Scheme, this study shall investigate residual flood risk from all sources within Kilbirnie and Glengarnock. Where flood risk is confirmed, a second phase of the study shall be commissioned to scope the next steps towards reducing flood risk.

Flood study (options appraisal) (9704)	
Action	In areas where flood risk is confirmed, a range of possible options to manage flood risk are to be identified, including natural flood management actions where suitable, and a preferred approach is to be chosen. This should include adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	<p>A natural flood management study for the Upper Garnock has already been completed.</p> <p>The objective of the natural flood management study is to investigate the potential benefit of runoff control and sediment management in the catchments of the River Garnock tributaries around Kilbirnie and Glengarnock in order to contribute to the reduction of risk of river and surface water flooding to residential properties and non-residential properties in Kilbirnie, Glengarnock and Longbar.</p> <p>The completed study has identified opportunities for natural flood management and has assessed their effectiveness.</p>
Delivery Lead	North Ayrshire Council
Indicative Delivery	This study was completed before the Local Flood Risk Management Plan publication date.
Funding	This completed study was funded through North Ayrshire Council's budget provided by Scottish Government.
Coordination	SEPA will work with the local authority on the potential to coordinate the findings of the study with flood warning actions.
Local Detail	The second phase of the Upper Garnock Natural Flood Management Study is complete. The findings of the study shall be shared with stakeholders to help support any prospective funding bid for the design and implementation of any of the measures contained in the study.

Sewer flood risk assessment (9705)

Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network.
Description	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Stevenston sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Delivery Lead	Scottish Water
Indicative Delivery	2025-2027
Funding	Funding for this action is secured within Scottish Water's business plan.
Coordination	Outputs of this modelling assessment will be shared with local authorities and SEPA.
Local Detail	Scottish Water will undertake a modelling assessment in the Stevenston 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.

Flood warning maintenance (9706)

Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Description	SEPA should maintain the River Garnock flood warning scheme. The scheme should be investigated for improvement and/or recalibration.
Delivery Lead	SEPA.
Indicative Delivery	Second half of cycle.
Funding	SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	SEPA will work with North Ayrshire Council on the potential coordinate flood warning improvements with flood scheme and flood studies work. SEPA will continue to raise awareness of flood warning, and engage with communities about the service when require
Local Detail	N/A.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

02/12/04 (Lower Irvine and Annick Water catchment)

This area is designated as a potentially vulnerable area due to flood risk to Dundonald, Irvine and Stewarton. The main sources of flooding are from the River Irvine and Annick water and from surface water. Recent floods have been caused by surface water flooding.

There are 3 target areas in this potentially vulnerable area, which have been the focus of further assessment, these are listed below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

Irvine
Stewarton
Dundonald

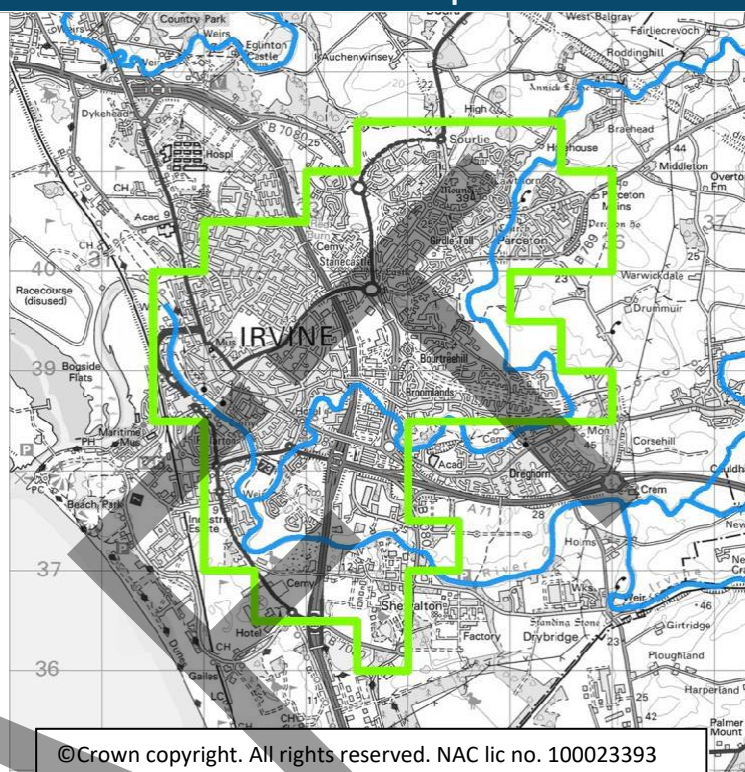
(target area 21)
(target area 122)
(target area 21001)

Irvine (target area 21)

Summary

Irvine covers the majority of the town of Irvine and includes the River Irvine, Annick Water and Red Burn. The area is located within the North Ayrshire local authority area. The main source of flooding in the area is river flooding, however there is also risk from coastal and surface water flooding. There are around 3,700 people and 2,100 homes and businesses at risk from flooding. This is likely to increase to 4,100 people and 2,300 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for river flooding by the Lower Irvine flood study (2019) and for coastal flooding by the shoreline management plan. Understanding has also improved for surface water as a result of the integrated catchment study which also assessed the interactions between the different flood sources. There is a long record of flooding in this target area.

The Dynamic Coast project has shown that parts of the shoreline in or adjacent to this target area are subject to erosion at present or are considered likely to erode in the future. Consideration should be given to how erosion might impact flood risk. Any actions taken should aim to support building natural resilience to flooding and not lead to an increase in erosion.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

- Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.
- Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources. Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
211	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of Irvine Waterside Flood Embankment Flood Protection Scheme
212	Avoid flood risk	Avoid inappropriate development that increases flood risk in Irvine
213	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Irvine
214	Reduce flood risk	Reduce the risk of flooding in Irvine

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area.

NatureScot has identified that they have 'place priorities' for this Target Area. During the implementation of the following actions, the delivery lead should consider engaging with NatureScot to investigate opportunities to deliver on shared priorities.

Actions proposed to start between 2022 and 2028

Action	The selected preferred approach for managing flood risk is to be designed following the completion of the flood study, including consideration of the long-term impacts of climate change. These can include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed. The performance and condition of the existing flood defences is to be evaluated, including consideration of the likely impacts of climate change. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	<p>North Ayrshire Council to develop detailed design of the Lower Irvine Valley Flood Scheme, based on the preferred option from the flood study and public engagement. The preferred option consists of a combination of property level direct defences in the form of flood walls and flood embankment.</p> <p>Following the outputs from the Lower River Irvine flood study on the present performance of the Waterside Flood Protection Scheme, the study should focus primarily on establishing the predicted standard of protection for a number of climate change scenarios. This information will underpin the development of an adaptation plan for the long term protection of the community.</p> <p>The responsible authority proposes this action as the best viable option for managing flood risk in this community. The delivery of this action is subject to capital funding being made available.</p>
Delivery Lead	North Ayrshire Council.
Indicative Delivery	The flood scheme design shall be completed during Cycle 2 (2022 - 2028). The delivery of this action is subject to Scottish Government capital grant funding being made available.
Funding	The funding arrangements for Cycle 2 'flood scheme or works design' actions are still to be confirmed by the Scottish Government and COSLA joint funding group. Until the funding arrangements for these actions and the community engagement actions related to flood scheme or works design are confirmed, the draft Local FRM Plan for the Ayrshire Local Plan District cannot be fully finalised.
Coordination	<p>North Ayrshire Council will coordinate with SEPA, Scottish Water, local residents, landowners and other stakeholders throughout the design development of the flood scheme.</p> <p>SEPA will work with the local authority on the potential to coordinate this action with work on coastal flood mapping.</p>
Local Detail	<p>The detailed design for the Lower Irvine Flood Protection Scheme is to include the predicted standard of protection of the existing Waterside Flood Protection Scheme for a number of climate change scenarios. This information will support a climate change adaptive plan for this flood protection asset.</p> <p>North Ayrshire Council proposes this action as the best viable option for managing flood risk in this community.</p>

Community engagement (2102)

Appendix 2

Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	North Ayrshire Council to carry out community engagement linked to the proposed (funding dependant) Lower River Irvine Flood Scheme. A community engagement plan will be created to cover the time period from detailed design to implementation of the flood protection solution. The delivery of this action is subject to capital funding being made available.
Delivery Lead	North Ayrshire Council.
Indicative Delivery	Community engagement will be an ongoing action throughout Cycle 2 (2022 - 2028).
Funding	The funding arrangements for Cycle 2 'flood scheme or works design' actions are still to be confirmed by the Scottish Government and COSLA joint funding group. Until the funding arrangements for these actions and the community engagement actions related to flood scheme or works design are confirmed, the draft Local FRM Plan for the Ayrshire Local Plan District cannot be fully finalised.
Coordination	Work by the responsible authorities to develop understanding and help communities reduce their risk will be coordinated through the Local Plan District Partnership.
Local Detail	Community engagement will be carried out where issues, constraints, aspirations and opportunities are identified through the development of the detailed design and the implementation of the Lower River Irvine Flood Protection Scheme.

Sewer flood risk assessment (2103)

Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network.
Description	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Meadowhead sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Delivery Lead	Scottish Water
Indicative Delivery	2023-2025
Funding	Funding for this action is secured within Scottish Water's business plan.
Coordination	Outputs of this modelling assessment will be shared with local authorities and SEPA.
Local Detail	Scottish Water will undertake a modelling assessment 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.

Flood defence maintenance (2104)

Appendix 2

Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Description	North Ayrshire Council is to continue to inspect and maintain the Irvine Waterside Flood Embankment Flood Protection Scheme.
Delivery Lead	North Ayrshire Council.
Indicative Delivery	Flood defence maintenance will be an ongoing action throughout Cycle 2 (2022 - 2028).
Funding	Maintenance works as required will be funded through North Ayrshire Council's budget provided by Scottish Government.
Coordination	North Ayrshire Council will work in coordination with all relevant stakeholders identified through the planning and implementation of maintenance works.
Local Detail	North Ayrshire Council shall continue to inspect and maintain the Irvine Waterside Flood Embankment Protection Scheme.

Flood warning maintenance (2105)

Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Description	SEPA should maintain the Ayr, Annick and Irvine flood warning schemes.
Delivery Lead	SEPA.
Indicative Delivery	Ongoing.
Funding	SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	SEPA will maintain the Ayr, Annick and Irvine flood warning schemes. SEPA will continue to raise awareness of flood warning, and engage with communities about the service when required.
Local Detail	N/A.

Strategic mapping improvements (2106)

Appendix 2

Action Description	SEPA will continue to update flood maps based on new information.
	SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.
Delivery Lead	SEPA.
Indicative Delivery	2025-2028
Funding	SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	SEPA will work with the local authority on the potential to coordinate the flood map update with any other actions being carried out to understand or reduce coastal flooding.
Local Detail	N/A.

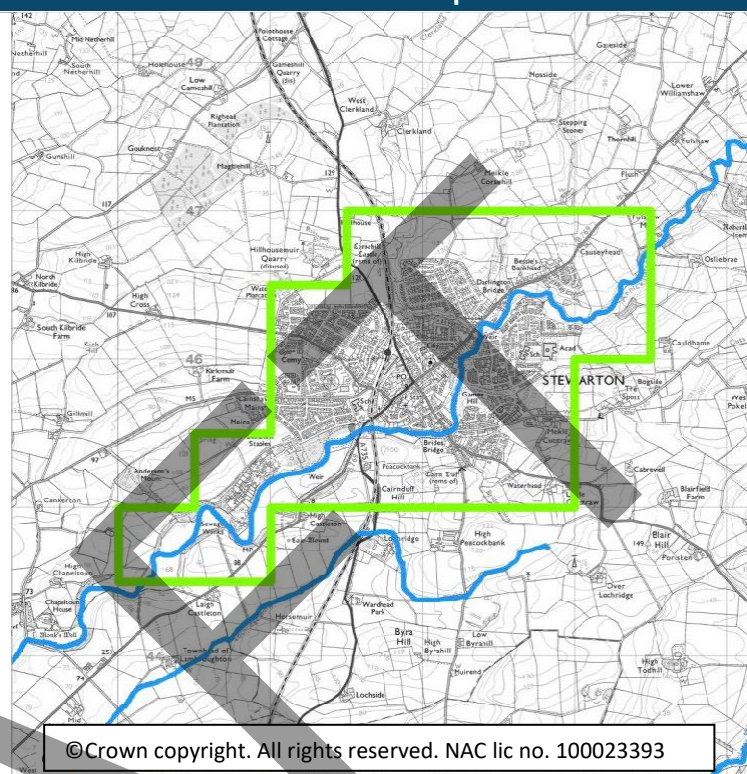
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

Stewarton (target area 122)

Summary

Stewarton is a town in East Ayrshire Council area located on the banks of Annick Water. The main sources of flooding in Stewarton are river and surface water flooding. There are approximately 160 people and 80 homes and businesses currently at risk from flooding. This is likely to increase to 230 people and 110 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, and surface water sources. The national level assessment is improved for river flooding by the flood warning scheme and for surface water flooding by the sewer flood risk assessment. Together, this information has highlighted the risk of flooding in this area. Stewarton has therefore been identified as a new target area for the 2021 flood risk management plans. There are periodic records of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

- Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.
- Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.
- Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
1221	Avoid flood risk	Avoid inappropriate development that increases flood risk in Stewarton
1222	Improve data and understanding	Improve data and understanding of river flooding in Stewarton
1223	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Stewarton
1224	Reduce flood risk	Reduce the risk of surface water flooding in Stewarton

Appendix 2

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area.

NatureScot has identified that they have 'place priorities' for this Target Area. During the implementation of the following actions, the delivery lead should consider engaging with NatureScot to investigate opportunities to deliver on shared priorities.

Actions proposed to start between 2022 and 2028

Data collection (12201)	
Action	Equipment that measures rainfall, river levels, erosion, ground levels or wave height may be installed and maintained to improve our understanding of flood risk. This can be done over short term or to measure longer term impacts.
Description	Data collection and monitoring will be carried out to inform the basis of future studies.
Delivery Lead	Action delivery lead is East Ayrshire Council and coordination will be determined once the actions have been finalised.
Indicative Delivery	This action will be delivered during Cycle 2 (2022 - 2028).
Funding	This action will be funded through East Ayrshire Council budgets provided by Scottish Government, subject to any future funding review.
Coordination	East Ayrshire Council. SEPA will work with the local authority on the potential to coordinate opportunities for joint data collection activities.
Local Detail	East Ayrshire Council shall continue to liaise with SEPA and utilise SEPA gauge information available for this catchment, as required.

Flood warning maintenance (12202)

Appendix 2

Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Description	SEPA should maintain the Ayr Annick and Irvine flood warning scheme.
Delivery Lead	SEPA.
Indicative Delivery	Ongoing.
Funding	SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	SEPA will maintain the Ayr, Annick and Irvine flood warning schemes. SEPA will continue to raise awareness of flood warning, and engage with communities about the service when required.
Local Detail	N/A.

Sewer flood risk assessment (12203)

Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network.
Description	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Stewarton sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Delivery Lead	Scottish Water.
Indicative Delivery	2024-2026.
Funding	Funding for this action is secured within Scottish Water's business plan.
Coordination	Outputs of this modelling assessment will be shared with local authorities and SEPA.
Local Detail	Scottish Water will undertake a modelling assessment 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.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.
Delivery Lead	East Ayrshire Council/Scottish Water
Indicative Delivery	This action will be delivered during Cycle 3 (2028 - 2034).
Funding	The surface water flood risk options appraisal will be funded through East Ayrshire Council's budget provided by Scottish Government or funded by Scottish Water's budget as appropriate.
Coordination	East Ayrshire Council, Scottish Water and SEPA.
Local Detail	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.

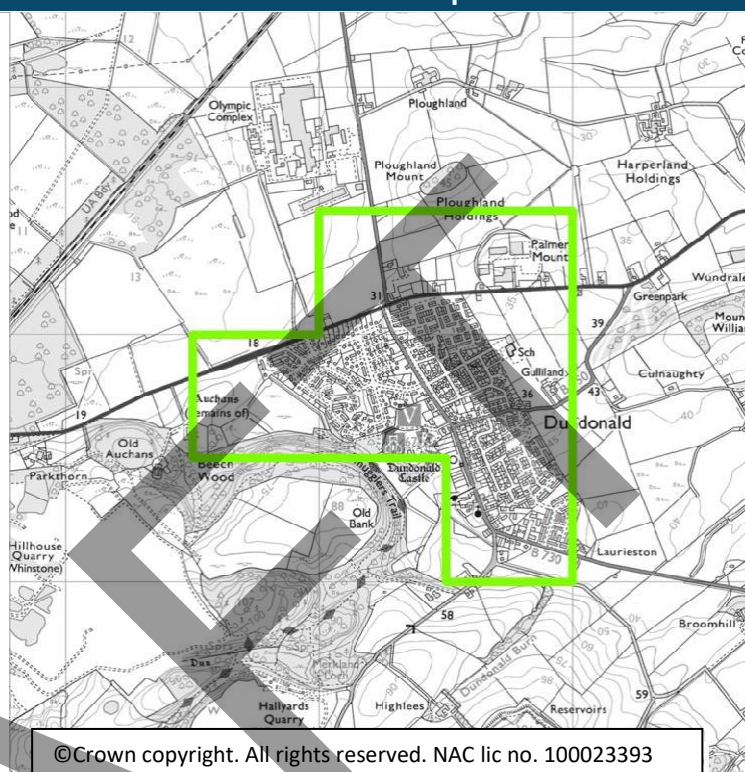
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

Dundonald (target area 21001)

Summary

The village of Dundonald is located in the west of Scotland. The area is located within the South Ayrshire Council area. The main source of flooding in Dundonald is surface water flooding. There are approximately 160 people and 80 homes and businesses currently at risk from flooding. This is likely to increase to 170 people and 90 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for surface water flooding by information from the floods that occurred in summer 2019. Before this floods there were periodic records of flooding in the Dundonald area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

- Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.
- Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.
- Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
210011	Avoid flood risk	Avoid inappropriate development that increases flood risk in Dundonald
210012	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Dundonald
210013	Reduce flood risk	Reduce the risk of surface water flooding in Dundonald

Appendix 2

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area. The local flood risk management plan published in 2022 provides more information on the actions, their timing and how they will be funded and coordinated.

NatureScot has identified that they have 'place priorities' for this Target Area. During the implementation of the following actions, the delivery lead should consider engaging with NatureScot to investigate opportunities to deliver on shared priorities.

Actions proposed to start between 2022 and 2028

Sewer flood risk assessment (2100101)	
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network.
Description	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Meadowhead sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Delivery Lead	Scottish Water.
Indicative Delivery	2023-2025
Funding	Funding for this action is secured within Scottish Water's business plan.
Coordination	Outputs of this modelling assessment will be shared with local authorities and SEPA.
Local Detail	Scottish Water will undertake a modelling assessment 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.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

Flood scheme or works design (2100102)

Appendix 2

Action	The selected preferred approach for managing flood risk is to be designed following the completion of the flood study, including consideration of the long-term impacts of climate change. These can include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	South Ayrshire Council to implement the surface water management plan working with Scottish water as appropriate. Following completion of the study detailed design to be developed for surface water management in Dundonald, based on the preferred option from the appraisal process.
Delivery Lead	Action delivery lead is South Ayrshire Council in coordination with Scottish Water.
Indicative Delivery	Cycle 2 (2022 - 2028).
Funding	The funding arrangements for Cycle 2 'flood scheme or works design' actions are still to be confirmed by the Scottish Government and COSLA joint funding group. Until the funding arrangements for these actions and the community engagement actions related to flood scheme or works design are confirmed, the draft Local FRM Plan for the Ayrshire Local Plan District cannot be fully finalised.
Coordination	This action will be lead by South Ayrshire Council in coordination with Scottish Water.
Local Detail	South Ayrshire Council to implement the surface water management plan working with Scottish water as appropriate. Following completion of the study detailed design to be developed for surface water management in Dundonald, based on the preferred option from the appraisal process.

Community engagement (2100103)

Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	Detailed design for the surface water management measures should be carried out in conjunction with community engagement where issues, constraints, aspirations and opportunities are identified. A community engagement plan should be created to cover the time period from detailed design to implementation of the preferred flood risk management option.
Delivery Lead	South Ayrshire Council
Indicative Delivery	Cycle 3 (2022 - 2028). The delivery of this action is subject to Scottish Government capital grant funding being made available.
Funding	The funding arrangements for Cycle 2 'flood scheme or works design' actions are still to be confirmed by the Scottish Government and COSLA joint funding group. Until the funding arrangements for these actions and the community engagement actions related to flood scheme or works design are confirmed, the draft Local FRM Plan for the Ayrshire Local Plan District cannot be fully finalised.
Coordination	South Ayrshire Council, SEPA and Scottish Water will continue to engage with responsible authorities and all other stakeholders, including community groups and the public.
Local Detail	Community engagement will be carried out where issues, constraints, aspirations and opportunities are identified. The community engagement plan shall be created to cover the time period from detailed design to implementation of the flood protection solution.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

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02/12/05 (Irvine to Troon)

This area is designated as a potentially vulnerable area due to flood risk to Irvine and Troon. The main sources of flooding are from coastal and river. Recent coastal flooding has occurred in the area.

There are 2 target areas in this potentially vulnerable area, which have been the focus of further assessment, these are listed below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

Irvine Coastal
Troon

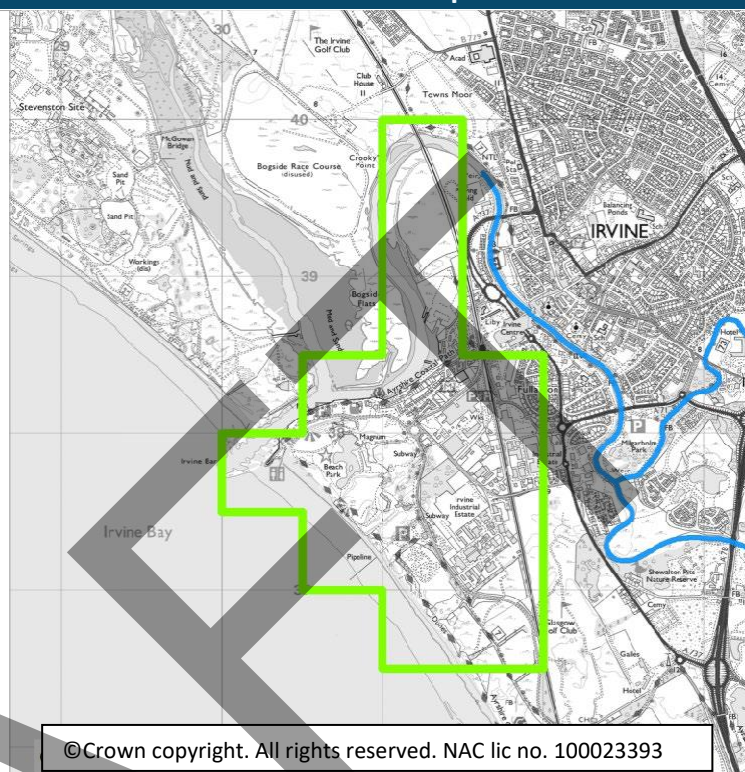
(target area 22)
(target area 123)

Irvine Coastal (target area 22)

Summary

Irvine coastal covers the coastal area of the town of Irvine. The area is located within the North Ayrshire local authority area. The main source of flooding in the area is river flooding, however there are also risks from coastal and surface water flooding. There are approximately 1,100 people and 640 homes and businesses at risk from flooding, which is a significant proportion of the community. This is estimated to increase to 1,200 people and 760 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for river flooding by the Lower Irvine flood study (2019) and for coastal flooding by the shoreline management plan. Understanding has also improved for surface water as a result of the integrated catchment study which also assessed the interactions between the different flood sources. There is a long record of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

- Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.
- Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.
- Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
221	Avoid flood risk	Avoid inappropriate development that increases flood risk in Irvine
222	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Irvine

Appendix 2

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area.

NatureScot has identified that they have 'place priorities' for this Target Area. During the implementation of the following actions, the delivery lead should consider engaging with NatureScot to investigate opportunities to deliver on shared priorities.

Actions proposed to start between 2022 and 2028

Flood study (2201)	
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Description	North Ayrshire Council to carry out a flood study to investigate the feasibility of natural flood management measures in the catchment to address flood risk and coastal erosion.
Delivery Lead	North Ayrshire Council.
Indicative Delivery	This study will be delivered during the second half of Cycle 2 (2025 - 2028).
Funding	This study will be funded through North Ayrshire Council's budget provided by Scottish Government.
Coordination	North Ayrshire Council will deliver this flood study with information provided by other relevant responsible authorities, which may include Scottish Water and SEPA. SEPA will work with the local authority on the potential to coordinate this action with work on coastal flood mapping.
Local Detail	This study shall investigate the feasibility of Natural Flood Management (NFM) measures to address flood risk coastal erosion, building on the findings identified by the completed Ayrshire Shoreline Management Plan.

Sewer flood risk assessment (2202)

Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network.
Description	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Meadowhead sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Delivery Lead	Scottish Water.
Indicative Delivery	2023-2025.
Funding	Funding for this action is secured within Scottish Water's business plan.
Coordination	Outputs of this modelling assessment will be shared with local authorities and SEPA.
Local Detail	Scottish Water will undertake a modelling assessment 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.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

Shoreline management plan (coastal adaptive plan) (2203)

Action	The existing assessment of coastal flood and erosion risk is to be reviewed and updated as required. The plan should include assessment of climate change and develop adaptive approaches to allow for the impacts of climate change to be monitored, understood and managed.
Description	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.
Delivery Lead	North Ayrshire Council.
Indicative Delivery	This action will be delivered during Cycle 3 (2028 - 2034)
Funding	This action will be funded through North Ayrshire Council's budget provided by Scottish Government, subject to any future funding review.
Coordination	North Ayrshire Council will work with other relevant responsible authorities, statutory bodies and key stakeholders identified through the scoping stage of the planned update to the shoreline management plan.
Local Detail	Details of this action will be informed by developments in flood risk management planning between 2022-2028.

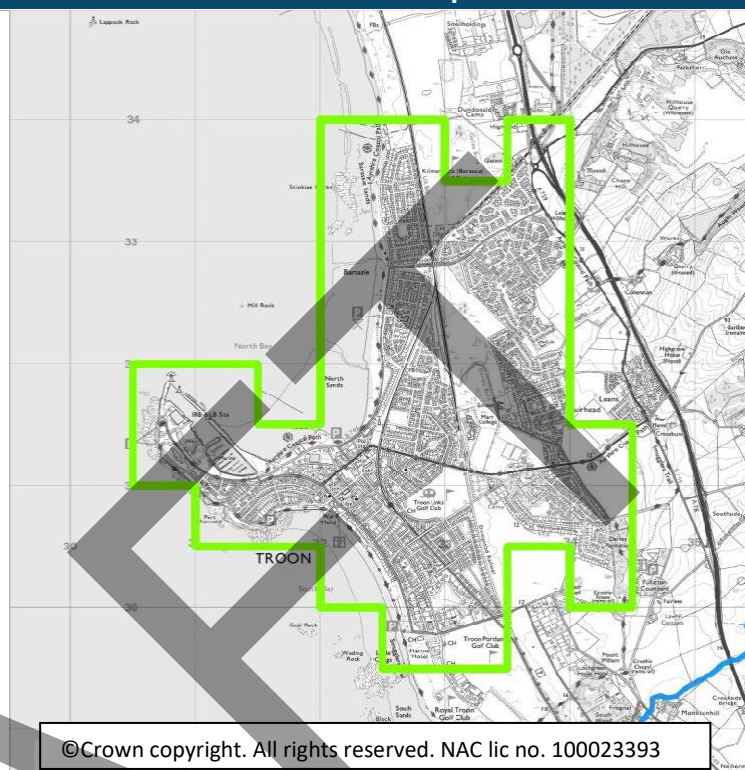
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

Troon (target area 123)

Summary

Troon is located on the west coast of Scotland within the North Ayrshire and South Ayrshire Council areas. The main source of flooding in Troon is from coastal flooding, however there are also risks from river and surface water flooding. There are approximately 3,000 people and 1,800 homes and businesses at risk from flooding. This is likely to increase to 4,000 people and 2,300 properties by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for surface water flooding by the sewer flood risk assessment and integrated catchment study, which also assesses the interactions between the different flood sources. Understanding is improved for coastal flooding by the shoreline management plan. There is a long record of flooding in this target area.

The Dynamic Coast project has shown that parts of the shoreline in or adjacent to this target area are subject to erosion at present or are considered likely to erode in the future. Consideration should be given to how erosion might impact flood risk. Any actions taken should aim to support building natural resilience to flooding and not lead to an increase in erosion.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

- Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.
- Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.
- Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description	Appendix 2
1231	Avoid flood risk	Avoid an increase in flood risk in Troon by the appropriate protection, management and maintenance of sand dunes	
1232	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of Troon coastal defences	
1233	Avoid flood risk	Avoid inappropriate development that increases flood risk in Troon	
1234	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Troon	
1235	Reduce flood risk	Reduce the risk of flooding in Troon	

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area.

NatureScot has identified that they have 'place priorities' for this Target Area. During the implementation of the following actions, the delivery lead should consider engaging with NatureScot to investigate opportunities to deliver on shared priorities.

Actions proposed to start between 2022 and 2028

Flood study (12301)	
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Description	A flood study should be carried out to address coastal flood risk in Troon. The shoreline management plan and operation of the existing defences, sand dunes and flood warning should be reviewed to ascertain the requirements of the flood study. The impacts of climate change on flood risk should be evaluated. The interactivity between coastal flooding and other sources of flooding should be assessed. If flood risk is confirmed, scoping of the next steps should be completed.
Delivery Lead	South Ayrshire Council.
Indicative Delivery	This action will be delivered during Cycle 2 (2022 - 2028).
Funding	This action will be funded through South Ayrshire Council's budget provided by Scottish Government, subject to any future funding review.
Coordination	South Ayrshire Council. SEPA will work with the local authority on the potential to coordinate this action with work on coastal flood mapping and flood warning actions.
Local Detail	The flood modelling being carried out for Troon Coastal Flood Study will be reviewed. Where flood risk is confirmed, scoping of the next steps will be completed.

Flood study (existing flood defences) (12302)

Appendix 2

Action	The performance and condition of the existing flood defences are to be evaluated, including consideration of the likely impacts of climate change. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	A study of the existing Troon Coastal Defences to be carried out following the outcomes of the coastal flood study. The study should establish the predicted standard of protection for a number of climate change scenarios. This information will underpin the development of an adaptation plan for the long term protection of the community.
Delivery Lead	South Ayrshire Council.
Indicative Delivery	This action will be delivered during Cycle 2 (2022 - 2028).
Funding	This study will be funded through South Ayrshire Council's budget provided by Scottish Government, subject to any future funding review.
Coordination	South Ayrshire Council and SEPA. SEPA will work with the local authority on the potential to coordinate this action with an update to SFDAD and work on coastal flood mapping.
Local Detail	Detailed survey and flood modelling will be carried out for the Troon Coastal Flood Study. The outcomes of the study will underpin the development of an adaption plan for the long term protection of the community.

Flood defence maintenance (12303)

Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Description	South Ayrshire Council is to continue to inspect and maintain the Troon coastal defences and sand dunes. The maintenance regime should be made based on the findings of the flood study.
Delivery Lead	South Ayrshire Council.
Indicative Delivery	This action will be delivered during Cycle 2 (2022 - 2028).
Funding	Maintenance works as required will be funded through South Ayrshire Council's budget provided by Scottish Government.
Coordination	South Ayrshire Council will work in coordination with all relevant stakeholders identified through the planning and implementation of maintenance works.
Local Detail	South Ayrshire Council shall continue to inspect and maintain the Troon coastal defences. The maintenance regime should be made based on the findings of the annual inspection programme and proposed coastal flood study.

Sewer flood risk assessment (12304)

Appendix 2

Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network.
Description	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Meadowhead sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Delivery Lead	Scottish Water.
Indicative Delivery	2023-2025.
Funding	Funding for this action is secured within Scottish Water's business plan.
Coordination	Outputs of this modelling assessment will be shared with local authorities and SEPA.
Local Detail	Scottish Water will undertake a modelling assessment 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.

Flood warning maintenance (12305)

Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Description	SEPA should maintain the Firth of Clyde coastal flood warning scheme.
Delivery Lead	SEPA.
Indicative Delivery	Ongoing.
Funding	SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	SEPA will work with the local authorities on the potential to use information from the flood schemes and studies along the Firth of Clyde to inform ongoing flood warning. SEPA will continue to raise awareness of flood warning, and engage with communities about the service when required.
Local Detail	N/A.

Strategic mapping improvements (12306)

Appendix 2

Action Description	SEPA will continue to update flood maps based on new information. SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.
Delivery Lead	SEPA.
Indicative Delivery	2025-2028.
Funding	SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	SEPA will work with the local authority on the potential to coordinate the flood map update with any other actions being carried out to understand or reduce coastal flooding.
Local Detail	N/A.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

02/12/06 (Kilmarnock and Upper Irvine catchment)

This area is designated as a potentially vulnerable area due to flood risk in Kilmarnock, Galston and Newmilns. The main sources of flooding are from the River Irvine and Kilmarnock Water, and surface water in the main towns. Recent flooding has occurred, which was due to both river and surface water.

There are 6 target areas in this potentially vulnerable area, which have been the focus of further assessment, these are listed below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

Kilmarnock
Crosshouse
Newmilns
Kilmaurs
Galston
Darvel

(target area 20)
(target area 75)
(target area 120)
(target area 147)
(target area 153)
(target area 154)

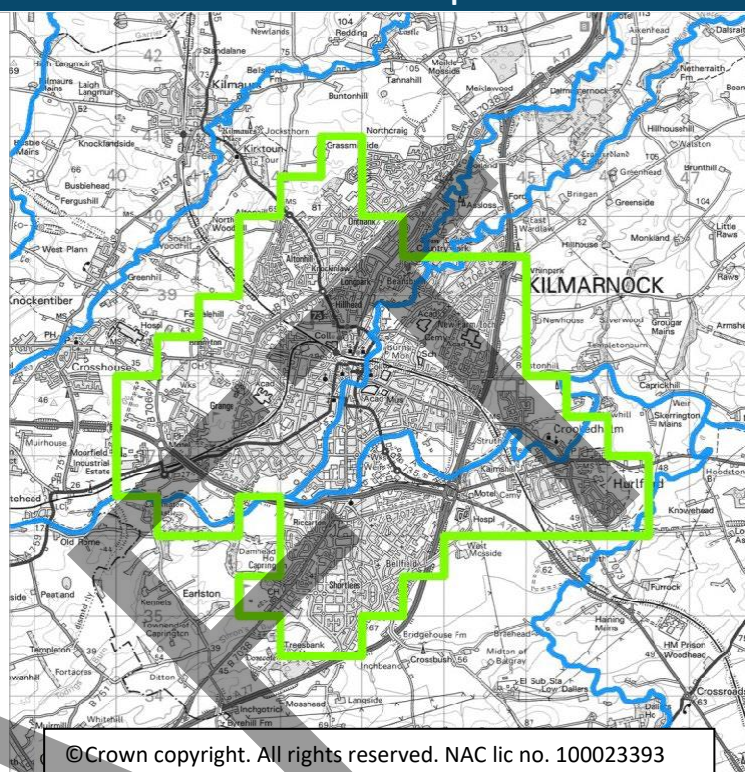
Kilmarnock (target area 20)

Summary

The town of Kilmarnock is located on the banks of the Kilmarnock Water and the River Irvine. The area is located within the East Ayrshire Council area. The main source of flooding in Kilmarnock is river flooding, however there is also a risk from surface water flooding. There are approximately 3,800 people and 2,400 homes and businesses at risk from flooding.

This is estimated to increase to 4,900 people and 3,000 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for river flooding by the Irvine Valley flood study (2019). Understanding has also improved as a result of the integrated catchment study which assessed the interactions between the different flood sources. There are frequent records of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

- Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.
- Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.
- Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
201	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of Kilmarnock flood protection scheme 2001
202	Avoid flood risk	Avoid inappropriate development that increases flood risk in Kilmarnock
203	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Kilmarnock
204	Reduce flood risk	Reduce the risk of flooding in Kilmarnock

Appendix 2

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area.

NatureScot has identified that they have 'place priorities' for this Target Area. During the implementation of the following actions, the delivery lead should consider engaging with NatureScot to investigate opportunities to deliver on shared priorities.

Actions proposed to start between 2022 and 2028

Flood scheme or works design (2001)	
Action	The selected preferred approach for managing flood risk is to be designed following the completion of the flood study, including consideration of the long-term impacts of climate change. These can include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed. The performance and condition of the existing flood defences is to be evaluated, including consideration of the likely impacts of climate change. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	East Ayrshire Council to develop detail design for the Upper Irvine Flood Protection Scheme based on the preferred option from the Upper Irvine flood Study (2018). The detail design is to include the predicted standard of protection of the Kilmarnock Flood Protection Scheme 2001 for a number of climate change scenarios. This information will support a climate change adaptive plan for this flood protection asset. The responsible authority proposes this action as the best viable option for managing flood risk in this community. The delivery of this action is subject to capital funding being made available.
Delivery Lead	East Ayrshire Council.
Indicative Delivery	Cycle 2 (2022 - 2028). The delivery of this action is subject to Scottish Government capital grant funding being made available.
Funding	The funding arrangements for Cycle 2 'flood scheme or works design' actions are still to be confirmed by the Scottish Government and COSLA joint funding group. Until the funding arrangements for these actions and the community engagement actions related to flood scheme or works design are confirmed, the draft Local FRM Plan for the Ayrshire Local Plan District cannot be fully finalised.
Coordination	East Ayrshire Council, North Ayrshire Council and SEPA.
Local Detail	The detail design for the Upper Irvine Flood Protection Scheme is to include the predicted standard of protection of the existing Kilmarnock Flood Protection Scheme ⁹⁰ (2001) for a number of climate change scenarios.

This information will support a climate adaptive plan for this flood protection asset.

Appendix 2

East Ayrshire Council proposes this action as the best viable option for managing flood risk in this community.

Community engagement (2002)

Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	The detailed design of the Upper Irvine Flood Protection Scheme (funding dependant) should be carried out in conjunction with community engagement where issues, constraints, aspirations and opportunities are identified. A community engagement plan should be created to cover the time period from detailed design to implement action of the flood protection solution.
Delivery Lead	East Ayrshire Council.
Indicative Delivery	Cycle 2 (2022 - 2028). The delivery of this action is subject to Scottish Government capital grant funding being made available.
Funding	The funding arrangements for Cycle 2 'flood scheme or works design' actions are still to be confirmed by the Scottish Government and COSLA joint funding group. Until the funding arrangements for these actions and the community engagement actions related to flood scheme or works design are confirmed, the draft Local FRM Plan for the Ayrshire Local Plan District cannot be fully finalised.
Coordination	East Ayrshire Council, SEPA and Scottish Water will continue to engage with responsible authorities and all other stakeholders, including community groups and the public.
Local Detail	Community engagement will be carried out where issues, constraints, aspirations and opportunities are identified. The community engagement plan shall be created to cover the time period from detailed design to implementation of the flood protection solution.

Flood defence maintenance (2003)

Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Description	East Ayrshire Council is to continue to inspect and maintain the Kilmarnock Flood Protection Scheme 2001. The maintenance regime should be informed by the outcomes of the flood study.
Delivery Lead	East Ayrshire Council.
Indicative Delivery	Cycle 2 (2022 - 2028).
Funding	Maintenance works as required will be funded through East Ayrshire Council's budget provided by Scottish Government.
Coordination	East Ayrshire Council will work in coordination with all relevant stakeholders identified through the planning and implementation of maintenance works.
Local Detail	East Ayrshire Council shall continue to inspect and maintain the Kilmarnock Flood Protection Scheme (2001). The maintenance regime should be informed by the outcomes of the flood study.

Sewer flood risk assessment (2004)

Appendix 2

Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Description	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Meadowhead sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Delivery Lead	Scottish Water.
Indicative Delivery	2023-2025
Funding	Funding for this action is secured within Scottish Water's business plan.
Coordination	Outputs of this modelling assessment will be shared with local authorities and SEPA.
Local Detail	Scottish Water will undertake a modelling assessment 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.

Flood study (options appraisal) (2005)

Action	In areas where flood risk is confirmed, a range of possible options to manage flood risk are to be identified, including natural flood management actions where suitable, and a preferred approach is to be chosen. This should include adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	Following the completion of the surface water management plan and Meadowhead integrated catchment study, surface water flood risk options appraisal should be developed for this target area.
Delivery Lead	East Ayrshire Council.
Indicative Delivery	This action will be delivered during Cycle 2 (2022 - 2028).
Funding	The surface water flood risk options appraisal will be funded through East Ayrshire Council's budget provided by Scottish Government or funded by Scottish Water's budget as appropriate.
Coordination	East Ayrshire Council, Scottish Water and SEPA.
Local Detail	The surface water management plan and the Meadowhead integrated catchment study were completed in Cycle 1 (2016 - 2022). The reduction of surface water flood risk options shall be progressed.

Flood warning maintenance (2006)

Appendix 2

Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Description	SEPA should maintain the Ayr, Annick and Irvine flood warning schemes.
Delivery Lead	SEPA.
Indicative Delivery	Ongoing.
Funding	SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	SEPA will maintain the Ayr, Annick and Irvine flood warning schemes. SEPA will continue to raise awareness of flood warning, and engage with communities about the service when required.
Local Detail	N/A.

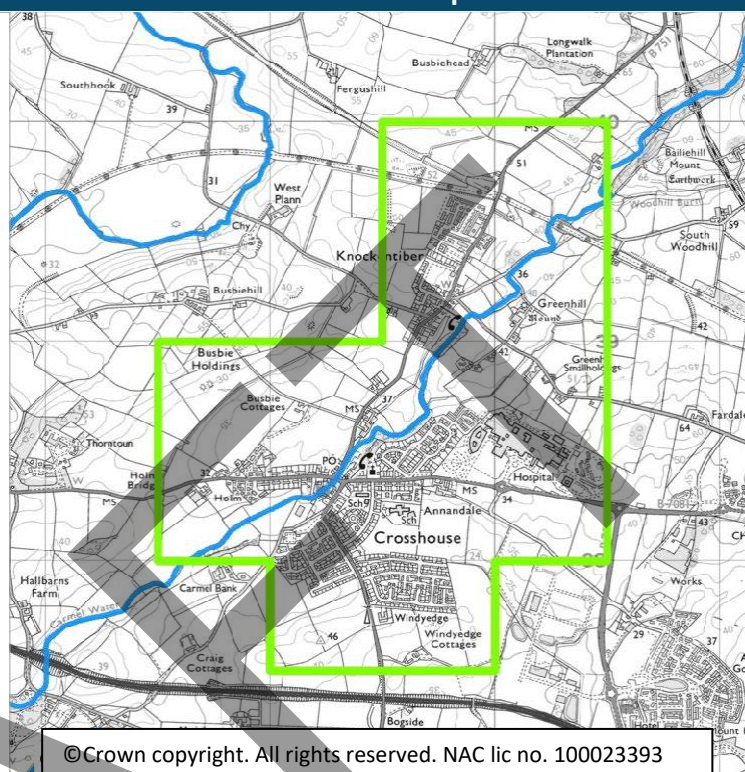
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

Crosshouse (target area 75)

Summary

Crosshouse is a village located approximately 7km east of Irvine. The area is within the East Ayrshire Council area. The main source of flooding in Crosshouse is river flooding, however there is also a risk from surface water flooding. There are approximately 160 people and 100 homes and businesses currently at risk from flooding. This is estimated to increase to 190 people and 120 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources, and this information has highlighted the risk of flooding in this area. Crosshouse has therefore been identified as a new target area for the 2021 flood risk management plans. There are periodic records of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

- Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.
- Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.
- Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
751	Avoid flood risk	Avoid inappropriate development that increases flood risk in Crosshouse
752	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Crosshouse
753	Reduce flood risk	Reduce the risk of flooding in Crosshouse

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area.

Actions proposed to start between 2022 and 2028

Data collection (7501)	
Action	Equipment that measures rainfall, river levels, erosion, ground levels or wave height may be installed and maintained to improve our understanding of flood risk. This can be done over short term or to measure longer term impacts.
Description	The local flood risk management plans published in December 2022 will establish further detail on the actions.
Delivery Lead	East Ayrshire Council.
Indicative Delivery	This action will be delivered during Cycle 2 (2022 - 2028).
Funding	This action will be funded through East Ayrshire Council budgets provided by Scottish Government, subject to any future funding review.
Coordination	East Ayrshire Council. SEPA will work with the local authority on the potential to coordinate opportunities for joint data collection activities.
Local Detail	East Ayrshire Council shall continue to liaise with SEPA and utilise SEPA gauge information available for this catchment, as required.

Sewer flood risk assessment (7502)

Appendix 2

Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network.
Description	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Meadowhead sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Delivery Lead	Scottish Water.
Indicative Delivery	2023-2025.
Funding	Funding for this action is secured within Scottish Water's business plan.
Coordination	Outputs of this modelling assessment will be shared with local authorities and SEPA.
Local Detail	Scottish Water will undertake a modelling assessment 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.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

Flood study (7503)

Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Description	East Ayrshire Council to carry out a flood study to address risk from river and surface water at Crosshouse. The flood modelling carried out for the River Irvine Flood Study should be reviewed to assess any further flood modelling requirements. The interactivity between surface water and river flooding should be assessed. The impacts of climate change on flood risk should be evaluated. If flood risk is confirmed, scoping of the next steps should be completed.
Delivery Lead	East Ayrshire Council.
Indicative Delivery	This action will be delivered during Cycle 3 (2028 - 2034).
Funding	This action will be funded through East Ayrshire Council and South Ayrshire Councils' budgets provided by Scottish Government, subject to any future funding review.
Coordination	East Ayrshire Council will deliver this flood study with information provided by other relevant responsible authorities, which may include Scottish Water and SEPA.
Local Detail	The flood modelling carried out for the River Irvine Flood Study should be reviewed to assess any further flood modelling requirements. The interactivity between surface water and river flooding should be assessed. The impacts of climate change on flood risk should be evaluated. If flood risk is confirmed, scoping of the next steps will be completed.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

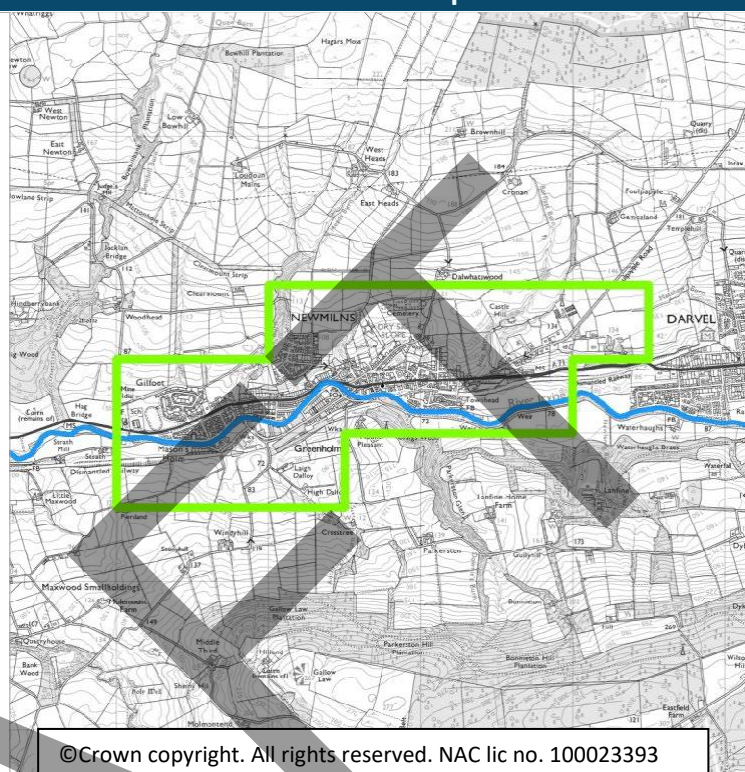
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Newmilns (target area 120)

Summary

Newmilns and Greenholm are small villages within East Ayrshire Council area. The main source of flooding in Newmilns is river flooding, however there is also risk from surface water flooding. There are approximately 1,500 people and 770 homes and businesses currently at risk from flooding, which is a significant proportion of the community. This is likely to increase to 1,600 people and 840 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for river flooding by the Irvine Valley flood study (2019) and for surface water flooding by the sewer flood risk assessment. There are frequent records of flooding in this target area, most notably in July 2007.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

- Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.
- Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.
- Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
1201	Avoid flood risk	Avoid inappropriate development that increases flood risk in Newmilns
1202	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Newmilns
1203	Reduce flood risk	Reduce the risk of flooding in Newmilns

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area.

Actions proposed to start between 2022 and 2028

	Flood scheme or works design (12001)
Action	The selected preferred approach for managing flood risk is to be designed following the completion of the flood study, including consideration of the long-term impacts of climate change. These can include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	East Ayrshire Council to develop detailed design for Upper Irvine Flood Protection Scheme based on the preferred option from the flood study. The responsible authority proposes this action as the best viable option for managing flood risk in this community. The delivery of this action is subject to capital funding being made available.
Delivery Lead	Action delivery lead is East Ayrshire Council in coordination with SEPA.
Indicative Delivery	Cycle 2 (2022 - 2028). The delivery of this action is subject to Scottish Government capital grant funding being made available.
Funding	The funding arrangements for Cycle 2 'flood scheme or works design' actions are still to be confirmed by the Scottish Government and COSLA joint funding group. Until the funding arrangements for these actions and the community engagement actions related to flood scheme or works design are confirmed, the draft Local FRM Plan for the Ayrshire Local Plan District cannot be fully finalised.
Coordination	East Ayrshire Council, North Ayrshire Council and SEPA. SEPA will work with the local authority on the potential to coordinate this action with flood warning actions.
Local Detail	Subject to SG funding being available, East Ayrshire Council to develop detailed design for Upper Irvine Flood Protection Scheme based on the preferred option from the flood study.

Community engagement (12002)

Appendix 2

Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	The detailed design of the Upper Irvine Flood Protection Scheme (funding dependant) should be carried out in conjunction with community engagement where issues, constraints, aspirations and opportunities are identified. A community engagement plan should be created to cover the time period from detailed design to implement action of the flood protection solution.
Delivery Lead	East Ayrshire Council.
Indicative Delivery	Cycle 2 (2022 - 2028). The delivery of this action is subject to Scottish Government capital grant funding being made available.
Funding	The funding arrangements for Cycle 2 'flood scheme or works design' actions are still to be confirmed by the Scottish Government and COSLA joint funding group. Until the funding arrangements for these actions and the community engagement actions related to flood scheme or works design are confirmed, the draft Local FRM Plan for the Ayrshire Local Plan District cannot be fully finalised.
Coordination	East Ayrshire Council, SEPA and Scottish Water will continue to engage with responsible authorities and all other stakeholders, including community groups and the public.
Local Detail	Community engagement will be carried out where issues, constraints, aspirations and opportunities are identified. The community engagement plan shall be created to cover the time period from detailed design to implementation of the flood protection solution.

Flood warning scoping (12003)

Action	The potential to provide a new flood warning scheme is to be considered by SEPA. Flood warnings are only effective where it is possible to send a warning message with sufficient time to allow communities to take appropriate actions before flooding occurs.
Description	Scoping for a river flood warning scheme will be carried out in Newmilns.
Delivery Lead	SEPA.
Indicative Delivery	Second half of cycle 2.
Funding	SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	SEPA will work with East Ayrshire Council on the potential to coordinate flood warning development with the Upper Irvine flood scheme works.
Local Detail	N/A.

Sewer flood risk assessment (12004)

Appendix 2

Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network.
Description	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Meadowhead sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Delivery Lead	Scottish Water.
Indicative Delivery	2023-2025
Funding	Funding for this action is secured within Scottish Water's business plan.
Coordination	Outputs of this modelling assessment will be shared with local authorities and SEPA
Local Detail	Scottish Water will undertake a modelling assessment 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.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

Surface water management plan (12005)

Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.
Delivery Lead	East Ayrshire Council/Scottish Water
Indicative Delivery	This action will be delivered during Cycle 3 (2028 - 2034).
Funding	The surface water flood risk options appraisal will be funded through East Ayrshire Council's budget provided by Scottish Government or funded by Scottish Water's budget as appropriate.
Coordination	East Ayrshire Council will work with Scottish Water to identify which organisation should lead on managing surface water flood risk in each identified priority area, with information provided by SEPA where required.
Local Detail	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.

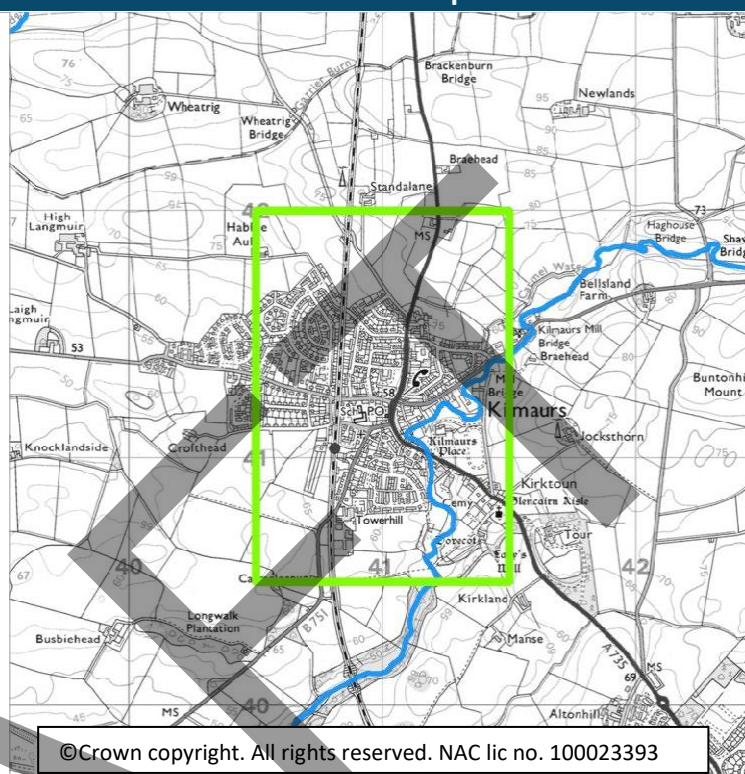
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

Kilmaurs (target area 147)

Summary

The area covers the village of Kilmaurs which is located outside of Kilmarnock. It is in the East Ayrshire Council area. The main sources of flooding in Kilmaurs are river and surface water flooding. There are approximately 160 people and 100 homes and businesses currently at risk from flooding. This is estimated to increase to 180 people and 110 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for surface water flooding by the sewer flood risk assessment. Together, this information has highlighted the risk of flooding in this area. Kilmaurs has therefore been identified as a new target area for the 2021 flood risk management plans. There are limited records of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

- Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.
- Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.
- Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
1471	Avoid flood risk	Avoid inappropriate development that increases flood risk in Kilmaurs
1472	Improve data and understanding	Improve data and understanding of flooding in Kilmaurs
1473	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Kilmaurs

Appendix 2

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area.

Actions proposed to start between 2022 and 2028

Data collection (14701)	
Action	Equipment that measures rainfall, river levels, erosion, ground levels or wave height may be installed and maintained to improve our understanding of flood risk. This can be done over short term or to measure longer term impacts.
Description	Data collection and monitoring will be carried out to inform the basis of future studies.
Delivery Lead	Action delivery lead is East Ayrshire Council and coordination will be determined once the actions have been finalised.
Indicative Delivery	This action will be delivered during Cycle 2 (2022 - 2028).
Funding	This action will be funded through East Ayrshire Council budgets provided by Scottish Government, subject to any future funding review.
Coordination	East Ayrshire Council and SEPA will work together on the potential to coordinate opportunities for joint data collection activities.
Local Detail	East Ayrshire Council shall continue to liaise with SEPA and utilise SEPA gauge information available for this catchment, as required.

Sewer flood risk assessment (14702)

Appendix 2

Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network.
Description	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Meadowhead sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Delivery Lead	Scottish Water.
Indicative Delivery	2023-2025.
Funding	Funding for this action is secured within Scottish Water's business plan.
Coordination	Outputs of this modelling assessment will be shared with local authorities and SEPA.
Local Detail	Scottish Water will undertake a modelling assessment 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.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

Flood study (14703)

Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Description	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.
Delivery Lead	East Ayrshire Council.
Indicative Delivery	This action will be delivered during Cycle 3 (2028 - 2034).
Funding	This action will be funded through East Ayrshire Council and South Ayrshire Councils' budgets provided by Scottish Government, subject to any future funding review.
Coordination	East Ayrshire Council will deliver this flood study with information provided by other relevant responsible authorities, which may include Scottish Water and SEPA.
Local Detail	The flood modelling will be carried out for the Carmel Water Flood Study informed by data gathering in Cycle 2. Where flood risk is confirmed, scoping of the next steps will be completed.

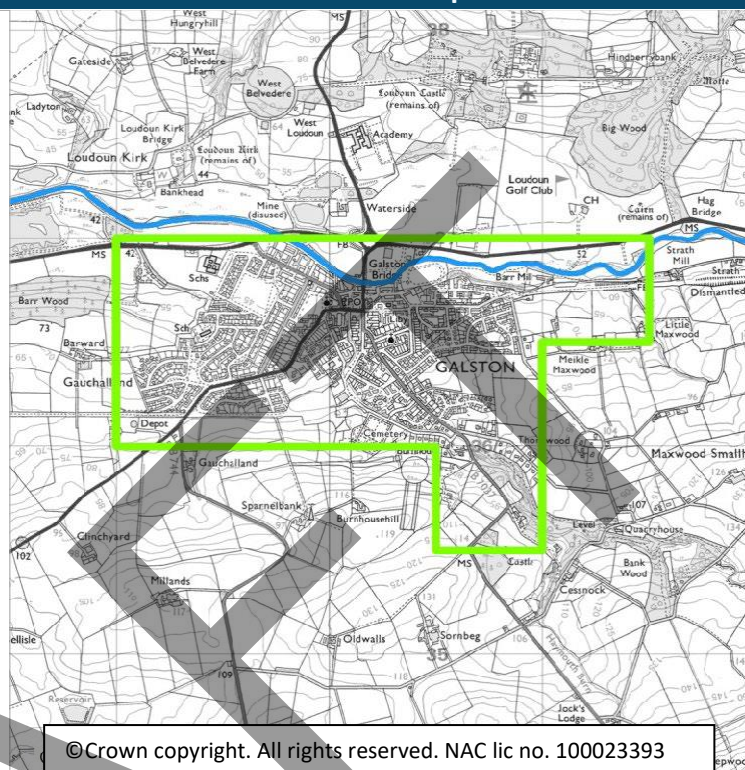
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

Galston (target area 153)

Summary

The town of Galston and the village of Burnhouse are located south of the River Irvine. The area is located within the East Ayrshire Council area. The main source of flooding in Galston is river flooding (Burn Anne), however there is also a risk from surface water flooding. There are approximately 870 people and 500 homes and businesses at risk from flooding. This is estimated to increase to 980 people and 550 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for river flooding by the Irvine Valley flood study (2019) and for surface water by the sewer flood risk assessment. There is a long record of flooding in this target area, most notably in August 2012.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

- Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.
- Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.
- Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
1531	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of Galston flood protection scheme 2008
1532	Avoid flood risk	Avoid inappropriate development that increases flood risk in Galston
1533	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Galston
1534	Reduce flood risk	Reduce the risk of flooding in Galston

Appendix 2

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area.

Actions proposed to start between 2022 and 2028

Flood scheme or works design (15301)	
Action	The selected preferred approach for managing flood risk is to be designed following the completion of the flood study, including consideration of the long-term impacts of climate change. These can include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed. The performance and condition of the existing flood defences is to be evaluated, including consideration of the likely impacts of climate change. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	East Ayrshire Council to develop detail design for the Upper Irvine Flood Protection Scheme based on the preferred option from the Upper Irvine flood Study (2018). The detail design is to include the predicted standard of protection of the Galston Flood Protection Scheme 2008 for a number of climate change scenarios. This information will support a climate change adaptive plan for this flood protection asset. The responsible authority proposes this action as the best viable option for managing flood risk in this community. The delivery of this action is subject to capital funding being made available.
Delivery Lead	Action delivery lead is East Ayrshire Council in coordination with SEPA.
Indicative Delivery	Cycle 2 (2022 - 2028). The delivery of this action is subject to Scottish Government capital grant funding being made available.
Funding	The funding arrangements for Cycle 2 'flood scheme or works design' actions are still to be confirmed by the Scottish Government and COSLA joint funding group. Until the funding arrangements for these actions and the community engagement actions related to flood scheme or works design are confirmed, the draft Local FRM Plan for the Ayrshire Local Plan District cannot be fully finalised.
Coordination	East Ayrshire Council, North Ayrshire Council and SEPA.
Local Detail	Subject to SG funding being available, East Ayrshire Council to develop detailed design for Upper Irvine Flood Protection Scheme based on the preferred option from the flood study.

Community engagement (15302)

Appendix 2

Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	The detailed design of the Upper Irvine Flood Protection Scheme (funding dependant) should be carried out in conjunction with community engagement where issues, constraints, aspirations and opportunities are identified. A community engagement plan should be created to cover the time period from detailed design to implement action of the flood protection solution.
Delivery Lead	East Ayrshire Council.
Indicative Delivery	Cycle 2 (2022 - 2028). The delivery of this action is subject to Scottish Government capital grant funding being made available.
Funding	The funding arrangements for Cycle 2 'flood scheme or works design' actions are still to be confirmed by the Scottish Government and COSLA joint funding group. Until the funding arrangements for these actions and the community engagement actions related to flood scheme or works design are confirmed, the draft Local FRM Plan for the Ayrshire Local Plan District cannot be fully finalised.
Coordination	East Ayrshire Council, SEPA and Scottish Water will continue to engage with responsible authorities and all other stakeholders, including community groups and the public.
Local Detail	Community engagement will be carried out where issues, constraints, aspirations and opportunities are identified. The community engagement plan shall be created to cover the time period from detailed design to implementation of the flood protection solution.

Flood defence maintenance (15303)

Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Description	East Ayrshire Council is to continue to inspect and maintain the Galston Flood Protection Scheme 2008. The maintenance regime should be informed by the outcomes of the flood study.
Delivery Lead	East Ayrshire Council.
Indicative Delivery	This action will be delivered during Cycle 2 (2022 - 2028).
Funding	This action will be funded through East Ayrshire Council budgets provided by Scottish Government, subject to any future funding review.
Coordination	East Ayrshire Council will work in coordination with all relevant stakeholders identified through the planning and implementation of maintenance works.
Local Detail	The flood modelling being carried out for the River Irvine Flood Study will be reviewed. Where flood risk is confirmed, scoping of the next steps will be completed.

Sewer flood risk assessment (15304)

Appendix 2

Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network.
Description	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Meadowhead sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Delivery Lead	Scottish Water.
Indicative Delivery	2023-2025.
Funding	Funding for this action is secured within Scottish Water's business plan.
Coordination	Outputs of this modelling assessment will be shared with local authorities and SEPA.
Local Detail	Scottish Water will undertake a modelling assessment 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.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

Surface water management plan (15305)

Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.
Delivery Lead	East Ayrshire Council/Scottish Water
Indicative Delivery	This action will be delivered during Cycle 3 (2028 - 2034).
Funding	The surface water flood risk options appraisal will be funded through East Ayrshire Council's budget provided by Scottish Government or funded by Scottish Water's budget as appropriate.
Coordination	East Ayrshire Council will work with Scottish Water to identify which organisation should lead on managing surface water flood risk in each identified priority area with information provided by SEPA.
Local Detail	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.

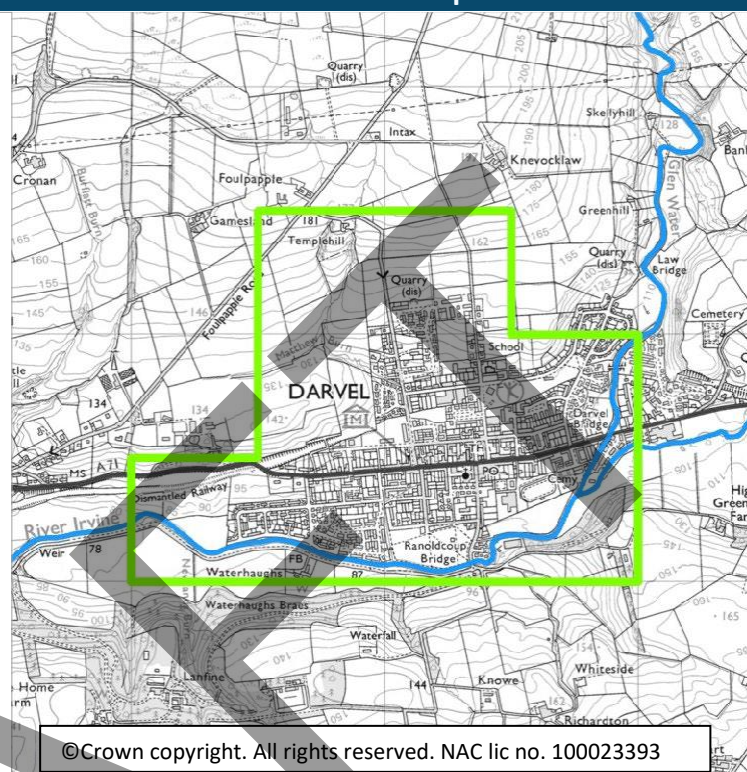
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

Darvel (target area 154)

Summary

Darvel is a small town on banks of the River Irvine within East Ayrshire Council area. The main source of flooding in Darvel is surface water flooding, however there is also risk of river flooding. There are approximately 360 people and 190 properties at risk from flooding. This is likely to increase to 510 people and 260 properties by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for river flooding by the Irvine Valley flood study (2019) and for surface water by the sewer flood risk assessment. Together, this information has highlighted the risk of flooding in this area. Darvel has therefore been identified as a new target area for the 2021 flood risk management plans. There are limited records of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

- Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.
- Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.
- Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
1541	Avoid flood risk	Avoid inappropriate development that increases flood risk in Darvel
1542	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Darvel
1543	Reduce flood risk	Reduce the risk of flooding in Darvel

Appendix 2

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area.

Actions proposed to start between 2022 and 2028

Flood scheme or works design (15401)	
Action	The selected preferred approach for managing flood risk is to be designed following the completion of the flood study, including consideration of the long-term impacts of climate change. These can include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	East Ayrshire Council should develop a detailed design for Upper Irvine Flood Protection Scheme based on the preferred option from the flood study. The responsible authority proposes this action as the best viable option for managing flood risk in this community. The delivery of this action is subject to capital funding being made available.
Delivery Lead	Action delivery lead is East Ayrshire Council in coordination with SEPA.
Indicative Delivery	Cycle 2 (2022 - 2028). The delivery of this action is subject to Scottish Government capital grant funding being made available.
Funding	The funding arrangements for Cycle 2 'flood scheme or works design' actions are still to be confirmed by the Scottish Government and COSLA joint funding group. Until the funding arrangements for these actions and the community engagement actions related to flood scheme or works design are confirmed, the draft Local FRM Plan for the Ayrshire Local Plan District cannot be fully finalised.
Coordination	East Ayrshire Council, North Ayrshire Council and SEPA.
Local Detail	Subject to Scottish Government funding being available, East Ayrshire Council to develop detailed design for Upper Irvine Flood Protection Scheme based on the preferred option from the flood study.

Community engagement (15402)

Appendix 2

Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	The detailed design of the Upper Irvine Flood Protection Scheme (funding dependant) should be carried out in conjunction with community engagement where issues, constraints, aspirations and opportunities are identified. A community engagement plan should be created to cover the time period from detailed design to implement action of the flood protection solution.
Delivery Lead	East Ayrshire Council.
Indicative Delivery	Cycle 2 (2022 - 2028). The delivery of this action is subject to Scottish Government capital grant funding being made available.
Funding	The funding arrangements for Cycle 2 'flood scheme or works design' actions are still to be confirmed by the Scottish Government and COSLA joint funding group. Until the funding arrangements for these actions and the community engagement actions related to flood scheme or works design are confirmed, the draft Local FRM Plan for the Ayrshire Local Plan District cannot be fully finalised.
Coordination	East Ayrshire Council, SEPA and Scottish Water will continue to engage with responsible authorities and all other stakeholders, including community groups and the public.
Local Detail	Community engagement will be carried out where issues, constraints, aspirations and opportunities are identified. The community engagement plan shall be created to cover the time period from detailed design to implementation of the flood protection solution.

Sewer flood risk assessment (15403)

Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network.
Description	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Meadowhead sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Delivery Lead	Scottish Water.
Indicative Delivery	2023-2025.
Funding	Funding for this action is secured within Scottish Water's business plan.
Coordination	Outputs of this modelling assessment will be shared with local authorities and SEPA.
Local Detail	Scottish Water will undertake a modelling assessment 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.

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

Surface water management plan (15404)	
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.
Delivery Lead	East Ayrshire Council/Scottish Water
Indicative Delivery	This action will be delivered during Cycle 3 (2028 - 2034).
Funding	The surface water flood risk options appraisal will be funded through East Ayrshire Council's budget provided by Scottish Government or funded by Scottish Water's budget as appropriate.
Coordination	East Ayrshire Council will work with Scottish Water to identify which organisation should lead on managing surface water flood risk in each identified priority area with information provided by SEPA.
Local Detail	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

02/12/07 (Pow Burn catchment)

This area is designated as a potentially vulnerable area due to flood risk to Prestwick. The main source of flooding is from the Pow Burn, with also some risk from surface water flooding. There is a history of flooding in the area, with recent flooding being caused by both river and surface water flooding.

There is 1 target area in this potentially vulnerable area, which has been the focus of further assessment, this is identified below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

Prestwick north

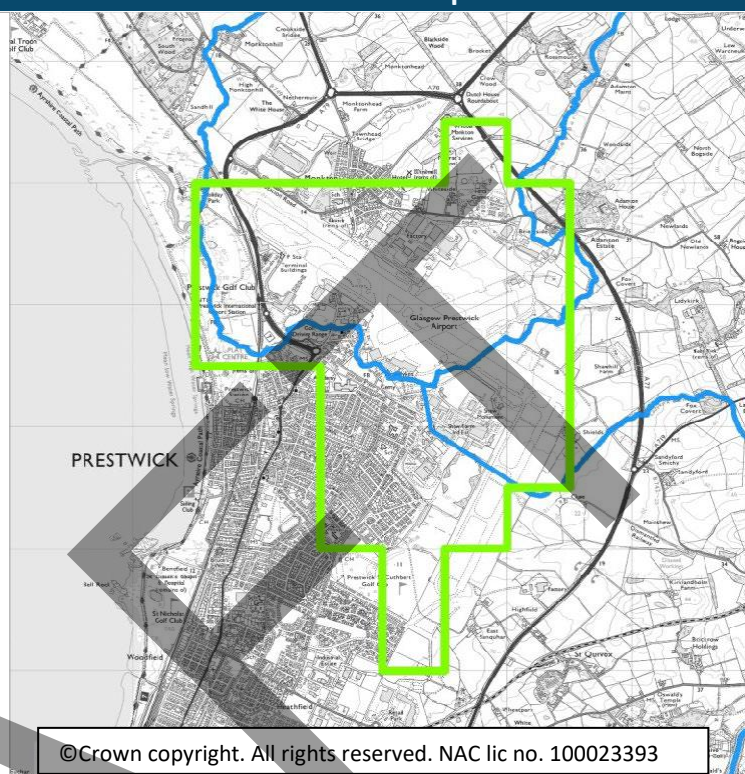
(target area 28)

Prestwick north (target area 28)

Summary

Prestwick North covers the northern area of the town of Prestwick, which is mostly an inland area. The area is located within the South Ayrshire Council area. The main source of flooding in Prestwick North is river flooding, however there is also a risk from surface water flooding. There are approximately 1,200 people and 690 homes and businesses at risk from flooding and approximately. This is estimated to increase to 1,400 people and 780 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for surface water flooding by the Prestwick Strategic Drainage Project (Flood Heat Mapping Phase 2) (2019) and sewer flood risk assessment. There is a long record of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

- Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.
- Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.
- Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
281	Avoid flood risk	Avoid inappropriate development that increases flood risk in Prestwick
282	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of all existing flood protection structures
283	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Prestwick
284	Reduce flood risk	Reduce the risk of surface water and river flooding in Prestwick

Appendix 2

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area.

NatureScot has identified that they have 'place priorities' for this Target Area. During the implementation of the following actions, the delivery lead should consider engaging with NatureScot to investigate opportunities to deliver on shared priorities.

Actions proposed to start between 2022 and 2028

Flood scheme or works design (2801)	
Action	The selected preferred approach for managing flood risk is to be designed following the completion of the flood study, including consideration of the long-term impacts of climate change. These can include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	Following completion of the options appraisal flood study for the Prestwick Strategic Drainage Project, Scottish Water will develop detailed design for surface water management in Prestwick, based on the preferred options from the appraisal process, working closely with South Ayrshire Council.
Delivery Lead	Scottish Water in collaboration with South Ayrshire Council.
Indicative Delivery	2022-2035. This action will cover multiple FRM cycles (Phase 1 of Prestwick Strategy is targetted to be implemented during period 2022 to 2027 but this will be dependent on securing funding and obtaining any necessary agreements from third parties).
Funding	Scottish Water has approved funding to further develop design on the first phase of actions to reduce sewer and surface water flooding in Prestwick. This includes upgrading and reconfiguring parts of the sewer network and delivering blue-green infrastructure at an estimated capital cost for delivery of circa £12m. Upon completion of detailed design the delivery costs will be re-assessed and progressed through the next stage of Scottish Water's Investment Appraisal Process to determine if the project can proceed to construction.
Coordination	Surface water flood risk has shared responsibilities across multiple agencies. Therefore co-ordination with the local authority, businesses and residents is essential and action will be required from multiple agencies for the Prestwick Strategic Drainage Project to be delivered. Progress will continue to be communicated with the Prestwick flooding stakeholder group which was established in Cycle 1. This includes

representation from MP, MSP, Councillors, Community Councillors and PRAAF community flood group.

Appendix 2

Local Detail

The Prestwick Strategic Drainage Project has identified options to reduce flood risk across the town. The options consist of a variety of measures ranging from significant sewer infrastructure upgrades, to localised blue-green infrastructure and property level surface water disconnection.

Due to the significant cost of the number and scale of options, it is likely to require improvements to be delivered in a phased manner over a number of FRM cycles. This approach will enable further funding to be sought for future phases of work and ensure that actions can be planned to minimise disruption to the town.

Flood scheme or works design (2802)

Action

The selected preferred approach for managing flood risk is to be designed following the completion of the flood study, including consideration of the long-term impacts of climate change. These can include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.

Description

Following completion of the options appraisal flood study for the Prestwick Strategic Drainage Project, detailed design to be developed for surface water management in Prestwick. South Ayrshire Council will explore options for funding for some of the preferred options identified from the appraisal process. The delivery of this action is subject to funding being made available.

Delivery Lead

South Ayrshire Council.

Indicative Delivery

Cycle 2 (2022 - 2028). The delivery of this action is subject to Scottish Government capital grant funding being made available.

Funding

The funding arrangements for Cycle 2 'flood scheme or works design' actions are still to be confirmed by the Scottish Government and COSLA joint funding group. Until the funding arrangements for these actions and the community engagement actions related to flood scheme or works design are confirmed, the draft Local FRM Plan for the Ayrshire Local Plan District cannot be fully finalised.

Coordination

South Ayrshire Council and Scottish Water.

Local Detail

South Ayrshire Council will explore options for funding for some of the preferred options identified from the appraisal process. The delivery of this action is subject to funding being made available.

Community engagement (2803)

Appendix 2

Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	Detailed design for the surface water management measures should be carried out in conjunction with community engagement where issues, constraints, aspirations and opportunities are identified. A community engagement plan should be created to cover the time period from detailed design to implementation of the preferred flood risk management option.
Delivery Lead	South Ayrshire Council.
Indicative Delivery	Cycle 2 (2022 - 2028). The delivery of this action is subject to Scottish Government capital grant funding being made available.
Funding	The funding arrangements for Cycle 2 'flood scheme or works design' actions are still to be confirmed by the Scottish Government and COSLA joint funding group. Until the funding arrangements for these actions and the community engagement actions related to flood scheme or works design are confirmed, the draft Local FRM Plan for the Ayrshire Local Plan District cannot be fully finalised.
Coordination	South Ayrshire Council, SEPA and Scottish Water will continue to engage with responsible authorities and all other stakeholders, including community groups and the public.
Local Detail	Community engagement will be carried out where issues, constraints, aspirations and opportunities are identified. The community engagement plan shall be created to cover the time period from detailed design to implementation of the preferred flood risk management options.

Flood study (2804)

Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Description	A flood study should be carried out to improve understanding of river flood risk from the Pow Burn in Prestwick. The impacts of climate change on flood risk should be evaluated. If flood risk is confirmed, scoping of the next steps should be completed.
Delivery Lead	South Ayrshire Council
Indicative Delivery	This action will be delivered during Cycle 2 (2022 - 2028).
Funding	This action will be funded through South Ayrshire Council's budget provided by Scottish Government, subject to any future funding review.
Coordination	South Ayrshire Council and Scottish Water.
Local Detail	Flood modelling will be carried out for the Pow Burn Flood Study. Where flood risk is confirmed, scoping of the next steps will be completed.

Sewer flood risk assessment (2805)

Appendix 2

Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Description	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Meadowhead sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Delivery Lead	Scottish Water
Indicative Delivery	2023-2025
Funding	Funding for this action is secured within Scottish Water's business plan
Coordination	Outputs of this modelling assessment will be shared with local authorities and SEPA
Local Detail	Scottish Water will undertake a modelling assessment 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

Flood study (existing flood defences) (2806)

Action	The performance and condition of the existing flood defences are to be evaluated, including consideration of the likely impacts of climate change. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	A study of the existing coastal flood defences (Prestwick Sea Walls) to be carried out. The study should establish the current and predicted standard of protection for a number of climate change scenarios. This information will underpin the development of an adaptation plan for the long term protection of the community.
Delivery Lead	South Ayrshire Council
Indicative Delivery	This action will be delivered during Cycle 2 (2022 - 2028).
Funding	This study will be funded through South Ayrshire Council's budget provided by Scottish Government, subject to any future funding review.
Coordination	South Ayrshire Council and SEPA. SEPA will work with the local authority on the potential to coordinate this action with an update to SFDAD, work on coastal flood mapping and flood warning actions.
Local Detail	Detailed survey and flood modelling will be carried out for the Prestwick Coastal Flood Study. The outcomes of the study will underpin the development of an adaption plan for the long term protection of the community.

Flood defence maintenance (2807)

Appendix 2

Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Description	South Ayrshire Council is to continue to inspect and maintain the Prestwick coastal defences (Prestwick Sea Walls). The maintenance regime should be made based on the findings of the flood study
Delivery Lead	South Ayrshire Council
Indicative Delivery	This action will be delivered during Cycle 2 (2022 - 2028).
Funding	Maintenance works as required will be funded through South Ayrshire Council's budget provided by Scottish Government.
Coordination	South Ayrshire Council
Local Detail	South Ayrshire Council shall continue to inspect and maintain the Prestwick coastal defences. The maintenance regime should be made based on the findings of the annual inspection programme and proposed coastal flood study.

Flood warning maintenance (2808)

Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Description	SEPA should maintain the Firth of Clyde coastal flood warning scheme.
Delivery Lead	SEPA.
Indicative Delivery	Ongoing.
Funding	SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	SEPA will work with the local authorities on the potential to use information from the flood schemes and studies along the Firth of Clyde to inform ongoing flood warning. SEPA will continue to raise awareness of flood warning, and engage with communities
Local Detail	N/A.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

02/12/08 (Prestwick and Ayr)

This area is designated as a potentially vulnerable area due to flood risk to Ayr and Prestwick. The main source of flooding is surface water, however there is also risk of coastal and river flooding. Several floods have been recorded in this area with recent flooding being caused by coastal flooding.

There are 2 target areas in this potentially vulnerable area, which have been the focus of further assessment, these are listed below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

Prestwick south
Ayr

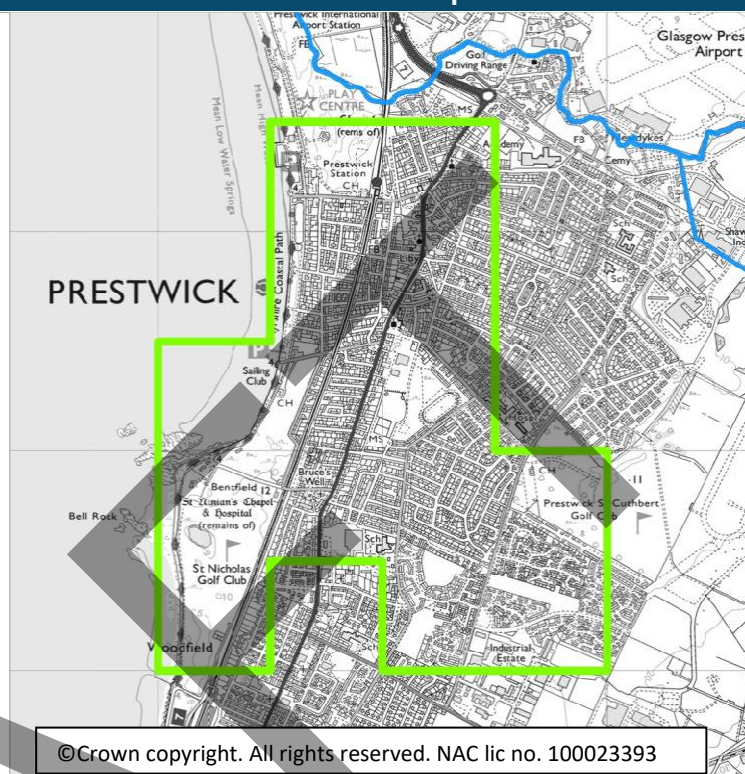
(target area 27)
(target area 71)

Prestwick south (target area 27)

Summary

The Prestwick South area covers a southern area of the town of Prestwick, which is mainly coastal. The area is located within the South Ayrshire Council area. The main source of flooding in Prestwick South is surface water flooding, however there is also a risk of coastal flooding. There are around 840 people at risk from flooding and approximately 470 homes and businesses. This is likely to increase to 870 people and 490 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for surface water flooding by the Prestwick Strategic Drainage Project (Flood Heat Mapping Phase 2) (2019) and sewer flood risk assessment, and for coastal flooding by the shoreline management plan. There is a long record of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

- Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.
- Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.
- Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
271	Avoid flood risk	Avoid inappropriate development that increases flood risk in Prestwick
272	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of all existing flood protection structures
273	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Prestwick
274	Reduce flood risk	Reduce the risk of surface water flooding in Prestwick

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area.

NatureScot has identified that they have 'place priorities' for this Target Area. During the implementation of the following actions, the delivery lead should consider engaging with NatureScot to investigate opportunities to deliver on shared priorities.

Actions proposed to start between 2022 and 2028

Flood scheme or works design (2701)

Action	The selected preferred approach for managing flood risk is to be designed following the completion of the flood study, including consideration of the long-term impacts of climate change. These can include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	Following completion of the options appraisal flood study for the Prestwick Strategic Drainage Project, Scottish Water will develop detailed design for surface water management in Prestwick, based on the preferred options from the appraisal process, working closely with South Ayrshire Council.
Delivery Lead	Scottish Water in collaboration with South Ayrshire Council.
Indicative Delivery	2022-2035. This action will cover multiple FRM cycles (Phase 1 of Prestwick Strategy is targetted to be implemented during period 2022 to 2027 but this will be dependent on securing funding and obtaining any necessary agreements from third parties).
Funding	Scottish Water has approved funding to further develop design on the first phase of actions to reduce sewer and surface water flooding in Prestwick. This includes upgrading and reconfiguring parts of the sewer network and delivering blue-green infrastructure at an estimated capital cost for delivery of circa £12m. Upon completion of detailed design the delivery costs will be re-assessed and progressed through the next stage of Scottish Water's Investment Appraisal Process to determine if the project can proceed to construction.
Coordination	Surface water flood risk has shared responsibilities across multiple agencies. Therefore co-ordination with the local authority, businesses and residents is essential and action will be required from multiple agencies for the Prestwick Strategic Drainage Project to be delivered. Progress will continue to be communicated with the Prestwick flooding stakeholder group which was established in Cycle 1. This includes representation from MP, MSP, Councillors, Community Councillors and PRAAF community flood group.
Local Detail	The Prestwick Strategic Drainage Project has identified options to reduce flood risk across the town. The options consist of a variety of measures ranging from significant sewer infrastructure upgrades, to localised blue-green infrastructure and property level surface water disconnection. Due to the significant cost of the number and scale of options, it is likely to require improvements to be delivered in a phased manner over a number of FRM cycles. This approach will enable further funding to be sought for future phases of work and ensure that actions can be planned to minimise disruption to the town.

Flood scheme or works design (2702)

Appendix 2

Action	The selected preferred approach for managing flood risk is to be designed following the completion of the flood study, including consideration of the long-term impacts of climate change. These can include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	Following completion of the options appraisal flood study for the Prestwick Strategic Drainage Project, detailed design to be developed for surface water management in Prestwick. South Ayrshire Council will explore options for funding for some of the preferred options identified from the appraisal process. The delivery of this action is subject to funding being made available.
Delivery Lead	South Ayrshire Council
Indicative Delivery	Cycle 2 (2022 - 2028). The delivery of this action is subject to Scottish Government capital grant funding being made available.
Funding	The funding arrangements for Cycle 2 'flood scheme or works design' actions are still to be confirmed by the Scottish Government and COSLA joint funding group. Until the funding arrangements for these actions and the community engagement actions related to flood scheme or works design are confirmed, the draft Local FRM Plan for the Ayrshire Local Plan District cannot be fully finalised.
Coordination	South Ayrshire Council and Scottish Water.
Local Detail	South Ayrshire Council will explore options for funding for some of the preferred options identified from the appraisal process. The delivery of this action is subject to funding being made available.

Community engagement (2703)

Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	Detailed design for the surface water management measures should be carried out in conjunction with community engagement where issues, constraints, aspirations and opportunities are identified. A community engagement plan should be created to cover the time period from detailed design to implementation of the preferred flood risk management option.
Delivery Lead	South Ayrshire Council
Indicative Delivery	Cycle 2 (2022 - 2028). The delivery of this action is subject to Scottish Government capital grant funding being made available.
Funding	The funding arrangements for Cycle 2 'flood scheme or works design' actions are still to be confirmed by the Scottish Government and COSLA joint funding group. Until the funding arrangements for these actions and the community engagement actions related to flood scheme or works design are confirmed, the draft Local FRM Plan for the Ayrshire Local Plan District cannot be fully finalised.
Coordination	South Ayrshire Council, SEPA and Scottish Water will continue to engage with responsible authorities and all other stakeholders, including community groups and the public.
Local Detail	Community engagement will be carried out where issues, constraints, aspirations and opportunities are identified. The community engagement plan shall be created to cover the time period from detailed design to implementation of the preferred flood risk management options.

Sewer flood risk assessment (2704)

Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network.
Description	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Meadowhead sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Delivery Lead	Scottish Water.
Indicative Delivery	2023-2025.
Funding	Funding for this action is secured within Scottish Water's business plan.
Coordination	Outputs of this modelling assessment will be shared with local authorities and SEPA.
Local Detail	Scottish Water will undertake a modelling assessment 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.

Flood study (existing flood defences) (2705)

Action	The performance and condition of the existing flood defences are to be evaluated, including consideration of the likely impacts of climate change. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	A study of the existing coastal flood defences (Prestwick Sea Walls) to be carried out. The study should establish the current and predicted standard of protection for a number of climate change scenarios. This information will underpin the development of an adaptation plan for the long term protection of the community.
Delivery Lead	South Ayrshire Council.
Indicative Delivery	This action will be delivered during Cycle 2 (2022 - 2028).
Funding	This study will be funded through South Ayrshire Council's budget provided by Scottish Government, subject to any future funding review.
Coordination	South Ayrshire Council and SEPA. SEPA will work with the local authority on the potential to coordinate this action with an update to SFDAD, work on coastal flood mapping and flood warning actions.
Local Detail	Detailed survey and flood modelling will be carried out for the Prestwick Coastal Flood Study. The outcomes of the study will underpin the development of an adaption plan for the long term protection of the community.

Flood defence maintenance (2706)

Appendix 2

Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Description	South Ayrshire Council is to continue to inspect and maintain the Prestwick coastal defences (Prestwick Sea Walls). The maintenance regime should be made based on the findings of the flood study.
Delivery Lead	South Ayrshire Council.
Indicative Delivery	This action will be delivered during Cycle 2 (2022 - 2028).
Funding	Maintenance works as required will be funded through South Ayrshire Council's budget provided by Scottish Government.
Coordination	South Ayrshire Council will work in coordination with all relevant stakeholders identified through the planning and implementation of maintenance works.
Local Detail	South Ayrshire Council shall continue to inspect and maintain the Prestwick coastal defences. The maintenance regime should be made based on the findings of the annual inspection programme and proposed coastal flood study.

Flood warning maintenance (2707)

Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Description	SEPA should maintain the Firth of Clyde coastal flood warning scheme.
Delivery Lead	SEPA.
Indicative Delivery	Ongoing.
Funding	SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	SEPA will work with the local authorities on the potential to use information from the flood schemes and studies along the Firth of Clyde to inform ongoing flood warning. SEPA will continue to raise awareness of flood warning, and engage with communities.
Local Detail	N/A.

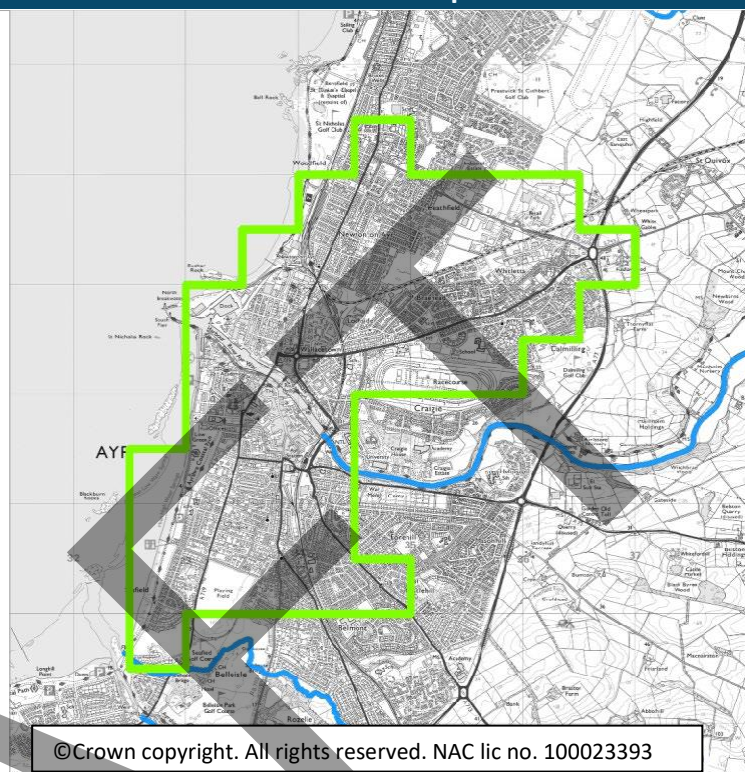
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

Ayr (target area 71)

Summary

Ayr covers the north-west area of Ayr on the coast at the mouth of the River Ayr. The area is located within the South Ayrshire Council area. The main sources of flooding in north-west area of Ayr are from river and surface water flooding, however there is also a risk from coastal flooding. There are approximately 3,000 people and 1,700 homes and businesses at risk from flooding. This is likely to increase to 4,600 people and 2,600 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for surface water flooding by the surface water management plan, sewer flood risk assessment and integrated catchment study, which also assesses the interactions between the different flood sources. Understanding is improved for coastal flooding by the shoreline management plan and river flooding by the flood warning scheme. There is a long record of flooding in this target area.

The Dynamic Coast project has shown that parts of the shoreline in or adjacent to this target area are subject to erosion at present or are considered likely to erode in the future. Consideration should be given to how erosion might impact flood risk. Any actions taken should aim to support building natural resilience to flooding and not lead to an increase in erosion.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

- Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.
- Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.
- Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description	Appendix 2
711	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of Ayr South coastal defences	
712	Avoid flood risk	Avoid inappropriate development that increases flood risk in Ayr	
713	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Ayr	
714	Reduce flood risk	Reduce the risk of flooding in Ayr	

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area.

NatureScot has identified that they have 'place priorities' for this Target Area. During the implementation of the following actions, the delivery lead should consider engaging with NatureScot to investigate opportunities to deliver on shared priorities.

Actions proposed to start between 2022 and 2028

Flood scheme or works design (7101)	
Action	The selected preferred approach for managing flood risk is to be designed following the completion of the flood study, including consideration of the long-term impacts of climate change. These can include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	South Ayrshire Council to develop a detailed design for surface water management, based on the preferred option from the appraisal process.
Delivery Lead	South Ayrshire Council.
Indicative Delivery	Cycle 2 (2022 - 2028). The delivery of this action is subject to Scottish Government capital grant funding being made available.
Funding	The funding arrangements for Cycle 2 'flood scheme or works design' actions are still to be confirmed by the Scottish Government and COSLA joint funding group. Until the funding arrangements for these actions and the community engagement actions related to flood scheme or works design are confirmed, the draft Local FRM Plan for the Ayrshire Local Plan District cannot be fully finalised.
Coordination	South Ayrshire Council and Scottish Water.
Local Detail	South Ayrshire Council to develop a detailed design for surface water management, based on the preferred option from the appraisal process.

Community engagement (7102)

Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	Detailed design for the surface water management measures should be carried out in conjunction with community engagement where issues, constraints, aspirations and opportunities are identified. A community engagement plan should be created to cover the time period from detailed design to implementation of the preferred flood risk management options.
Delivery Lead	South Ayrshire Council.
Indicative Delivery	Cycle 2 (2022 - 2028). The delivery of this action is subject to Scottish Government capital grant funding being made available.
Funding	The funding arrangements for Cycle 2 'flood scheme or works design' actions are still to be confirmed by the Scottish Government and COSLA joint funding group. Until the funding arrangements for these actions and the community engagement actions related to flood scheme or works design are confirmed, the draft Local FRM Plan for the Ayrshire Local Plan District cannot be fully finalised.
Coordination	South Ayrshire Council, SEPA and Scottish Water will continue to engage with responsible authorities and all other stakeholders, including community groups and the public.
Local Detail	Community engagement will be carried out where issues, constraints, aspirations and opportunities are identified. The community engagement plan shall be created to cover the time period from detailed design to implementation of the preferred flood risk management options.

Sewer flood risk assessment (7103)

Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network.
Description	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Meadowhead sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Delivery Lead	Scottish Water.
Indicative Delivery	2023-2025
Funding	Funding for this action is secured within Scottish Water's business plan.
Coordination	Outputs of this modelling assessment will be shared with local authorities and SEPA.
Local Detail	Scottish Water will undertake a modelling assessment 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.

Flood defence maintenance (7104)

Appendix 2

Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Description	South Ayrshire Council is to continue to inspect and maintain the Ayr South coastal defences. The maintenance regime should be made based on the findings of the flood study.
Delivery Lead	South Ayrshire Council.
Indicative Delivery	This action will be delivered during Cycle 2 (2022 - 2028).
Funding	Maintenance works as required will be funded through South Ayrshire Council's budget provided by Scottish Government.
Coordination	South Ayrshire Council will work in coordination with all relevant stakeholders identified through the planning and implementation of maintenance works.
Local Detail	South Ayrshire Council shall continue to inspect and maintain the Ayr South coastal defences (Ayr Sea Walls) The maintenance regime should be made based on the findings of the annual inspection programme and proposed coastal flood study.

Flood warning maintenance (7105)

Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Description	SEPA should maintain the Firth of Clyde coastal flood warning scheme.
Delivery Lead	SEPA.
Indicative Delivery	Ongoing.
Funding	SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	SEPA will work with the local authorities on the potential to use information from the flood schemes and studies along the Firth of Clyde to inform ongoing flood warning. SEPA will continue to raise awareness of flood warning, and engage with communities about the service when required.
Local Detail	N/A.

Strategic mapping improvements (7106)

Appendix 2

Action Description	SEPA will continue to update flood maps based on new information. SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.
Delivery Lead	SEPA.
Indicative Delivery	2025-2028.
Funding	SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	SEPA will work with the local authority on the potential to coordinate the flood map update with any other actions being carried out to understand or reduce coastal flooding.
Local Detail	N/A.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

Flood study (7107)

Action Description	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk. A flood study should be carried out to address flood risk in Ayr. The Shoreline Management Plan, the surface water management plan, the Meadowhead Integrated Catchment Study, and operation of the existing defences and flood warning should be reviewed to ascertain the requirements of the flood study. The impacts of climate change on flood risk should be evaluated. The interactivity between surface water, river and coastal flooding should be assessed. If flood risk is confirmed, scoping of the next steps should be completed.
Delivery Lead	South Ayrshire Council
Indicative Delivery	This action will be delivered during Cycle 2 (2028 - 2034).
Funding	This action will be funded through South Ayrshire Council's budget provided by Scottish Government, subject to any future funding review.
Coordination	South Ayrshire Council and Scottish Water.
Local Detail	Flood modelling will be carried out for the Ayr Flood Study. Where flood risk is confirmed, scoping of the next steps will be completed.

Flood study (existing flood defences) (7108)

Appendix 2

Action	The performance and condition of the existing flood defences are to be evaluated, including consideration of the likely impacts of climate change. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	A study of Ayr South existing coastal defences should be carried out following the outcomes of the flood study. The study should establish the predicted standard of protection for a number of climate change scenarios. This information will underpin the development of an adaptation plan for the long term protection of the community.
Delivery Lead	South Ayrshire Council.
Indicative Delivery	This action will be delivered during Cycle 3 (2028 - 2034)
Funding	This study will be funded through South Ayrshire Council's budget provided by Scottish Government, subject to any future funding review.
Coordination	South Ayrshire Council and SEPA.
Local Detail	Detailed survey and flood modelling will be carried out for the Ayr Coastal Flood Study. The outcomes of the study will underpin the development of an adaption plan for the long term protection of the community.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

02/12/09 (River Ayr catchment)

This area is designated as a potentially vulnerable area due to flood risk to Ayr. The main sources of flooding are from surface water and the River Ayr. Flooding has been recorded in the area, with recent flooding being caused by river flooding.

There is 1 target area in this potentially vulnerable area, which has been the focus of further assessment, this is identified below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

Ayr east

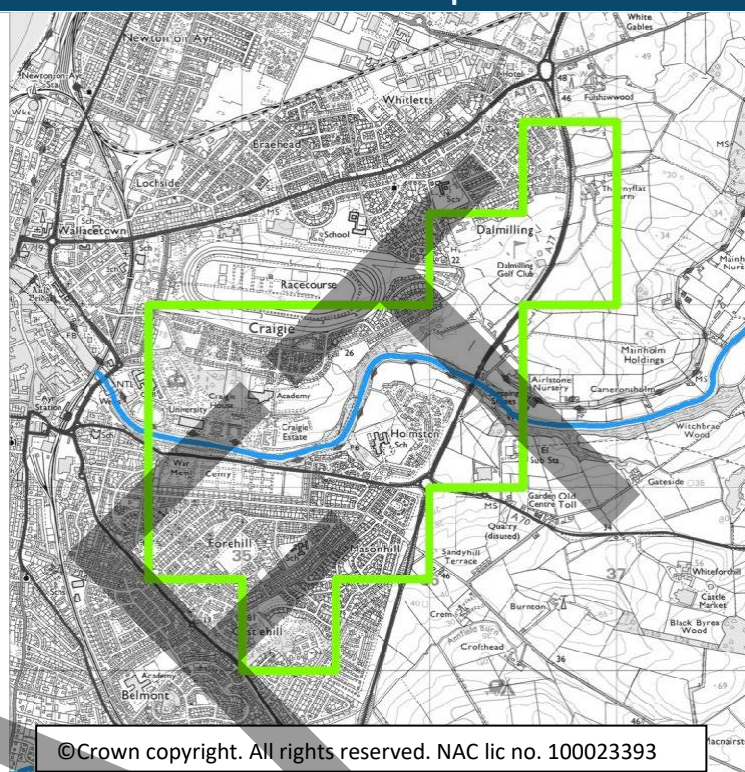
(target area 72)

Ayr east (target area 72)

Summary

Ayr east covers a section of the eastern area of the town of Ayr, which is located at the banks of the River Ayr. The area is located within the South Ayrshire Council area. The main source of flooding in Ayr East is surface water flooding, there is also a risk of river flooding. There are approximately 500 people and 250 homes and businesses at risk from flooding. This is likely to increase to 560 people and 290 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for surface water flooding by the sewer flood risk assessment and integrated catchment study, which also assesses the interactions between the different flood sources. Understanding is improved for river flooding by the flood warning scheme. There is a long record of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

- Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.
- Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.
- Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
721	Avoid flood risk	Avoid inappropriate development that increases flood risk in Ayr
722	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Ayr
723	Reduce flood risk	Reduce the risk of flooding in Ayr

Appendix 2

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area.

NatureScot has identified that they have 'place priorities' for this Target Area. During the implementation of the following actions, the delivery lead should consider engaging with NatureScot to investigate opportunities to deliver on shared priorities.

Actions proposed to start between 2022 and 2028

Flood scheme or works design (7201)	
Action	The selected preferred approach for managing flood risk is to be designed following the completion of the flood study, including consideration of the long-term impacts of climate change. These can include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	South Ayrshire Council to develop a detailed design for surface water management, based on the preferred option from the appraisal process. In accordance with the flood risk management plan, as part of the scheme or works, the responsible authority should aim to ensure the action will not have an adverse effect on the integrity of the Airds Moss Special Area of Conservation and Muirkirk and the North Lowther Uplands Special Protection Area.
Delivery Lead	South Ayrshire Council.
Indicative Delivery	Cycle 2 (2022 - 2028). The delivery of this action is subject to Scottish Government capital grant funding being made available.
Funding	The funding arrangements for Cycle 2 'flood scheme or works design' actions are still to be confirmed by the Scottish Government and COSLA joint funding group. Until the funding arrangements for these actions and the community engagement actions related to flood scheme or works design are confirmed, the draft Local FRM Plan for the Ayrshire Local Plan District cannot be fully finalised.
Coordination	South Ayrshire Council and Scottish Water.
Local Detail	South Ayrshire Council to develop a detailed design for surface water management, based on the preferred option from the appraisal process.
HRA Mitigation Statement	To be in accord with the FRM Plan, the responsible authority should seek to ensure as part of the scheme/works that the action will not have an adverse effect on the integrity of the Airds Moss Special Area of Conservation and Muirkirk and North Lowther Uplands Special Protection Area.

Community engagement (7202)

Appendix 2

Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	Detailed design for the surface water management measures should be carried out in conjunction with community engagement where issues, constraints, aspirations and opportunities are identified. A community engagement plan should be created to cover the time period from detailed design to implementation of the preferred flood risk management option.
Delivery Lead	South Ayrshire Council.
Indicative Delivery	Cycle 2 (2022 - 2028). The delivery of this action is subject to Scottish Government capital grant funding being made available.
Funding	The funding arrangements for Cycle 2 'flood scheme or works design' actions are still to be confirmed by the Scottish Government and COSLA joint funding group. Until the funding arrangements for these actions and the community engagement actions related to flood scheme or works design are confirmed, the draft Local FRM Plan for the Ayrshire Local Plan District cannot be fully finalised.
Coordination	South Ayrshire Council, SEPA and Scottish Water will continue to engage with responsible authorities and all other stakeholders, including community groups and the public.
Local Detail	Community engagement will be carried out where issues, constraints, aspirations and opportunities are identified. The community engagement plan shall be created to cover the time period from detailed design to implementation of the preferred flood risk management options.

Sewer flood risk assessment (7203)

Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network.
Description	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Meadowhead sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Delivery Lead	Scottish Water.
Indicative Delivery	2023-2025.
Funding	Funding for this action is secured within Scottish Water's business plan.
Coordination	Outputs of this modelling assessment will be shared with local authorities and SEPA.
Local Detail	Scottish Water will undertake a modelling assessment 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.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Description	A flood study should be carried out to address flood risk in Ayr. The surface water management plan, the Meadowhead Integrated Catchment Study, and flood forecasting model should be reviewed to ascertain the requirements of the flood study. The impacts of climate change on flood risk should be evaluated. The interactivity between surface water and river flooding should be assessed. If flood risk is confirmed, scoping of the next steps should be completed.
Delivery Lead	South Ayrshire Council
Indicative Delivery	This action will be delivered during Cycle 2 (2028 - 2034).
Funding	This action will be funded through South Ayrshire Council's budget provided by Scottish Government, subject to any future funding review.
Coordination	South Ayrshire Council and Scottish Water.
Local Detail	Flood modelling will be carried out for the Ayr East Flood Study. Where flood risk is confirmed, scoping of the next steps will be completed.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

02/12/10 (Ayr south)

This area is designated as a potentially vulnerable area due to flood risk to Ayr. The main sources of flooding are surface water and river flooding from the River Doon. Flooding has been recorded in the area with recent flooding being caused by surface water flooding.

There is 1 target area in this potentially vulnerable area, which has been the focus of further assessment, this is identified below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

Ayr Doon

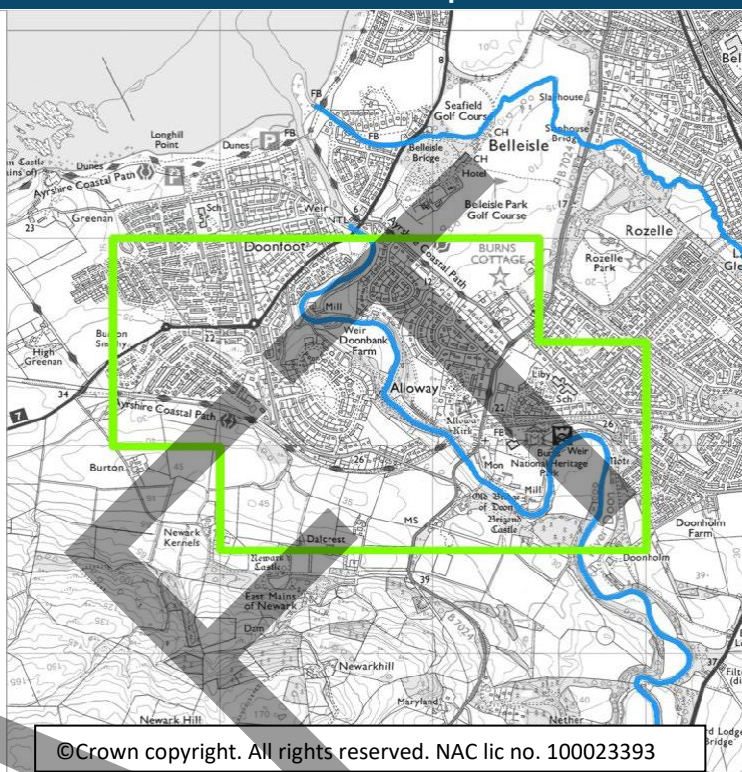
(target area 74)

Ayr Doon (target area 74)

Summary

Ayr Doon covers an area in the south-west of the town of Ayr, which is located at the banks of the River Doon. The area is located within the South Ayrshire Council area. The source of flooding in Ayr Doon area is river and surface water flooding. There are approximately 200 people and 120 homes and businesses at risk from flooding. This is estimated to increase to 210 people and 130 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for surface water flooding by the sewer flood risk assessment and integrated catchment study, which also assesses the interactions between the different flood sources. There is a long record of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

- Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.
- Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.
- Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
741	Avoid flood risk	Avoid inappropriate development that increases flood risk in Ayr
742	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Ayr
743	Reduce flood risk	Reduce the risk of flooding in Ayr

Appendix 2

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area.

NatureScot has identified that they have 'place priorities' for this Target Area. During the implementation of the following actions, the delivery lead should consider engaging with NatureScot to investigate opportunities to deliver on shared priorities.

Actions proposed to start between 2022 and 2028

Flood scheme or works design (7401)	
Action	The selected preferred approach for managing flood risk is to be designed following the completion of the flood study, including consideration of the long-term impacts of climate change. These can include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	South Ayrshire Council to develop a detailed design for surface water management, based on the preferred option from the appraisal process. In accordance with the flood risk management plan, as part of the scheme or works, the responsible authority should aim to ensure the action will not have an adverse effect on the integrity of the Merrick Kells Special Area of Conservation.
Delivery Lead	South Ayrshire Council.
Indicative Delivery	Cycle 2 (2022 - 2028). The delivery of this action is subject to Scottish Government capital grant funding being made available.
Funding	The funding arrangements for Cycle 2 'flood scheme or works design' actions are still to be confirmed by the Scottish Government and COSLA joint funding group. Until the funding arrangements for these actions and the community engagement actions related to flood scheme or works design are confirmed, the draft Local FRM Plan for the Ayrshire Local Plan District cannot be fully finalised.
Coordination	South Ayrshire Council, Scottish Water and SEPA.
Local Detail	South Ayrshire Council to develop a detailed design for surface water management, based on the preferred option from the appraisal process.
HRA Mitigation Statement	To be in accord with the FRM Plan, the responsible authority should seek to ensure as part of the scheme/works that the action will not have an adverse effect on the integrity of the Merrick Kells Special Area of Conservation.

Community engagement (7402)

Appendix 2

Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	Detailed design for the surface water management measures should be carried out in conjunction with community engagement where issues, constraints, aspirations and opportunities are identified. A community engagement plan should be created to cover the time period from detailed design to implementation of the preferred flood risk management option.
Delivery Lead	South Ayrshire Council
Indicative Delivery	Cycle 2 (2022 - 2028). The delivery of this action is subject to Scottish Government capital grant funding being made available.
Funding	The funding arrangements for Cycle 2 'flood scheme or works design' actions are still to be confirmed by the Scottish Government and COSLA joint funding group. Until the funding arrangements for these actions and the community engagement actions related to flood scheme or works design are confirmed, the draft Local FRM Plan for the Ayrshire Local Plan District cannot be fully finalised.
Coordination	South Ayrshire Council, SEPA and Scottish Water will continue to engage with responsible authorities and all other stakeholders, including community groups and the public.
Local Detail	Community engagement will be carried out where issues, constraints, aspirations and opportunities are identified. The community engagement plan shall be created to cover the time period from detailed design to implementation of the preferred flood risk management options.

Flood study (options appraisal) (7403)

Action	In areas where flood risk is confirmed, a range of possible options to manage flood risk are to be identified, including natural flood management actions where suitable, and a preferred approach is to be chosen. This should include adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	Following the outcomes of the Doon Valley Flood Study, options should be developed for river flood risk mitigation management. Current and long term flood risk should be considered and how this area will adapt to changes in flood risk through an adaptation plan.
Delivery Lead	Action delivery lead is South Ayrshire Council. Once the actions have been finalised, they will be progressed in coordination with East Ayrshire Council.
Indicative Delivery	This action will be delivered during Cycle 2 (2022 - 2028).
Funding	This action will be funded through South Ayrshire Council and East Ayrshire Councils' budgets provided by Scottish Government, subject to any future funding review.
Coordination	South Ayrshire Council will deliver this flood study with information provided by other relevant responsible authorities, which may include Scottish Water and SEPA.
Local Detail	The flood modelling being carried out for the River Doon Flood Study will be reviewed. Where flood risk is confirmed, scoping of the next steps will be completed.

Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Description	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Meadowhead sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Delivery Lead	Scottish Water.
Indicative Delivery	2023-2025
Funding	Funding for this action is secured within Scottish Water's business plan.
Coordination	Outputs of this modelling assessment will be shared with local authorities and SEPA.
Local Detail	Scottish Water will undertake a modelling assessment 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.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

02/12/11 (Ayr east)

This area is designated as a potentially vulnerable area due to flood risk to Ayr. There is river, coastal and surface water flood risk, with the main source of flooding from the Annfield Burn and Slaphouse Burn. There have been recent reports of flooding in the area, with recent flooding being caused by river flooding.

There is 1 target area in this potentially vulnerable area, which has been the focus of further assessment, this is identified below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

Ayr south east

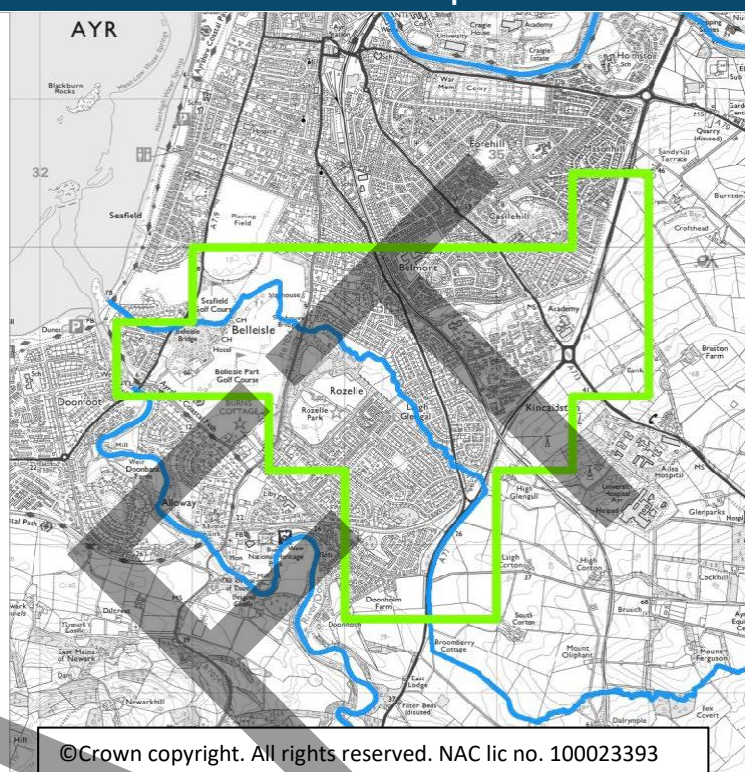
(target area 73)

Ayr south east (target area 73)

Summary

Ayr south east covers an area in the south east of the town of Ayr and is located on the banks of Slaphouse Burn. The area is located within the South Ayrshire Council area. The main source of flooding in the Ayr East area is river flooding, however there are also risks of coastal and surface water flooding. There are approximately 820 people and 430 homes and businesses currently at risk from flooding. This is likely to increase to 880 people and 460 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for surface water flooding by the sewer flood risk assessment and integrated catchment study, which also assesses the interactions between the different flood sources. Understanding is improved for coastal flooding by the shoreline management plan. There are periodic records of flooding in this target area.

The Dynamic Coast project has shown that parts of the shoreline in or adjacent to this target area are subject to erosion at present or are considered likely to erode in the future. Consideration should be given to how erosion might impact flood risk. Any actions taken should aim to support building natural resilience to flooding and not lead to an increase in erosion.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

- Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.
- Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.
- Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description	Appendix 2
731	Avoid flood risk	Avoid inappropriate development that increases flood risk in Ayr	
732	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Ayr	
733	Reduce flood risk	Reduce the risk of flooding in Ayr	

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area.

NatureScot has identified that they have 'place priorities' for this Target Area. During the implementation of the following actions, the delivery lead should consider engaging with NatureScot to investigate opportunities to deliver on shared priorities.

Actions proposed to start between 2022 and 2028

Flood scheme or works design (7301)	
Action	The selected preferred approach for managing flood risk is to be designed following the completion of the flood study, including consideration of the long-term impacts of climate change. These can include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	South Ayrshire Council to develop a detailed design for surface water management, based on the preferred option from the appraisal process.
Delivery Lead	South Ayrshire Council
Indicative Delivery	Cycle 2 (2022 - 2028). The delivery of this action is subject to Scottish Government capital grant funding being made available.
Funding	The funding arrangements for Cycle 2 'flood scheme or works design' actions are still to be confirmed by the Scottish Government and COSLA joint funding group. Until the funding arrangements for these actions and the community engagement actions related to flood scheme or works design are confirmed, the draft Local FRM Plan for the Ayrshire Local Plan District cannot be fully finalised.
Coordination	South Ayrshire Council and Scottish Water.
Local Detail	South Ayrshire Council to develop a detailed design for surface water management, based on the preferred option from the appraisal process.

Community engagement (7302)

Appendix 2

Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	Detailed design for the surface water management measures should be carried out in conjunction with community engagement where issues, constraints, aspirations and opportunities are identified. A community engagement plan should be created to cover the time period from detailed design to implementation of the preferred flood risk management option.
Delivery Lead	South Ayrshire Council
Indicative Delivery	Cycle 2 (2022 - 2028). The delivery of this action is subject to Scottish Government capital grant funding being made available.
Funding	The funding arrangements for Cycle 2 'flood scheme or works design' actions are still to be confirmed by the Scottish Government and COSLA joint funding group. Until the funding arrangements for these actions and the community engagement actions related to flood scheme or works design are confirmed, the draft Local FRM Plan for the Ayrshire Local Plan District cannot be fully finalised.
Coordination	South Ayrshire Council, SEPA and Scottish Water will continue to engage with responsible authorities and all other stakeholders, including community groups and the public.
Local Detail	Community engagement will be carried out where issues, constraints, aspirations and opportunities are identified. The community engagement plan shall be created to cover the time period from detailed design to implementation of the preferred flood risk management options.

Flood study (7303)

Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Description	A flood study should be carried out to address flood risk from the Slaphouse Burn. The impacts of climate change on flood risk should be evaluated. The interactivity between surface water, river and coastal flooding should be assessed. If flood risk is confirmed, scoping of the next steps should be completed.
Delivery Lead	South Ayrshire Council
Indicative Delivery	This action will be delivered during Cycle 2 (2022 - 2028).
Funding	This action will be funded through South Ayrshire Council's budget provided by Scottish Government, subject to any future funding review.
Coordination	South Ayrshire Council and Scottish Water.
Local Detail	Flood modelling will be carried out for the Slaphouse Burn Flood Study. Where flood risk is confirmed, scoping of the next steps will be completed.

Sewer flood risk assessment (7304)

Appendix 2

Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network.
Description	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Meadowhead sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Delivery Lead	Scottish Water.
Indicative Delivery	2023-2025.
Funding	Funding for this action is secured within Scottish Water's business plan.
Coordination	Outputs of this modelling assessment will be shared with local authorities and SEPA.
Local Detail	Scottish Water will undertake a modelling assessment 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.

Flood warning maintenance (7305)

Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Description	SEPA should maintain the Firth of Clyde coastal flood warning scheme.
Delivery Lead	SEPA.
Indicative Delivery	Ongoing.
Funding	SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	SEPA will maintain the Firth of Clyde coastal flood warning scheme. SEPA will continue to raise awareness of flood warning, and engage with communities about the service when required.
Local Detail	N/A.

Strategic mapping improvements (7306)

Appendix 2

Action Description	SEPA will continue to update flood maps based on new information. SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.
Delivery Lead	SEPA.
Indicative Delivery	2025-2028.
Funding	SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	SEPA will work with the local authority on the potential to coordinate the flood map update with any other actions being carried out to understand or reduce coastal flooding.
Local Detail	N/A.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

02/12/12 (Dalrymple to Dalmellington)

This area is designated as a potentially vulnerable area due to flood risk to Dalrymple, Dalmellington and Patna. The main source of flooding is from the River Doon and the Muck Water, with some risk from surface water flooding. Recent flooding has been recorded in the area.

There are 3 target areas in this potentially vulnerable area, which have been the focus of further assessment, these are listed below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

Dalrymple
Dalmellington
Patna

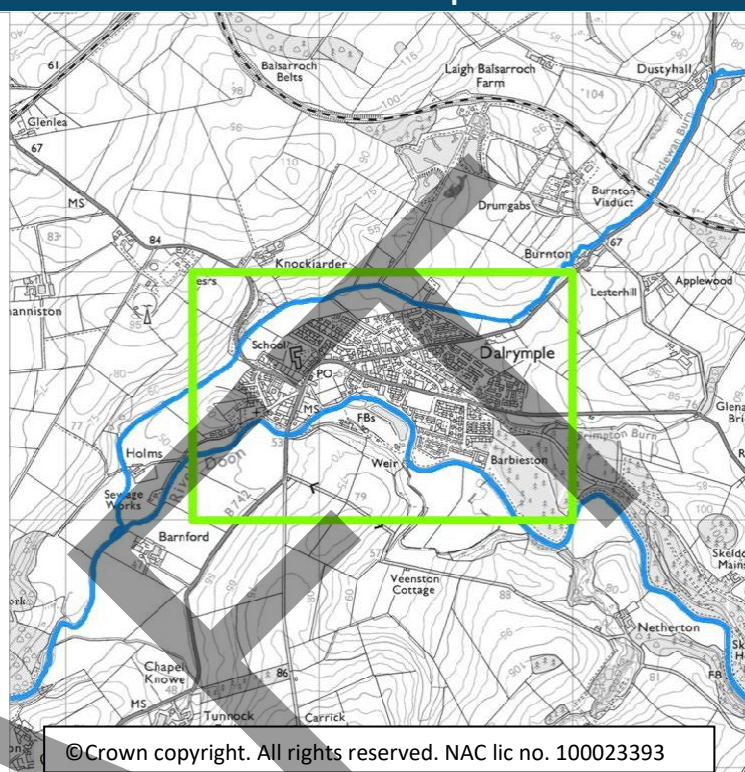
(target area 77)
(target area 96)
(target area 164)

Dalrymple (target area 77)

Summary

The village of Dalrymple lies in the Doon Valley, on the north bank of the River Doon. The area is located within the East Ayrshire Council area. The main source of flooding in Dalrymple is river flooding. There are approximately 410 people and 200 homes and businesses at risk from flooding. This is estimated to increase to 460 people and 230 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. There is a long record of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

- Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.
- Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.
- Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
771	Avoid flood risk	Avoid inappropriate development that increases flood risk in Dalrymple
772	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of Primpton Burn flood protection asset
773	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Dalrymple
774	Reduce flood risk	Reduce the risk of flooding in Dalrymple

Appendix 2

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area.

NatureScot has identified that they have 'place priorities' for this Target Area. During the implementation of the following actions, the delivery lead should consider engaging with NatureScot to investigate opportunities to deliver on shared priorities.

Actions proposed to start between 2022 and 2028

Flood study (options appraisal) (7701)	
Action	In areas where flood risk is confirmed, a range of possible options to manage flood risk are to be identified, including natural flood management actions where suitable, and a preferred approach is to be chosen. This should include adaptive planning to allow for the impacts of climate change to be monitored, understood and managed. The performance and condition of the existing flood defences is to be evaluated, including consideration of the likely impacts of climate change. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	Following the completion of Doon Valley Flood Study, possible options to manage flood risk should be developed. This should include a review of the predicted standard of protection of the Primpton Burn flood protection asset for a number of climate change scenarios. This information will support a climate change adaptive plan for this flood protection asset.
Delivery Lead	Action delivery lead is East Ayrshire Council. Once the actions have been finalised, they will be progressed in coordination with South Ayrshire Council.
Indicative Delivery	This action will be delivered during Cycle 2 (2022 - 2028).
Funding	This action will be funded through East Ayrshire Council and South Ayrshire Councils' budgets provided by Scottish Government, subject to any future funding review.
Coordination	East Ayrshire Council will deliver this flood study with information provided by other relevant responsible authorities, which may include Scottish Water and SEPA.
Local Detail	The flood modelling being carried out for the River Doon Flood Study will be reviewed. Where flood risk is confirmed, scoping of the next steps will be completed.

Flood defence maintenance (7702)	
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Description	East Ayrshire Council is to continue to inspect and maintain the Primpton Burn flood protection asset. The maintenance regime should be informed by the outcomes of the flood study.
Delivery Lead	East Ayrshire Council.
Indicative Delivery	This action will be delivered during Cycle 2 (2022 - 2028).
Funding	This action will be funded through East Ayrshire Council budgets provided by Scottish Government, subject to any future funding review.
Coordination	East Ayrshire Council will work in coordination with all relevant stakeholders identified through the planning and implementation of maintenance works.
Local Detail	The flood modelling being carried out for the River Doon Flood Study will be reviewed. Where flood risk is confirmed, scoping of the next steps will be completed.

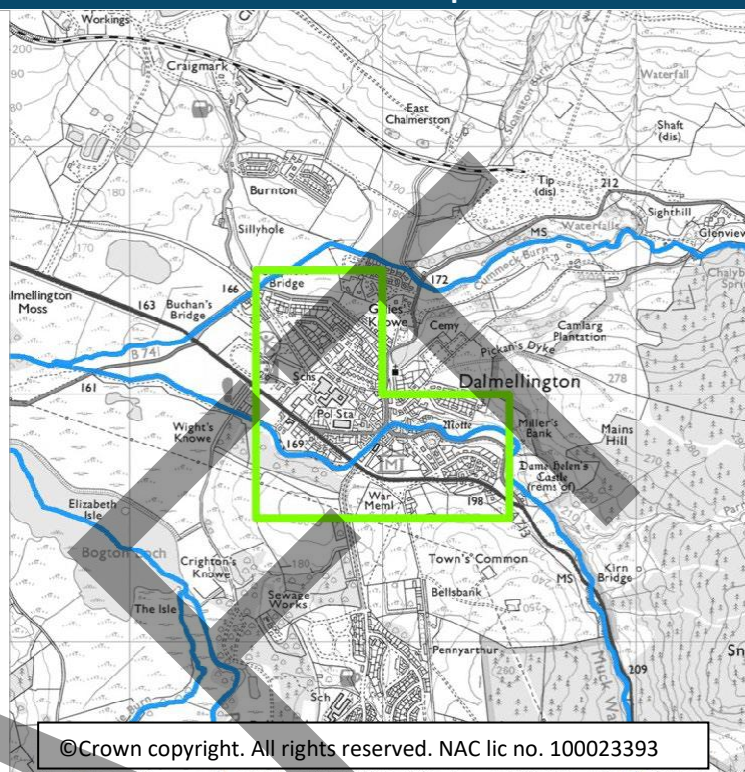
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

Dalmellington (target area 96)

Summary

The market town of Dalmellington is located on the banks of Muck Water. The area is located within the East Ayrshire Council area. The main source of flooding in Dalmellington is river flooding, however there is also a risk from surface water flooding. There are approximately 130 people and 100 homes and businesses currently at risk from flooding. This is likely to increase to 180 people and 140 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources and this information has highlighted the risk of flooding in this area. There is a long record of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

- Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.
- Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.
- Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
961	Avoid flood risk	Avoid inappropriate development that increases flood risk in Dalmellington
962	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Dalmellington
963	Reduce flood risk	Reduce the risk of flooding in Dalmellington

Appendix 2

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area.

NatureScot has identified that they have 'place priorities' for this Target Area. During the implementation of the following actions, the delivery lead should consider engaging with NatureScot to investigate opportunities to deliver on shared priorities.

Actions proposed to start between 2022 and 2028

Flood study (options appraisal) (9601)	
Action	In areas where flood risk is confirmed, a range of possible options to manage flood risk are to be identified, including natural flood management actions where suitable, and a preferred approach is to be chosen. This should include adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	Following the completion of Doon Valley Flood Study, possible options to manage flood risk should be developed. If risk is confirmed, the feasibility of a range of flood risk management options should be carried out.
Delivery Lead	East Ayrshire Council.
Indicative Delivery	This action will be delivered during Cycle 2 (2022 - 2028).
Funding	This action will be funded through East Ayrshire Council budgets provided by Scottish Government, subject to any future funding review.
Coordination	East Ayrshire Council will deliver this flood study with information provided by other relevant responsible authorities, which may include Scottish Water and SEPA.
Local Detail	The flood modelling being carried out for the River Doon Flood Study will be reviewed. Where flood risk is confirmed, scoping of the next steps will be completed.

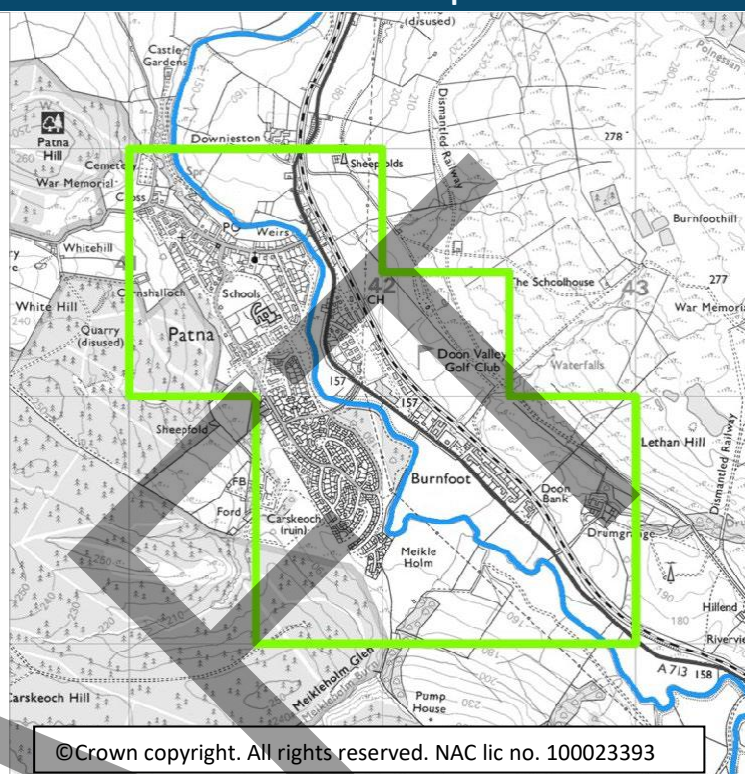
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

Patna (target area 164)

Summary

Patna is a village in East Ayrshire Council area located on the banks of the River Doon. The main source of flooding in Patna is river flooding, however there is also risk of surface water flooding. There are approximately 10 people and 7 homes and businesses currently at risk from flooding. This is likely to increase to 60 people and 30 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources and this information has highlighted the risk of flooding in this area. Patna has therefore been identified as a new target area for the 2021 flood risk management plans. There are limited records of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

- Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.
- Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.
- Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
1641	Avoid flood risk	Avoid inappropriate development that increases flood risk in Patna
1642	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Patna
1643	Reduce flood risk	Reduce the risk of flooding in Patna

Appendix 2

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area.

Actions proposed to start between 2022 and 2028

Flood study (options appraisal) (16401)	
Action	In areas where flood risk is confirmed, a range of possible options to manage flood risk are to be identified, including natural flood management actions where suitable, and a preferred approach is to be chosen. This should include adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	Following the completion of Doon Valley Flood Study, possible options to manage flood risk should be developed. If risk is confirmed, the feasibility of a range of flood risk management options should be carried out.
Delivery Lead	East Ayrshire Council.
Indicative Delivery	This action will be delivered during Cycle 2 (2022 - 2028).
Funding	This action will be funded through East Ayrshire Council budgets provided by Scottish Government, subject to any future funding review.
Coordination	East Ayrshire Council will deliver this flood study with information provided by other relevant responsible authorities, which may include Scottish Water and SEPA.
Local Detail	The flood modelling being carried out for the River Doon Flood Study will be reviewed. Where flood risk is confirmed, scoping of the next steps will be completed.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

02/12/13 (Drongan)

This area is designated as a potentially vulnerable area due to the potential flood risk to Drongan. The main source of risk is from the Water of Coyle, with some risk from surface water flooding. There has been no recorded flooding in this area.

There is 1 target area in this potentially vulnerable area, which has been the focus of further assessment, this is identified below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

Drongan

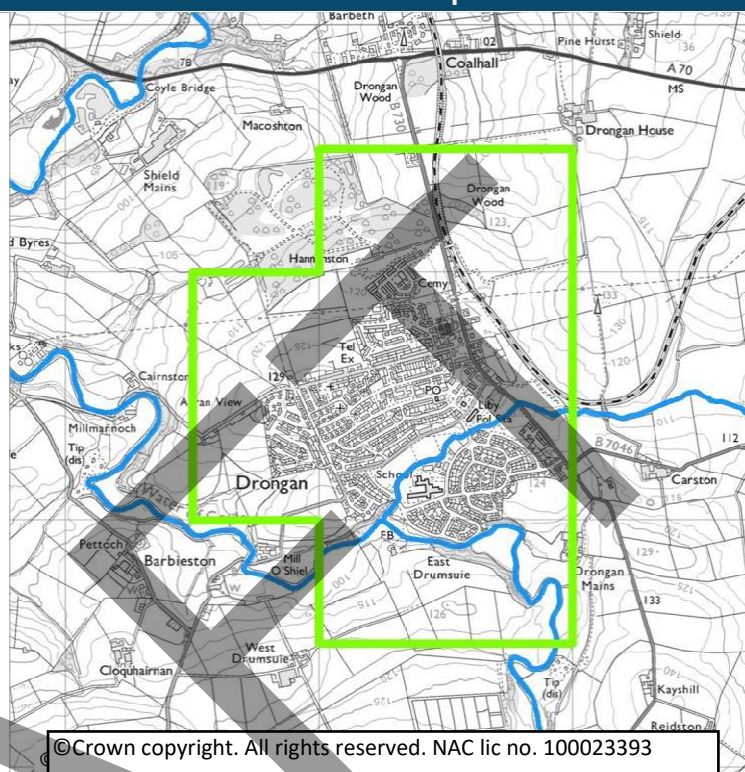
(target area 18)

Drongan (target area 18)

Summary

The village of Drongan is located approximately 10km east of Ayr. The area is located within the East Ayrshire Council area. The main source of flooding in Drongan is river flooding, however there is also a small risk from surface water flooding. There are approximately 150 people and 70 homes and businesses at risk from flooding. This is estimated to increase to 210 people and 100 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources, and this information has highlighted the risk of flooding in this area. Drongan has therefore been identified as a new target area for the 2021 flood risk management plans. There are no records of flooding in the Drongan area but this does not confirm that there is no flood risk.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

- Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.
- Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.
- Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
181	Avoid flood risk	Avoid inappropriate development that increases flood risk in Drongan
182	Improve data and understanding	Improve data and understanding of climate change related to flooding in Drongan

Appendix 2

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area. The local flood risk management plan published in 2022 provides more information on the actions, their timing and how they will be funded and coordinated.

Actions proposed to start between 2022 and 2028

Data collection (1801)	
Action	Equipment that measures rainfall, river levels, erosion, ground levels or wave height may be installed and maintained to improve our understanding of flood risk. This can be done over short term or to measure longer term impacts.
Description	Data collection and monitoring will continue using the river monitors on the Taiglum Burn to improve the confidence in flood sources, mechanisms and risk. A review will be required to assess the need for rain and/or river gauges. Post flood surveys will be required to collect data on flooding mechanisms, risk and damage caused.
Delivery Lead	East Ayrshire Council.
Indicative Delivery	This action will be delivered during Cycle 2 (2022 - 2028).
Funding	This action will be funded through East Ayrshire Council's budget provided by Scottish Government, subject to any future funding review.
Coordination	East Ayrshire Council. SEPA will work with the local authority on the potential to coordinate opportunities for joint data collection activities.
Local Detail	A review will be required to assess the need for rain and/or river gauges. Post flood surveys will be required to collect data on flooding mechanisms, risk and damage caused.

Flood study (1802)

Appendix 2

Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Description	Following the completion of River Ayr Flood Study, if future flood risk is confirmed in this target area, scoping of the next steps should be completed.
Delivery Lead	East Ayrshire Council.
Indicative Delivery	This action will be delivered during Cycle 2 (2022 - 2028).
Funding	This action will be funded through East Ayrshire Council's budget provided by Scottish Government, subject to any future funding review.
Coordination	East Ayrshire Council will deliver this flood study with information provided by other relevant responsible authorities, which may include Scottish Water and SEPA.
Local Detail	The flood modelling being carried out for the River Ayr Valley Flood Study will be reviewed. Where flood risk is confirmed, scoping of the next steps will be completed.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document

02/12/14 (Straiton)

This area is designated as a potentially vulnerable area due to flood risk to Straiton. The main source of risk is from the Water of Girvan, with some risk from surface water. There is a history of flooding in the area, with recent flooding being caused by flooding from the Water of Girvan.

There is 1 target area in this potentially vulnerable area, which has been the focus of further assessment, this is identified below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

Straiton

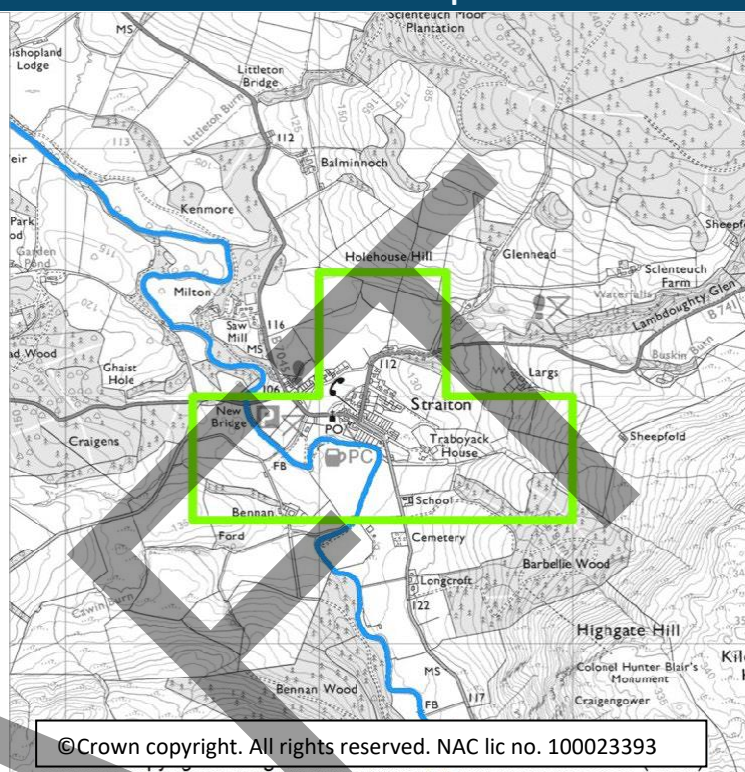
(target area 162)

Straiton (target area 162)

Summary

Straiton is located along the banks of the Water of Girvan. The area is located within the South Ayrshire Council area. The main source of flooding in Straiton is from river flooding. There are approximately 60 people and 30 homes and businesses currently at risk of flooding. These are expected to remain the same in the 2080s with regards to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources, and this information has highlighted the risk of flooding in this area. Straiton has therefore been identified as a new target area for the 2021 flood risk management plans. There are periodic records of flooding in the Straiton area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

- Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.
- Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.
- Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
1621	Avoid flood risk	Avoid inappropriate development that increases flood risk in Straiton
1622	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Straiton
1623	Improve data and understanding	Improve data and understanding of flooding in Straiton

Appendix 2

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area.

NatureScot has identified that they have 'place priorities' for this Target Area. During the implementation of the following actions, the delivery lead should consider engaging with NatureScot to investigate opportunities to deliver on shared priorities.

Actions proposed to start between 2022 and 2028

Data collection (16201)	
Action	Equipment that measures rainfall, river levels, erosion, ground levels or wave height may be installed and maintained to improve our understanding of flood risk. This can be done over short term or to measure longer term impacts.
Description	This may include data collection and monitoring to improve the confidence in flood sources, mechanisms and risk. A review may be required to assess the need for rain and/or river gauges. Post flood surveys may be required to collect data on flooding mechanisms, risk and damage caused.
Delivery Lead	Action delivery lead is South Ayrshire Council and coordination will be determined once the actions have been finalised.
Indicative Delivery	This action will be delivered during Cycle 2 (2022 - 2028).
Funding	This study will be funded through South Ayrshire Council's budget provided by Scottish Government, subject to any future funding review.
Coordination	South Ayrshire Council and SEPA will work together on the potential to coordinate opportunities for joint data collection activities.
Local Detail	Gauges shall be installed in the Kirk Burn & the Water of Girvan to monitor flow and depth information to inform a future study to commence in Cycle 3.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

Flood study (16202)

Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Description	A flood study should be carried out to improve understanding of river flood risk in Straiton. The impacts of climate change on flood risk should be evaluated. If flood risk is confirmed, scoping of the next steps should be completed.
Delivery Lead	South Ayrshire Council.
Indicative Delivery	This action will be delivered during Cycle 3 (2028 - 2034).
Funding	This action will be funded through South Ayrshire Council's budget provided by Scottish Government, subject to any future funding review.
Coordination	South Ayrshire Council will deliver this flood study with information provided by other relevant responsible authorities, which may include Scottish Water and SEPA.
Local Detail	Flood modelling will be carried out for the Dyrock Burn and Water of Girvan Flood Study, informed by data gathering in Cycle 2. Where flood risk is confirmed, scoping of the next steps will be completed.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

02/12/15 (Cumnock)

This area is designated as a potentially vulnerable area due to flood risk to Auchinleck and Cumnock. The main sources of flooding are from surface water and river flooding from the Lugar Water. There are regular reports of flooding from the Gaisnock Water in Cumnock. There is a history of flooding in the area, with recent flooding being caused by surface water.

There are 2 target area in this potentially vulnerable area, which has been the focus of further assessment, this is identified below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

Cumnock
Auchinleck

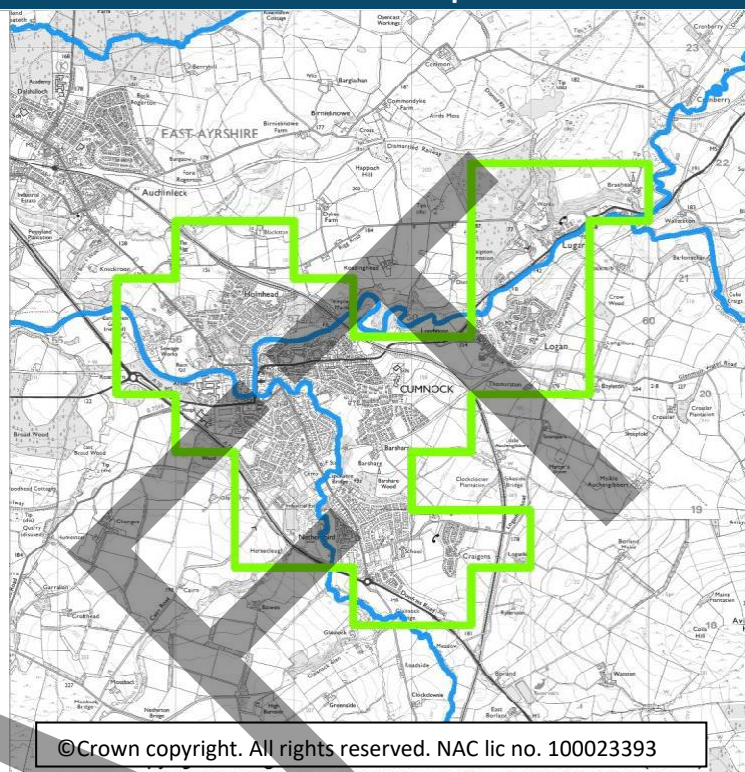
(target area 19)
(target area 68)

Cumnock (target area 19)

Summary

The town of Cumnock and the villages of Netherthird, Craighs and Logan are located adjacent to the Lugar and Glaisnock Water. These areas are located within the East Ayrshire Council area. The main source of flooding in Cumnock is surface water flooding, however there is also a risk from river flooding. There are approximately 550 people and 400 homes and businesses at risk from flooding. This is estimated to increase to 720 people and 500 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water. The national level assessment is improved for surface water flooding by the sewer flood risk assessment and improved for river flooding by the ongoing River Ayr Flood Study. Together, this information has highlighted the risk of flooding in this area. Cumnock has therefore been identified as a new target area for the 2021 flood risk management plans. There is a long record of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

- Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.
- Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.
- Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
191	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
192	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
193	Reduce flood risk	Reduce the risk of flooding in this target area

Appendix 2

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area. The local flood risk management plan published in 2022 provides more information on the actions, their timing and how they will be funded and coordinated.

Actions proposed to start between 2022 and 2028

Flood study (options appraisal) (1901)	
Action	In areas where flood risk is confirmed, a range of possible options to manage flood risk are to be identified, including natural flood management actions where suitable, and a preferred approach is to be chosen. This should include adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	Following the completion of River Ayr Flood Study, possible options to manage flood risk should be developed. If risk is confirmed, the feasibility of a range of flood risk management options should be carried out.
Delivery Lead	East Ayrshire Council
Indicative Delivery	This action will be delivered during Cycle 2 (2022 - 2028).
Funding	This action will be funded through East Ayrshire Council's budget provided by Scottish Government, subject to any future funding review.
Coordination	East Ayrshire Council will deliver this flood study with information provided by other relevant responsible authorities, which may include Scottish Water and SEPA.
Local Detail	The flood modelling being carried out for the River Ayr Flood Study will be reviewed. Where flood risk is confirmed, scoping of the next steps will be completed.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

Property flood resilience scheme (1902)

Appendix 2

Action	The proposed scheme to provide resilience measures against flooding for individual buildings is to be taken forward to help prevent water entering the property and to minimise flood damage.
Description	The River Ayr Flood Study should be completed as planned. Following the completion of the flood modelling, East Ayrshire Council should review the property resilience program.
Delivery Lead	East Ayrshire Council.
Indicative Delivery	This action will be delivered during Cycle 3 (2028 - 2034).
Funding	This action will be funded through East Ayrshire Council's budget provided by Scottish Government, subject to any future funding review.
Coordination	East Ayrshire Council in coordination with identified stakeholders.
Local Detail	Following the outcomes of the flood study for the River Ayr, East Ayrshire Council shall review the benefit of the property resilience program.

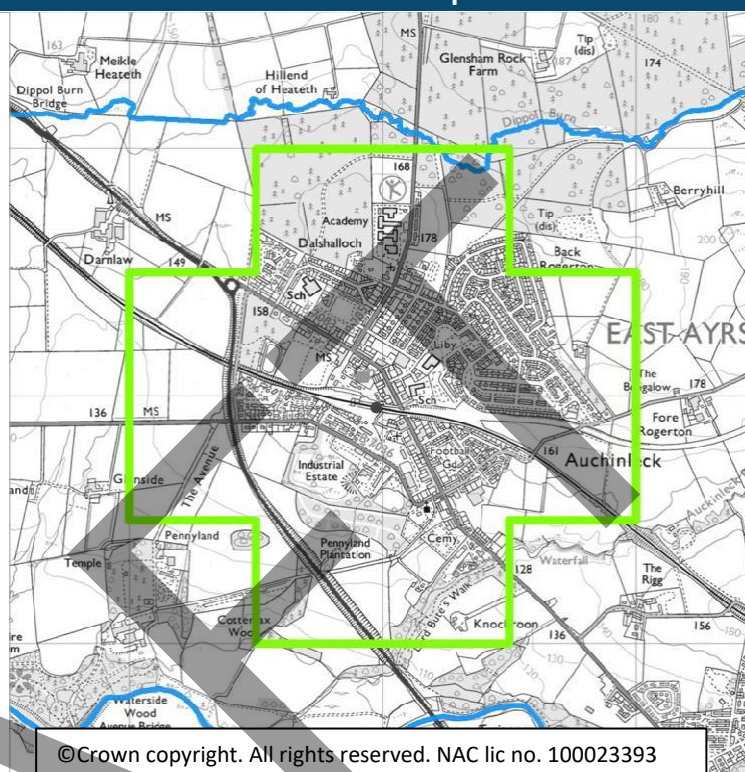
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

Auchinleck (target area 68)

Summary

The village of Auchinleck is located within the East Ayrshire Council area. The main source of flooding in Auchinleck is surface water flooding. There are approximately 50 people and 40 homes and businesses at risk from flooding. This is likely to increase to 100 people and 60 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and this information has highlighted the risk of flooding in this area. Auchinleck has therefore been identified as a new target area for the 2021 flood risk management plans. There are no records of flooding in this target area but this does not confirm that there is no flood risk.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

- Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.
- Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.
- Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
681	Avoid flood risk	Avoid inappropriate development that increases flood risk in Auchinleck
682	Improve data and understanding	Improve data and understanding of flooding in Auchinleck
683	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Auchinleck

Appendix 2

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area. The local flood risk management plan published in 2022 provides more information on the actions, their timing and how they will be funded and coordinated.

Actions proposed to start between 2022 and 2028

Flood risk management review (6801)	
Action	During each 6 year planning cycle, we update our understanding of flooding to include all new data and information that has become available. This includes information on any flooding that has happened and the latest predictions on the impacts of climate change. The updated understanding is used to set any appropriate objectives and actions for areas at risk of flooding.
Description	No local actions specific to this target area have been identified yet. There are national actions planned that will cover this area, including an update to SEPA's surface water flood maps and an update to the national flood risk assessment. These, along with other actions that are carried out across the whole local plan district covering this area, will help to manage flood risk in the long term. The need for actions for this area will be reviewed again in 2026.
Delivery Lead	SEPA.
Indicative Delivery	2022-2028.
Funding	SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	SEPA will work with the other responsible authorities to review flood risk management for this area, through the Local Plan District Partnerships. A public consultation on priority areas will be held in 2024 by SEPA, which will be open for three months. A public consultation on future flood management actions will be held in December 2026 and will be open for at least three months.
Local Detail	No local actions specific to this target area have been identified yet. However, there are national actions to be taken forward which will help identify future needs in this area. SEPA are updating surface water mapping to enhance the understanding of current and future surface water flood risks. Scotland's most vulnerable areas will be reviewed to take account of any new information, which will be published in 2024. Long term flood management actions will be reviewed in 2026. SEPA will continue to collect information on any flooding that occurs in the area, to inform the review process.

Actions proposed after June 2028

Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.
Delivery Lead	East Ayrshire Council / Scottish Water
Indicative Delivery	This action will be delivered during Cycle 3 (2028 - 2034).
Funding	The surface water flood risk options appraisal will be funded through East Ayrshire Council's budget provided by Scottish Government or funded by Scottish Water's budget as appropriate.
Coordination	East Ayrshire Council, Scottish Water and SEPA.
Local Detail	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

02/12/16 (Catrine)

This area is designated as a potentially vulnerable area due to flood risk to Catrine and Sorn. The main source of flooding is from the River Ayr, with some risk from surface water. There is a history of river flooding in the area.

There are 2 target area in this potentially vulnerable area, which has been the focus of further assessment, this is identified below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

Sorn
Catrine

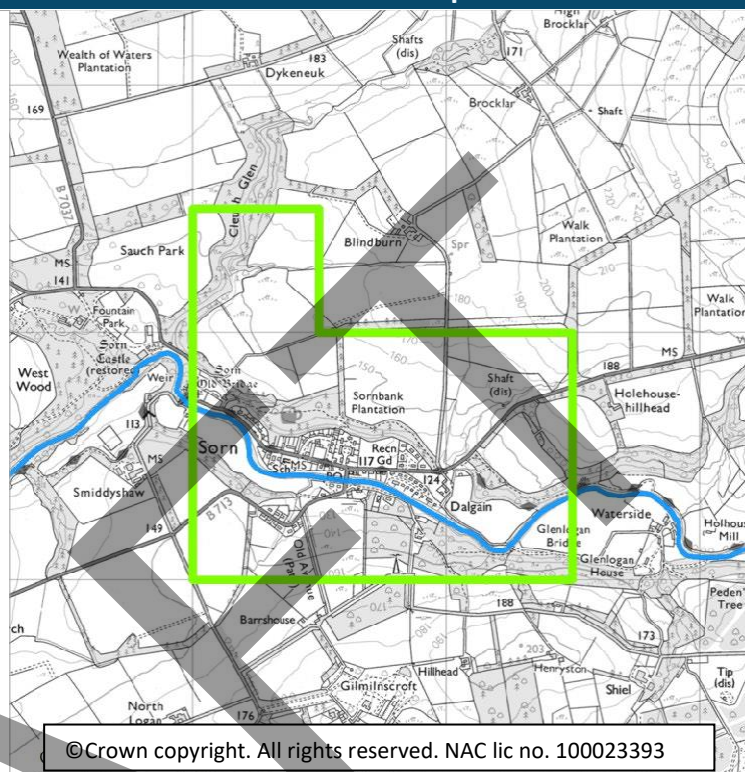
(target area 16)
(target area 17)

Sorn (target area 16)

Summary

The small village of Sorn is located on the banks of the River Ayr. The area is located within the East Ayrshire Council area. The main source of flooding in Sorn is river flooding, however there is also a risk from surface water flooding. There are approximately 180 people at risk from flooding and approximately 110 homes and businesses, which is a significant proportion of the community. These figures are expected to remain the same by the 2080s, irrespective of climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for river flooding by the new flood warning scheme. There are no records of flooding in the Sorn area but this does not confirm that there is no flood risk.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

- Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.
- Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.
- Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
161	Avoid flood risk	Avoid inappropriate development that increases flood risk in Sorn
162	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Sorn
163	Reduce flood risk	Reduce the risk of flooding in Sorn

Appendix 2

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area.

Actions proposed to start between 2022 and 2028

Flood study (options appraisal) (1601)	
Action	In areas where flood risk is confirmed, a range of possible options to manage flood risk are to be identified, including natural flood management actions where suitable, and a preferred approach is to be chosen. This should include adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	Following the completion of River Ayr Flood Study, possible options to manage flood risk should be developed. If risk is confirmed, the feasibility of a range of flood risk management options should be carried out.
Delivery Lead	East Ayrshire Council.
Indicative Delivery	This action will be delivered during Cycle 2 (2022 - 2028).
Funding	This action will be funded through East Ayrshire Council's budget provided by Scottish Government, subject to any future funding review.
Coordination	East Ayrshire Council will deliver this flood study with information provided by other relevant responsible authorities, which may include Scottish Water and SEPA.
Local Detail	If risk is confirmed, the feasibility of a range of flood risk management options should be carried out.
Flood warning maintenance (1602)	
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Description	SEPA should maintain the Ayr, Annick and Irvine flood warning schemes.
Delivery Lead	SEPA.
Indicative Delivery	Ongoing.
Funding	SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	SEPA will maintain the Ayr, Annick and Irvine flood warning schemes. SEPA will continue to raise awareness of flood warning, and engage with communities about the service when required.
Local Detail	N/A.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

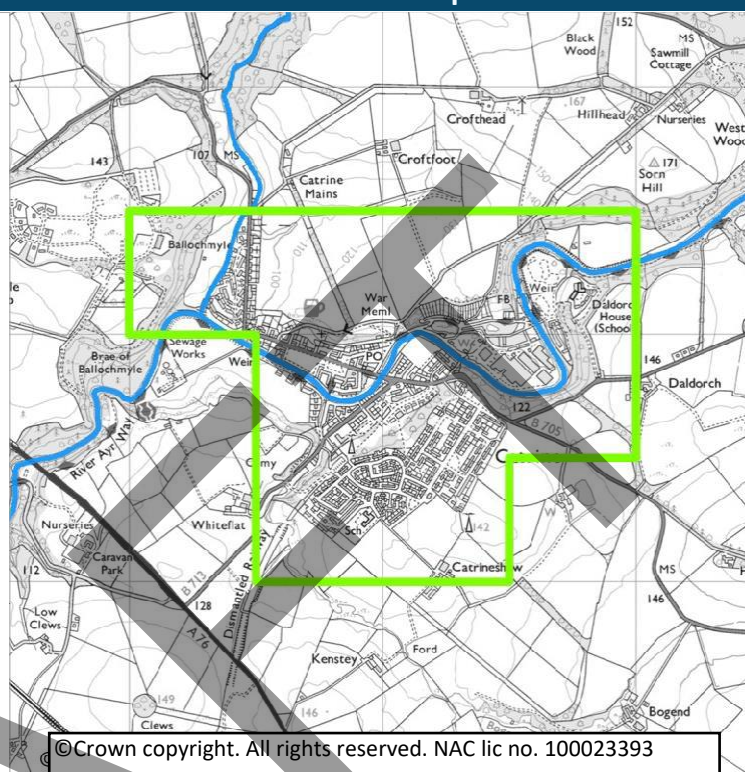
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Catrine (target area 17)

Summary

The village of Catrine is located on the banks of the River Ayr, within the East Ayrshire Council area. The main source of flooding in Catrine is river flooding, however there is also a risk from surface water flooding. There are approximately 530 people and 320 homes and businesses at risk from flooding. This is estimated to increase to 550 people and 330 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for river flooding by the new flood warning scheme and surface water flooding by the sewer flood risk assessment. There are limited records of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

- Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.
- Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.
- Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
171	Avoid flood risk	Avoid inappropriate development that increases flood risk in Catrine
172	Improve data and understanding	Improve data and understanding of flooding in Catrine
173	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Catrine

Appendix 2

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area. The local flood risk management plan published in 2022 provides more information on the actions, their timing and how they will be funded and coordinated.

Actions proposed to start between 2022 and 2028

Data collection (1701)	
Action	Equipment that measures rainfall, river levels, erosion, ground levels or wave height may be installed and maintained to improve our understanding of flood risk. This can be done over short term or to measure longer term impacts.
Description	Data collection and monitoring will continue using the river monitors on the River Ayr to improve the confidence in flood sources, mechanisms and risk. A review will be required to assess the need for rain and/or river gauges. Post flood surveys will be required to collect data on flooding mechanisms, risk and damage caused.
Delivery Lead	East Ayrshire Council.
Indicative Delivery	This action will be delivered during Cycle 2 (2022 - 2028).
Funding	This action will be funded through East Ayrshire Council and South Ayrshire Councils' budgets provided by Scottish Government, subject to any future funding review.
Coordination	East Ayrshire Council and SEPA will work together on the potential to coordinate opportunities for joint data collection activities.
Local Detail	East Ayrshire Council shall continue to liaise with SEPA and utilise SEPA gauge information available for this catchment, as required.

Flood study (1702)

Appendix 2

Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Description	The flood modelling being carried out for the River Ayr Flood Study should be reviewed along with the SEPA model for the flood warning scheme and the Scottish Water sewer flood risk assessment. If flood risk is confirmed, scoping of the next steps should be completed.
Delivery Lead	Action delivery lead is East Ayrshire Council. Once the actions have been finalised, they will be progressed in coordination with South Ayrshire Council.
Indicative Delivery	This action will be delivered during Cycle 2 (2022 - 2028).
Funding	This action will be funded through East Ayrshire Council budgets provided by Scottish Government, subject to any future funding review.
Coordination	East Ayrshire Council and South Ayrshire Council.
Local Detail	The flood modelling being carried out for the River Ayr Flood Study will be reviewed. Where flood risk is confirmed, scoping of the next steps will be completed.

Flood warning maintenance (1703)

Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Description	SEPA should maintain the Ayr, Annick and Irvine flood warning schemes.
Delivery Lead	SEPA.
Indicative Delivery	Ongoing.
Funding	SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	SEPA will maintain the Ayr, Annick and Irvine flood warning schemes. SEPA will continue to raise awareness of flood warning, and engage with communities about the service when required.
Local Detail	N/A.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

Property flood resilience scheme (1704)

Appendix 2

Action	The proposed scheme to provide resilience measures against flooding for individual buildings is to be taken forward to help prevent water entering the property and to minimise flood damage.
Description	Based on the outcomes of the flood study for Catrine, East Ayrshire Council is to review the benefit of the property resilience program.
Delivery Lead	East Ayrshire Council
Indicative Delivery	This action will be delivered during Cycle 3 (2028 - 2034).
Funding	This action will be funded through East Ayrshire Council's budget provided by Scottish Government, subject to any future funding review.
Coordination	East Ayrshire Council with other identified stakeholders.
Local Detail	The outcomes of the flood study for the River Ayr, East Ayrshire Council shall review the benefit of the property resilience program.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

02/12/17 (Girvan)

This area is designated as a potentially vulnerable area due to flood risk to Girvan. There is flooding from river, coastal and surface water. Recent river and surface water flooding has occurred in this area.

There is 1 target area in this potentially vulnerable area, which has been the focus of further assessment, this is identified below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

Girvan

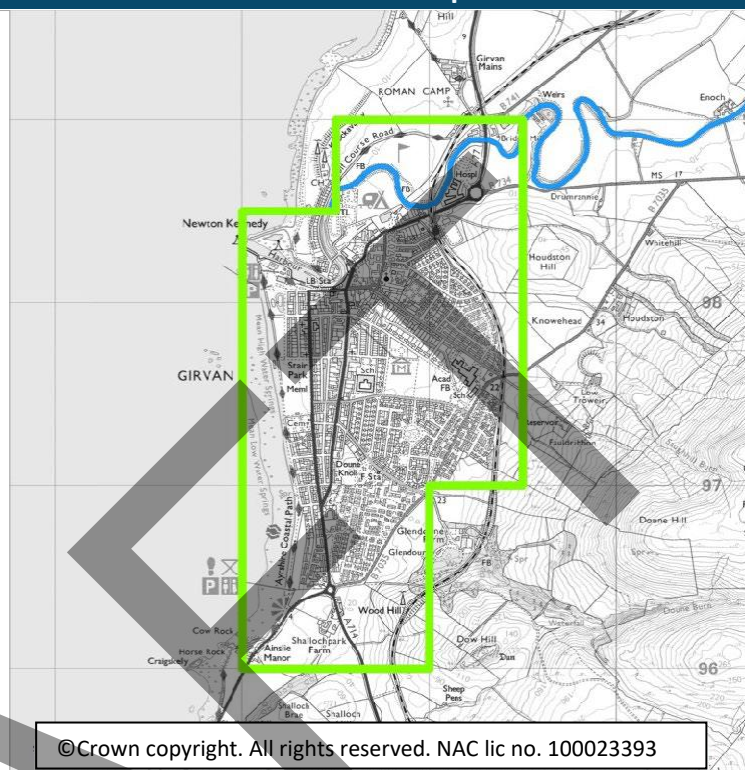
(target area 78)

Girvan (target area 78)

Summary

Girvan is a coastal town located at the mouth of the Water of Girvan. The area is located within the South Ayrshire Council area. The main source of flooding in Girvan is river flooding, however there is also risk of coastal and surface water flooding. There are approximately 460 people and 270 homes and businesses at risk from flooding. This is likely to increase to 580 people and 340 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for surface water flooding by the sewer flood risk assessment and for both river and surface water flooding by the Girvan flood study. Understanding is improved for coastal flooding by the shoreline management plan. There is a long record of flooding in this target area.

The Dynamic Coast project has shown that parts of the shoreline in or adjacent to this target area are subject to erosion at present or are considered likely to erode in the future. Consideration should be given to how erosion might impact flood risk. Any actions taken should aim to support building natural resilience to flooding and not lead to an increase in erosion.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

- Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.
- Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.
- Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description	Appendix 2
781	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of Girvan coastal defences	
782	Avoid flood risk	Avoid inappropriate development that increases flood risk in Girvan	
783	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Girvan	
784	Reduce flood risk	Reduce the risk of flooding in Girvan	

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area.

NatureScot has identified that they have 'place priorities' for this Target Area. During the implementation of the following actions, the delivery lead should consider engaging with NatureScot to investigate opportunities to deliver on shared priorities.

Actions proposed to start between 2022 and 2028

Flood scheme or works design (7801)	
Action	The selected preferred approach for managing flood risk is to be designed following the completion of the flood study, including consideration of the long-term impacts of climate change. These can include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	South Ayrshire Council to develop detailed design of the Girvan Flood Protection Scheme, based on the preferred option from the flood study and public engagement. The responsible authority proposes this action as the best viable option for managing flood risk in this community. The delivery of this action is subject to capital funding being made available.
Delivery Lead	Action delivery lead is South Ayrshire Council in coordination with SEPA.
Indicative Delivery	Cycle 2 (2022 - 2028). The delivery of this action is subject to Scottish Government capital grant funding being made available.
Funding	The funding arrangements for Cycle 2 'flood scheme or works design' actions are still to be confirmed by the Scottish Government and COSLA joint funding group. Until the funding arrangements for these actions and the community engagement actions related to flood scheme or works design are confirmed, the draft Local FRM Plan for the Ayrshire Local Plan District cannot be fully finalised.
Coordination	South Ayrshire Council and SEPA will work together on the potential to coordinate this action with work on coastal flood mapping and flood warning actions.
Local Detail	Subject to Scottish Government funding being available, South Ayrshire Council to develop detailed design for Girvan Flood Protection Scheme based on the preferred option from the flood study.

Flood defence maintenance (7802)

Appendix 2

Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Description	South Ayrshire Council is to continue to inspect and maintain the Girvan coastal defences. The maintenance regime should be made based on the findings of the flood study.
Delivery Lead	South Ayrshire Council
Indicative Delivery	This action will be delivered during Cycle 2 (2022 - 2028).
Funding	Maintenance works as required will be funded through South Ayrshire Council's budget provided by Scottish Government.
Coordination	South Ayrshire Council will work in coordination with all relevant stakeholders identified through the planning and implementation of maintenance works.
Local Detail	South Ayrshire Council shall continue to inspect and maintain the Girvan coastal defences. The maintenance regime should be made based on the findings of the annual inspection programme and proposed coastal flood study.

Flood warning maintenance (7803)

Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Description	SEPA should maintain the Firth of Clyde coastal flood warning scheme.
Delivery Lead	SEPA.
Indicative Delivery	Ongoing.
Funding	SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	SEPA will work with the local authorities on the potential to use information from the flood schemes and studies along the Firth of Clyde to inform ongoing flood warning. SEPA will continue to raise awareness of flood warning, and engage with communities about the service when required.
Local Detail	N/A.

Strategic mapping improvements (7804)

Appendix 2

Action Description	SEPA will continue to update flood maps based on new information. SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.
Delivery Lead	SEPA.
Indicative Delivery	2025-2028.
Funding	SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	SEPA will work with the local authority on the potential to coordinate the flood map update with any other actions being carried out to understand or reduce coastal flooding.
Local Detail	N/A.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

Flood study (7805)

Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk. The performance and condition of the existing flood defences is to be evaluated, including consideration of the likely impacts of climate change. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	A flood study should be carried out to improve understanding of coastal flood risk in Girvan. The Shoreline Management Plan and operation of the existing defences should be reviewed to ascertain the requirements of the flood study. The impacts of climate change on flood risk should be evaluated. The interactivity between coastal flooding and other sources of flooding should be assessed. If flood risk is confirmed, scoping of the next steps should be completed.
Delivery Lead	South Ayrshire Council
Indicative Delivery	This action will be delivered during Cycle 3 (2028 - 2034).
Funding	This action will be funded through South Ayrshire Council's budget provided by Scottish Government, subject to any future funding review.
Coordination	South Ayrshire Council will deliver this flood study with information provided by other relevant responsible authorities, which may include Scottish Water and SEPA.
Local Detail	Flood modelling will be carried out for Girvan Coastal Flood Study. Where flood risk is confirmed, scoping of the next steps will be completed.

Flood study (existing flood defences) (7806)

Appendix 2

Action	The performance and condition of the existing flood defences are to be evaluated, including consideration of the likely impacts of climate change. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	A study of the existing coastal flood defences to be carried out following the outcomes of the coastal flood study. The study should establish the predicted standard of protection for a number of climate change scenarios. This information will underpin the development of an adaptation plan for the long term protection of the community.
Delivery Lead	South Ayrshire Council
Indicative Delivery	This action will be delivered during Cycle 3 (2028 - 2034)
Funding	This study will be funded through South Ayrshire Council's budget provided by Scottish Government, subject to any future funding review.
Coordination	South Ayrshire Council and SEPA.
Local Detail	Detailed survey and flood modelling will be carried out for the Girvan Coastal Flood Study. The outcomes of the study will underpin the development of an adaption plan for the long term protection of the community.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document

02/12/18 (Barrhill)

This area is designated as a potentially vulnerable area due to flood risk to Barrhill. The main source of flooding is from the Cross Water, and some surface water. There are no historical records of flooding in the area.

There is 1 target area in this potentially vulnerable area, which has been the focus of further assessment, this is identified below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

Barrhill

(target area 95)

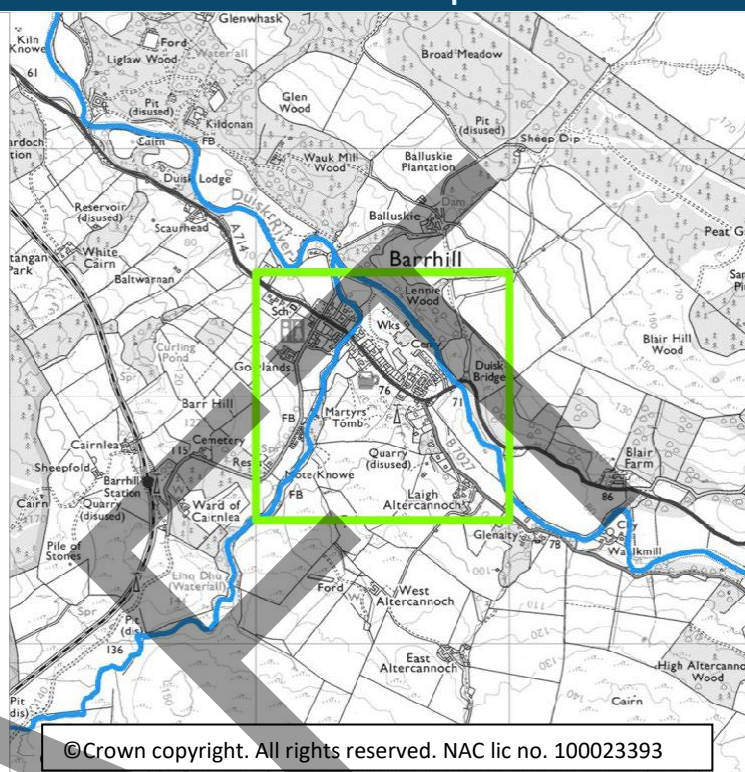
Barrhill (target area 95)

Summary

Barrhill is a small village located west of Galloway Forest Park. The area is located within the South Ayrshire Council area. The main sources of flooding in Barrhill are from river and surface water flooding.

There are approximately 70 people and 40 homes and businesses currently at risk from flooding, which is a significant proportion of the community. This is likely to increase to 80 people and 50 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources, and this information has highlighted the risk of flooding in this area. Barrhill has therefore been identified as a new target area for the 2021 flood risk management plans. There are no records of flooding in the Barrhill area but this does not confirm that there is no flood risk.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

- Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.
- Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.
- Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
951	Avoid flood risk	Avoid inappropriate development that increases flood risk in Barrhill
952	Improve data and understanding	Improve data and understanding of surface water and river flooding in Barrhill

Appendix 2

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area.

NatureScot has identified that they have 'place priorities' for this Target Area. During the implementation of the following actions, the delivery lead should consider engaging with NatureScot to investigate opportunities to deliver on shared priorities.

Actions proposed to start between 2022 and 2028

Data collection (9501)	
Action	Equipment that measures rainfall, river levels, erosion, ground levels or wave height may be installed and maintained to improve our understanding of flood risk. This can be done over short term or to measure longer term impacts.
Description	This may include data collection and monitoring to improve the confidence in flood sources, mechanisms and risk. A review may be required to assess the need for rain and/or river gauges. Post flood surveys may be required to collect data on flooding mechanisms, risk and damage caused. Data collected can be used to inform future studies.
Delivery Lead	South Ayrshire Council
Indicative Delivery	This action will be delivered during Cycle 2 (2022 - 2028).
Funding	This study will be funded through South Ayrshire Council's budget provided by Scottish Government, subject to any future funding review.
Coordination	South Ayrshire Council and SEPA will work together on the potential to coordinate opportunities for joint data collection activities.
Local Detail	Gauges shall be installed in the Cross Water & the River Duisk to monitor flow and depth information to inform a future study to commence in Cycle 3.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

Flood study (9502)	
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Description	A flood study should be carried out to improve understanding of river and surface water flood risk in Barrhill. The interactivity between surface water and river flooding should be assessed. The impacts of climate change on flood risk should be evaluated. If flood risk is confirmed, scoping of the next steps should be completed.
Delivery Lead	South Ayrshire Council.
Indicative Delivery	This action will be delivered during Cycle 3 (2028 - 2034).
Funding	This action will be funded through South Ayrshire Council's budget provided by Scottish Government, subject to any future funding review.
Coordination	South Ayrshire Council will deliver this flood study with information provided by other relevant responsible authorities, which may include Scottish Water and SEPA.
Local Detail	Flood modelling will be carried out for the Cross Water and River Duisk Flood Study informed by data gathering in Cycle 2. Where flood risk is confirmed, scoping of the next steps will be completed.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

02/12/19 (Isle of Arran)

This area is designated as a potentially vulnerable area due to flood risk to Brodick, Lamlash and Whiting Bay. There is flooding from coastal, river and surface waters. Some areas of the coastline have been identified as susceptible to coastal erosion. There is the potential for an increased flood risk due to climate change in some locations. There is a history of flooding in the area, with recent flooding being caused by coastal flooding.

There are 3 target area in this potentially vulnerable area, which has been the focus of further assessment, this is identified below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

Brodick

(target area 23)

Lamlash

(target area 24)

Whiting Bay

(target area 25)

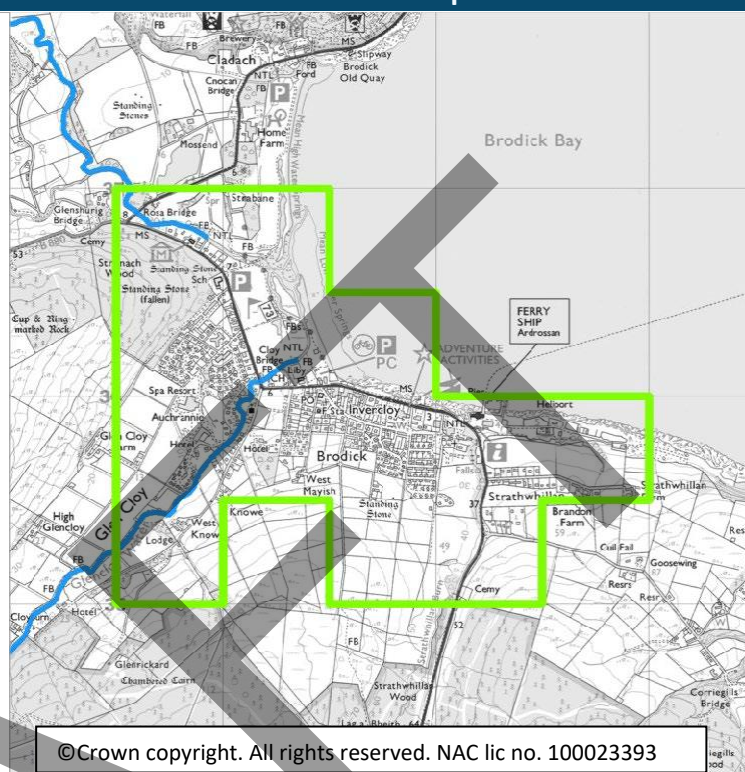
Brodict (target area 23)

Summary

Brodict is located on the Isle of Arran, on the banks of Strathwhillan Burn and Glen Cloy Burn and at the mouth of Glenrosa Water. The area is located within the North Ayrshire local authority area. The main source of flooding in the area is coastal flooding, however there are also risks from river and surface water flooding. There are approximately 50 people and 60 homes and businesses at risk from flooding.

This is estimated to increase to 220 people and 160 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for river and coastal flooding by the Brodict flood study (2019) and shoreline management plan (coastal flooding only). There are periodic records of flooding in this target area.

The Dynamic Coast project has shown that parts of the shoreline in or adjacent to this target area are subject to erosion at present or are considered likely to erode in the future. Consideration should be given to how erosion might impact flood risk. Any actions taken should aim to support building natural resilience to flooding and not lead to an increase in erosion.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

- Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.
- Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.
- Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description	Appendix 2
231	Avoid flood risk	Avoid inappropriate development that increases flood risk in Brodick	
232	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Brodick	
233	Prepare for flooding	Develop an adaptive approach for coastal erosion to future flooding resulting from climate change	
234	Reduce flood risk	Reduce the risk of flooding in Brodick	

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area.

NatureScot has identified that they have 'place priorities' for this Target Area. During the implementation of the following actions, the delivery lead should consider engaging with NatureScot to investigate opportunities to deliver on shared priorities.

Actions proposed to start between 2022 and 2028

Flood scheme or works design (2301)	
Action	The selected preferred approach for managing flood risk is to be designed following the completion of the flood study, including consideration of the long-term impacts of climate change. These can include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	North Ayrshire Council to develop detailed design of the Brodick Flood Protection Scheme, based on the recommended option from the flood study and carry out public engagement. The recommended option consists of a combination of property flood resilience measures and direct defences in the form of a flood embankment (subject to landowner agreement). The responsible authority proposes this action as the best viable option for managing flood risk in this community. The delivery of this action is subject to capital funding being made available.
Delivery Lead	North Ayrshire Council.
Indicative Delivery	The flood scheme design shall be completed during Cycle 2 (2022 - 2028). The delivery of this action is subject to Scottish Government capital grant funding being made available.
Funding	The funding arrangements for Cycle 2 'flood scheme or works design' actions are still to be confirmed by the Scottish Government and COSLA joint funding group. Until the funding arrangements for these actions and the community engagement actions related to flood scheme or works design are confirmed, the draft Local FRM Plan for the Ayrshire Local Plan District cannot be fully finalised.
Coordination	North Ayrshire Council will coordinate with SEPA, Scottish Water, local residents, landowners and other stakeholders throughout the design development of the flood scheme. SEPA will work with the local authority on the potential to coordinate this action with work on coastal flood mapping.
Local Detail	The detail design for the Brodick Flood Protection Scheme is to include landowner and property owner engagement on the location of the direct defences and the proposed property flood resilience measures

recommended by the completed flood study. North Ayrshire Council proposes this action as the best viable option for managing flood risk in this community.

Community engagement (2302)

Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	North Ayrshire Council to carry out community engagement linked to the proposed (funding dependant) Brodick Flood Protection Scheme. A community engagement plan will be created to cover the time period from detailed design to implementation of the flood protection solution. The delivery of this action is subject to capital funding being made available.
Delivery Lead	North Ayrshire Council.
Indicative Delivery	Community engagement will be ongoing, linked to the design of the Brodick Flood Protection Scheme.
Funding	The funding arrangements for Cycle 2 'flood scheme or works design' actions are still to be confirmed by the Scottish Government and COSLA joint funding group. Until the funding arrangements for these actions and the community engagement actions related to flood scheme or works design are confirmed, the draft Local FRM Plan for the Ayrshire Local Plan District cannot be fully finalised.
Coordination	Work by the responsible authorities to develop understanding and help communities reduce their risk will be coordinated through the Local Plan District Partnership.
Local Detail	Community engagement will be carried out where issues, constraints, aspirations and opportunities are identified through the development of the detailed design and the implementation of the Brodick Flood Protection Scheme.

Flood study (2303)

Appendix 2

Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Description	North Ayrshire Council to carry out a flood study to investigate the feasibility of natural flood management measures in the catchment to address flood risk. This study will include a review of existing models and flood risk information.
Delivery Lead	North Ayrshire Council.
Indicative Delivery	This study will be delivered during the second half of Cycle 2 (2025 - 2028).
Funding	This study will be funded through North Ayrshire Council's budget provided by the Scottish Government.
Coordination	North Ayrshire Council will deliver this flood study with information provided by other relevant responsible authorities, which may include Scottish Water and SEPA. There are opportunities to work with local landowners/ estate managers from the upper catchments to jointly develop Natural Flood Management mitigation measures.
Local Detail	Following the already completed Brodick flood study and the proposed detailed design of the Brodick Flood Protection Scheme, this study shall investigate the feasibility of Natural Flood Management (NFM) measures to address residual flood risk in Brodick.

Strategic mapping improvements (2304)

Action	SEPA will continue to update flood maps based on new information.
Description	SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.
Delivery Lead	SEPA.
Indicative Delivery	2025-2028
Funding	SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	SEPA will work with the local authority on the potential to coordinate the flood map update with any other actions being carried out to understand or reduce coastal flooding.
Local Detail	N/A.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

Action	The existing assessment of coastal flood and erosion risk is to be reviewed and updated as required. The plan should include assessment of climate change and develop adaptive approaches to allow for the impacts of climate change to be monitored, understood and managed.
Description	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.
Delivery Lead	North Ayrshire Council.
Indicative Delivery	This action will be delivered during Cycle 3 (2028 - 2034)
Funding	This action will be funded through North Ayrshire Council's budget provided by Scottish Government, subject to any future funding review.
Coordination	North Ayrshire Council will work with other relevant responsible authorities, statutory bodies and key stakeholders identified through the scoping stage of the planned update to the shoreline management plan.
Local Detail	Details of this action will be informed by developments in flood risk management planning during Cycle 2 (2022-2028).

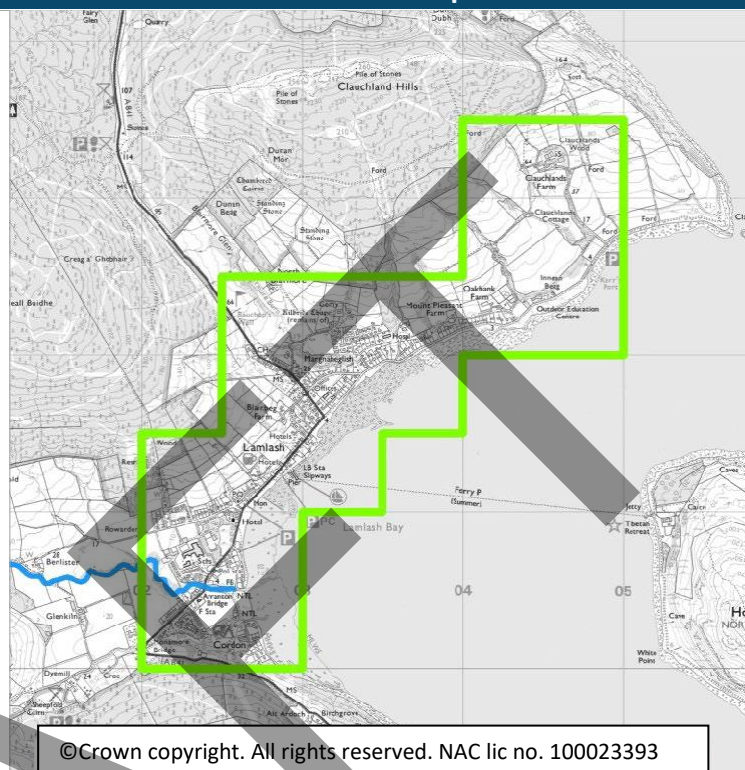
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

Lamlash (target area 24)

Summary

The coastal village of Lamlash is located on the Isle of Arran, at the mouth of Benlister Burn at Lamlash Bay. The area is located within the North Ayrshire local authority area. The main source of flooding in the area is coastal flooding, however there are also risks of river and surface water flooding. There are around 170 people and 100 homes and businesses at risk from flooding. This is likely to increase to 290 people and 160 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for river and coastal flooding by the Lamlash flood study (2019) and shoreline management plan (coastal flooding only). There is a long record of flooding in this target area.

The Dynamic Coast project has shown that parts of the shoreline in or adjacent to this target area are subject to erosion at present or are considered likely to erode in the future. Consideration should be given to how erosion might impact flood risk. Any actions taken should aim to support building natural resilience to flooding and not lead to an increase in erosion.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

- Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.
- Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.
- Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description	Appendix 2
241	Avoid flood risk	Avoid inappropriate development that increases flood risk in Lamlash	
242	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Lamlash	
243	Prepare for flooding	Develop an adaptive approach for coastal erosion to future flooding resulting from climate change	
244	Reduce flood risk	Reduce the risk of flooding in Lamlash	

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area.

NatureScot has identified that they have 'place priorities' for this Target Area. During the implementation of the following actions, the delivery lead should consider engaging with NatureScot to investigate opportunities to deliver on shared priorities.

Actions proposed to start between 2022 and 2028

Flood scheme or works design (2401)

Appendix 2

Action	The selected preferred approach for managing flood risk is to be designed following the completion of the flood study, including consideration of the long-term impacts of climate change. These can include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	<p>North Ayrshire Council to develop detailed design of the Brodick Flood Protection Scheme, based on the recommended option from the flood study and public engagement. The recommended option combines embankments, flood walls and demountable barriers in order to provide protection up to the 200 year flood events.</p> <p>The responsible authority proposes this action as the best viable option for managing flood risk in this community. The delivery of this action is subject to capital funding being made available.</p>
Delivery Lead	North Ayrshire Council.
Indicative Delivery	The flood scheme design shall be completed during Cycle 2 (2022 - 2028). The delivery of this action is subject to Scottish Government capital grant funding being made available.
Funding	The funding arrangements for Cycle 2 'flood scheme or works design' actions are still to be confirmed by the Scottish Government and COSLA joint funding group. Until the funding arrangements for these actions and the community engagement actions related to flood scheme or works design are confirmed, the draft Local FRM Plan for the Ayrshire Local Plan District cannot be fully finalised.
Coordination	<p>North Ayrshire Council will coordinate with SEPA, Scottish Water, local residents, landowners and other stakeholders throughout the design development of the flood scheme.</p> <p>SEPA will work with the local authority on the potential to coordinate this action with work on coastal flood mapping and flood warning actions.</p>
Local Detail	The detail design for proposed embankments in Lamblash will need to take account of the recently completed residential development off GlenCraig Place. North Ayrshire Council proposes this action as the best viable option for managing flood risk in this community.

Community engagement (2402)

Appendix 2

Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	North Ayrshire Council to carry out community engagement linked to the proposed (funding dependent) Brodick Flood Protection Scheme . A community engagement plan will be created to cover the time period from detailed design to implementation of the flood protection solution. The delivery of this action is subject to capital funding being made available.
Delivery Lead	North Ayrshire Council.
Indicative Delivery	Community engagement will be an ongoing, linked to the design of the Brodick Flood Protection Scheme.
Funding	North Ayrshire Council.
Coordination	Work by the responsible authorities to develop understanding and help communities reduce their risk will be coordinated through the Local Plan District Partnership.
Local Detail	Community engagement will be carried out where issues, constraints, aspirations and opportunities are identified. The community engagement plan shall be created to cover the time period from detailed design to implementation of the flood protection solution.

Flood study (2403)

Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Description	North Ayrshire Council to carry out a flood study to investigate the feasibility of natural flood management measures in the catchment to address flood risk. This study will include a review of existing models and flood risk information.
Delivery Lead	North Ayrshire Council.
Indicative Delivery	This study will be delivered during the second half of Cycle 2 (2025 - 2028).
Funding	This study will be funded through North Ayrshire Council's budget provided by Scottish Government, subject to any future funding review.
Coordination	North Ayrshire Council will deliver this flood study with information provided by other relevant responsible authorities, which may include Scottish Water and SEPA. There are opportunities to work with local landowners/ estate managers from the upper catchments to jointly develop Natural Flood Management mitigation measures.
Local Detail	This study shall be informed by the completed flood studies and the flood risk implications of the funding dependant detailed design of the Brodick Flood Protection Scheme, which includes measures in Lamlash.

Flood defence maintenance (2404)

Appendix 2

Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Description	North Ayrshire Council is to continue to inspect and maintain the sea defences. The maintenance regime should be made based on the findings of the flood study.
Delivery Lead	North Ayrshire Council.
Indicative Delivery	Flood defence maintenance will be an ongoing action throughout Cycle 2 (2022 - 2028).
Funding	Maintenance works as required will be funded through North Ayrshire Council's budget provided by Scottish Government.
Coordination	North Ayrshire Council will work in coordination with all relevant stakeholders identified through the planning and implementation of maintenance works.
Local Detail	North Ayrshire Council shall continue to inspect and maintain Council owned coastal assets in Lamlash and shall cooperate with other asset owners when they propose or implement maintenance works in the interest of flood risk management.

Flood warning maintenance (2405)

Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Description	SEPA should maintain the Firth of Clyde coastal flood warning scheme.
Delivery Lead	SEPA.
Indicative Delivery	Ongoing
Funding	SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	SEPA will work with the local authorities on the potential to use information from the flood schemes and studies along the Firth of Clyde to inform ongoing flood warning. SEPA will continue to raise awareness of flood warning, and engage with communities about the service when required.
Local Detail	N/A.

Strategic mapping improvements (2406)

Appendix 2

Action Description	SEPA will continue to update flood maps based on new information. SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.
Delivery Lead	SEPA.
Indicative Delivery	2025-2028
Funding	SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	SEPA will work with the local authority on the potential to coordinate the flood map update with any other actions being carried out to understand or reduce coastal flooding.
Local Detail	N/A.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

Shoreline management plan (coastal adaptive plan) (2407)

Action	The existing assessment of coastal flood and erosion risk is to be reviewed and updated as required. The plan should include assessment of climate change and develop adaptive approaches to allow for the impacts of climate change to be monitored, understood and managed.
Description	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.
Delivery Lead	North Ayrshire Council.
Indicative Delivery	This action will be delivered during Cycle 3 (2028 - 2034)
Funding	This action will be funded through North Ayrshire Council's budget provided by Scottish Government, subject to any future funding review.
Coordination	North Ayrshire Council will work with other relevant responsible authorities, statutory bodies and key stakeholders identified through the scoping stage of the planned update to the shoreline management plan.
Local Detail	Details of this action will be informed by developments in flood risk management planning between 2022-2028.

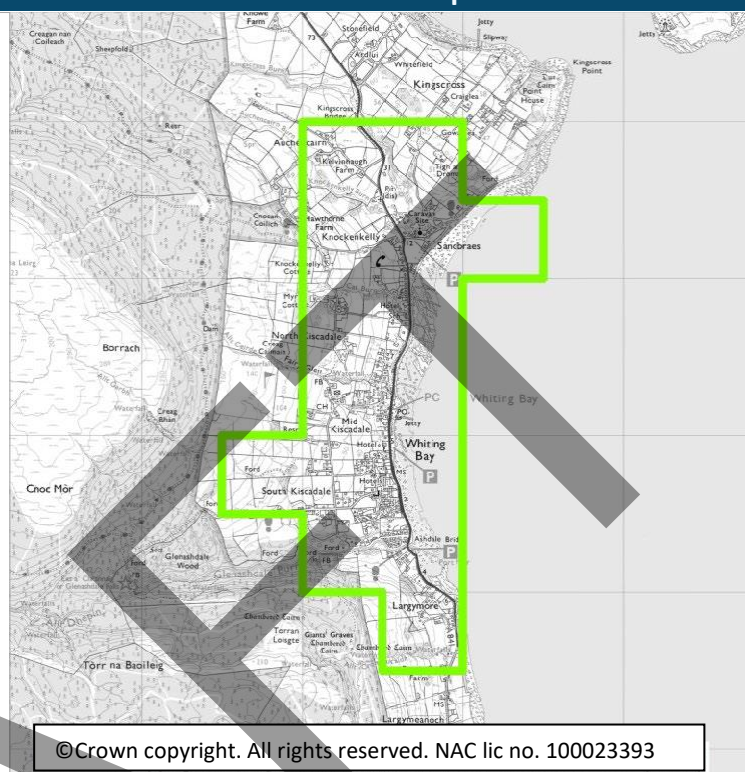
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

Whiting Bay (target area 25)

Summary

The village of Whiting Bay is located on the Isle of Arran, at the mouth of Glenashdale Burn. The area is located within the North Ayrshire local authority area. The main source of flooding in Whiting Bay is coastal flooding, however there are also risks from river and surface flooding. There are approximately 130 people and 70 homes and businesses at risk from flooding. This is estimated to increase to 140 people and 80 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for coastal flooding by the shoreline management plan. There are limited records of flooding in this target area.

The Dynamic Coast project has shown that parts of the shoreline in or adjacent to this target area are subject to erosion at present or are considered likely to erode in the future. Consideration should be given to how erosion might impact flood risk. Any actions taken should aim to support building natural resilience to flooding and not lead to an increase in erosion.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

- Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.
- Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.
- Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
251	Avoid flood risk	Avoid inappropriate development that increases flood risk in Whiting Bay
252	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Whiting Bay
253	Prepare for flooding	Develop an adaptive approach for coastal erosion to future flooding resulting from climate change
254	Reduce flood risk	Reduce the risk of flooding in Whiting Bay
255	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of all existing flood protection structures

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area.

NatureScot has identified that they have 'place priorities' for this Target Area. During the implementation of the following actions, the delivery lead should consider engaging with NatureScot to investigate opportunities to deliver on shared priorities.

Actions proposed to start between 2022 and 2028

Flood study (2501)	
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Description	A flood study should be carried out by North Ayrshire Council to improve understanding of river flood risk, and any interactions with coastal flooding. The shoreline management plan, the operation of flood warning and maintenance of flood defences should be reviewed to ascertain if they can form the basis of any further required flood modelling or be incorporated into a new flood model if required. The impacts of climate change on flood risk should be evaluated. If flood risk is confirmed, scoping of the next steps should be completed.
Delivery Lead	North Ayrshire Council.
Indicative Delivery	This study will be delivered during the first half of Cycle 2 (2022 - 2025).
Funding	This study will be funded through North Ayrshire Council's budget provided by Scottish Government.
Coordination	North Ayrshire Council will deliver this flood study with information provided by other relevant responsible authorities, which may include Scottish Water and SEPA. SEPA will work with the local authority on the potential to coordinate this action with work on coastal flood mapping and flood warning actions.
Local Detail	This study shall investigate river flood risk in Whiting Bay, informed by the completed Shoreline Management Plan and the performance of existing flood risk management assets. Where flood risk is confirmed, a second phase of the study shall be commissioned to scope the next steps towards reducing flood risk.

Flood defence maintenance (2502)

Appendix 2

Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Description	North Ayrshire Council is to continue to inspect and maintain flood protection structures.
Delivery Lead	North Ayrshire Council.
Indicative Delivery	Flood defence maintenance will be an ongoing action throughout Cycle 2 (2022 - 2028).
Funding	Maintenance works as required will be funded through North Ayrshire Council's budget provided by Scottish Government.
Coordination	North Ayrshire Council will work in coordination with all relevant stakeholders identified through the planning and implementation of maintenance works.
Local Detail	North Ayrshire Council shall continue to inspect and maintain Council owned coastal assets in Whiting Bay and shall cooperate with other asset owners when they propose or implement maintenance works in the interest of flood risk management.

Flood warning maintenance (2503)

Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Description	SEPA should maintain the Firth of Clyde coastal flood warning scheme.
Delivery Lead	SEPA.
Indicative Delivery	Ongoing
Funding	SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	SEPA will work with the local authorities on the potential to use information from the flood schemes and studies along the Firth of Clyde to inform ongoing flood warning. SEPA will continue to raise awareness of flood warning, and engage with communities about the service when required.
Local Detail	N/A.

Strategic mapping improvements (2504)

Action Description	SEPA will continue to update flood maps based on new information.
	SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.
Delivery Lead	SEPA.
Indicative Delivery	2025-2028
Funding	SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	SEPA will work with the local authority on the potential to coordinate the flood map update with any other actions being carried out to understand or reduce coastal flooding.
Local Detail	N/A.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

02/12/20 (Great Cumbrae Island)

This area is designated as a potentially vulnerable area due to flood risk to Millport. The main source of flooding is coastal. There is a history of flooding in the area, with recent flooding being caused by coastal flooding.

There is 1 target area in this potentially vulnerable area, which has been the focus of further assessment, this is identified below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

Millport

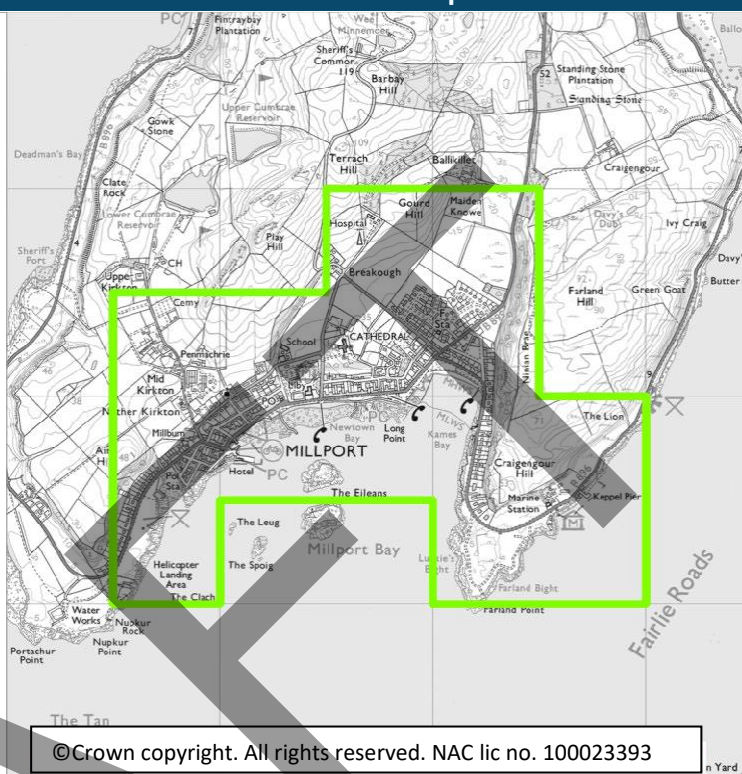
(target area 119)

Millport (target area 119)

Summary

Millport is located on Great Cumbrae Island and faces mainly to the south and onto Millport Bay. The area is located within the North Ayrshire local authority area. The main source of flooding in Millport is coastal flooding, however there is also a risk from river flooding. There are approximately 638 homes and businesses at risk from coastal flooding and 124 from river flooding. This is estimated to increase to 657 homes and businesses for coastal flooding by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for river flooding by the Mill Burn Flood Risk Assessment and for coastal flooding by the Millport Coastal Flood Risk Assessment. There is a long record of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

- Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.
- Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.
- Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
1191	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of all existing flood protection structures
1192	Avoid flood risk	Avoid inappropriate development that increases flood risk in Millport
1193	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Millport
1194	Reduce flood risk	Reduce the risk of coastal flooding in Millport
1195	Reduce flood risk	Reduce the risk of river flooding from the Mill Burn in Millport

Appendix 2

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area.

NatureScot has identified that they have 'place priorities' for this Target Area. During the implementation of the following actions, the delivery lead should consider engaging with NatureScot to investigate opportunities to deliver on shared priorities.

Actions proposed to start between 2022 and 2028

Flood scheme or works design (11901)	
Action	The selected preferred approach for managing flood risk is to be designed following the completion of the flood study, including consideration of the long-term impacts of climate change. These can include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	A non-statutory community consultation was undertaken between 13 July 2020 and 10 August 2020 for Mill Burn Flood Protection Scheme. On the 10 November 2020, North Ayrshire Council cabinet approval was sought for the preferred option and for submission of a formal scheme notification to the Scottish Government. Future climate change is considered in the detailed design, though the scheme is designed to mitigate flooding to a standard of protection of a 1 in 200 year flood (0.5% annual exceedance probability) and the agreed preferred option is construction 494 metre long 900mm diameter overflow diversion culvert between Golf Road/Kirkton Crescent junction and West Bay via Nether Kirkton Farm following the perimeter of the land. This would provide protection for up to 124 properties on the island in a 1 in 200 years flood event. The Outline design, Environmental Screening and the Scheme Notification are now complete and the detailed design is to be completed.
Delivery Lead	North Ayrshire Council.
Indicative Delivery	The detailed design of the Mill Burn Flood Protection Scheme will be completed during the first half of Cycle 2. Construction is programmed to begin in 2023/24 .
Funding	80% of eligible costs shall qualify for Scottish Government grant funding. The remaining 20% of eligible costs and any other associated costs shall be met by North Ayrshire Council's budget.

Coordination	North Ayrshire Council will coordinate with SEPA, Scottish Water, local residents, landowners and other stakeholders throughout the design development of the flood scheme.
Local Detail	SEPA will work with the local authority on the potential to coordinate this action with work on coastal flood mapping. North Ayrshire Council confirmed the Mill Burn Flood Protection Scheme on the 15th June 2021, agreed the indicative project timescale and approved the commencement of the final design of the scheme. The Mill Burn Flood Protection Scheme became operative on 16th August 2021.

Flood scheme or works implementation (11902)

Action	The flood scheme/works is to be built following agreement of the design, costs and timescales.
Description	North Ayrshire Council to progress with procurement and construction of the Mill Burn Flood Protection Scheme. As built drawings should be made available to SEPA, for consideration in the Scottish Flood Defence Asset Database, flood map improvements and flood warning scheme updates.
Delivery Lead	North Ayrshire Council.
Indicative Delivery	This action shall be delivered during Cycle 2 (2022-2028). Construction is programmed to begin in 2023/24.
Funding	80% of eligible scheme costs shall qualify for Scottish Government grant funding. The remaining 20% of eligible costs and any other associated costs shall be met by North Ayrshire Council's budget.
Coordination	North Ayrshire Council will coordinate with SEPA, Scottish Water, local residents, landowners and other stakeholders throughout the implementation of the flood scheme. SEPA will work with the local authority on the potential to coordinate this action with an update to SFDAD.
Local Detail	North Ayrshire Council confirmed the Millburn Flood Protection Scheme on the 15th June 2021, agreed the indicative project timescale and approved the commencement of the final design of the scheme. The Mill Burn Flood Protection Scheme became operative on 16th August 2021.

Community engagement (11903)

Appendix 2

Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	Community statutory consultation prior to the Mill Burn Flood Protection Scheme notification has been completed (2020).
Delivery Lead	North Ayrshire Council.
Indicative Delivery	Community engagement will be ongoing, linked to the design and implementation of the Mill Burn Flood Protection Scheme.
Funding	This action will be funded through North Ayrshire Council's budget provided by the Scottish Government, subject to any future funding review.
Coordination	North Ayrshire Council will investigate opportunities for joint community engagement with other responsible authorities through the Local Plan District Partnership.
Local Detail	Community engagement will be carried out where issues, constraints, aspirations and opportunities are identified through the development of the detailed design and the implementation of the Mill Burn Flood Protection Scheme. The community engagement plan shall be created to cover the time period from detailed design to implementation of the flood protection solution.

Flood scheme or works design (11904)

Action	The selected preferred approach for managing flood risk is to be designed following the completion of the flood study, including consideration of the long-term impacts of climate change. These can include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	<p>On the 10th November 2020 the Cabinet reached the final decision and confirmed the Millport Coastal Flood Protection Scheme without modification, agreed the indicative project timescale and approved the commencement of the final design of the scheme. Future climate change is considered in the detailed design, though the scheme is designed to mitigate flooding to a standard of protection of a 1 in 200 year flood (0.5% annual exceedance probability).</p> <p>The protection scheme became operational on 13th January 2021 and the detailed design development started. North Ayrshire Council is developing the Millport Coastal Flood Protection Scheme with close community involvement.</p>
Delivery Lead	North Ayrshire Council.
Indicative Delivery	The flood scheme design was completed prior to the publication of this Local Flood Risk management Plan.
Funding	80% of eligible costs shall qualify for Scottish Government grant funding. The remaining 20% of eligible costs and any other associated costs shall be met by North Ayrshire Council's budget.
Coordination	<p>North Ayrshire Council, the Scottish Government, SEPA and Marine Scotland.</p> <p>SEPA will work with the local authority on the potential to coordinate this action with work on coastal flood mapping and flood warning actions.</p>
Local Detail	The Outline Design, Environmental Screening, Scheme Notification and detailed design was completed prior to the publication of this Local Flood Risk Management Plan.

Flood scheme or works implementation (11905)

Appendix 2

Action	The flood scheme/works is to be built following agreement of the design, costs and timescales.
Description	North Ayrshire Council to progress with procurement and construction of the Millport Coastal Flood Protection Scheme. As built drawings should be made available to SEPA, for consideration in the Scottish Flood Defence Asset Database, flood map improvements and flood warning scheme updates.
Delivery Lead	North Ayrshire Council, Scottish Government and Marine Scotland.
Indicative Delivery	The delivery of the Millport Coastal Flood Protection Scheme shall be completed in Cycle 2 (2022 - 2028). Construction is programmed to begin in 2022/23.
Funding	80% of eligible scheme costs shall qualify for Scottish Government grant funding. The remaining 20% of eligible costs and any other associated costs shall be met by North Ayrshire Council's budget.
Coordination	North Ayrshire Council, the Scottish Government, SEPA and Marine Scotland. SEPA will work with the local authority on the potential to coordinate this action with an update to SFDAD and work on coastal flood mapping.
Local Detail	The Millport Coastal Flood Protection Scheme became operational on 13 January 2021. The detailed design is complete and construction is due to begin in 2022/2023.

Community engagement (11906)

Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	The community engagement for Millport Coastal Flood Protection Scheme has been ongoing since 2016.
Delivery Lead	North Ayrshire Council.
Indicative Delivery	Community engagement will be ongoing throughout Cycle 2 (2022 - 2028) until the Millport Flood Protection Scheme has been implemented.
Funding	This action will be funded through North Ayrshire Council's budget provided by Scottish Government, subject to any future funding review.
Coordination	North Ayrshire Council will investigate opportunities for joint community engagement with other responsible authorities through the Local Plan District Partnership.
Local Detail	Community engagement will be carried out where issues, constraints, aspirations and opportunities are identified through the development of the detailed design and the implementation of the Millport Coastal Flood Protection Scheme. The community engagement plan shall be created to cover the time period from detailed design to implementation of the flood protection solution.

Flood defence maintenance (11907)

Appendix 2

Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Description	North Ayrshire Council is to continue to inspect and maintain flood protection structures.
Delivery Lead	North Ayrshire Council.
Indicative Delivery	Flood defence maintenance will be an ongoing action throughout Cycle 2 (2022 - 2028).
Funding	Maintenance works as required will be funded through North Ayrshire Council's budget provided by Scottish Government.
Coordination	North Ayrshire Council will work in coordination with all relevant stakeholders identified through the planning and implementation of maintenance works.
Local Detail	North Ayrshire Council shall continue to inspect and maintain Council owned flood protection assets in Millport and shall cooperate with other asset owners when they propose or implement maintenance works in the interest of flood risk management.

Flood warning maintenance (11908)

Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Description	SEPA should maintain the Firth of Clyde coastal flood warning scheme.
Delivery Lead	SEPA.
Indicative Delivery	Ongoing.
Funding	SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	SEPA will work with the local authorities on the potential to use information from the flood schemes and studies along the Firth of Clyde to inform ongoing flood warning. SEPA will continue to raise awareness of flood warning, and engage with communities about the service when required.
Local Detail	N/A.

Strategic mapping improvements (11909)

Action	SEPA will continue to update flood maps based on new information.
Description	SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.
Delivery Lead	SEPA.
Indicative Delivery	2025-2028.
Funding	SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	SEPA will work with the local authority on the potential to coordinate the flood map update with any other actions being carried out to understand or reduce coastal flooding.
Local Detail	N/A.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document

DRAFT

02/12/21 (Kirkmichael)

This area is designated as a potentially vulnerable area due to flood risk to Kirkmichael. The main source of flooding is from the Dyroch Burn. There are limited recorded floods in this area.

There is 1 target area in this potentially vulnerable area, which has been the focus of further assessment, this is identified below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

Kirkmichael

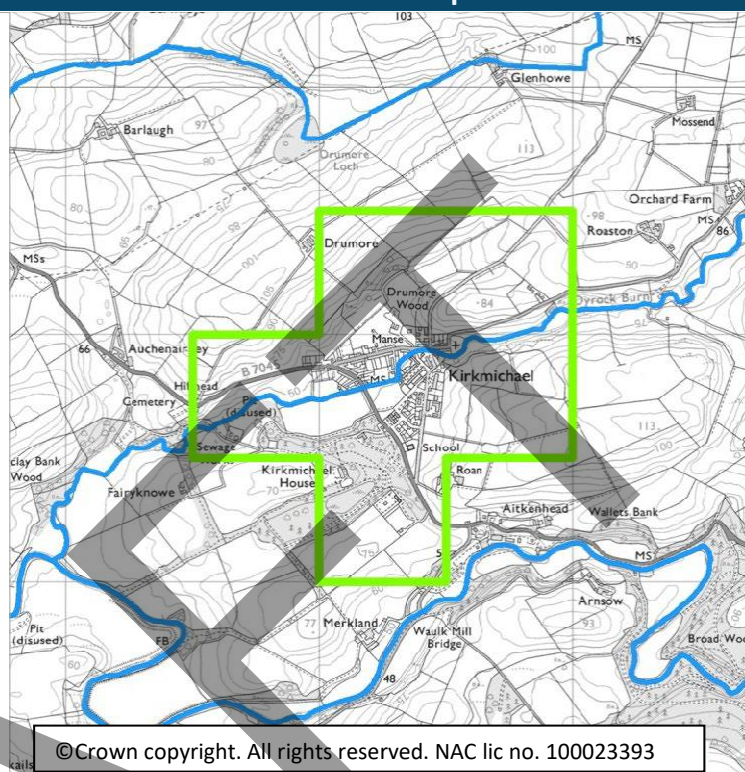
(target area 14)

Kirkmichael (target area 14)

Summary

The village of Kirkmichael is located on the banks of Dyrock Burn. The area is located within the South Ayrshire Council area. The main source of flooding in Kirkmichael is river flooding, however there is also a small risk of surface water flooding. There are around 140 people and 90 homes and businesses at risk of flooding. This is likely to increase to 150 people by the 2080s due to climate change and the number of homes and businesses will remain the same.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources, and this information has highlighted the risk of flooding in this area. There are limited records of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies.

The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

- Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.
- Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.
- Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
141	Avoid flood risk	Avoid inappropriate development that increases flood risk in Kirkmichael
142	Improve data and understanding	Improve data and understanding of flooding in Kirkmichael

Appendix 2

What actions are proposed for this area?

As outlined in Section 1 of this plan, at the date of publication the actions below represent the best understanding of what is needed to work towards the objectives for the area. They have been developed with the other responsible authorities and take account of progress achieved to date, the understanding of flood risk and the objectives set for the area.

NatureScot has identified that they have 'place priorities' for this Target Area. During the implementation of the following actions, the delivery lead should consider engaging with NatureScot to investigate opportunities to deliver on shared priorities.

Actions proposed to start between 2022 and 2028

Data collection (1401)	
Action	Equipment that measures rainfall, river levels, erosion, ground levels or wave height may be installed and maintained to improve our understanding of flood risk. This can be done over short term or to measure longer term impacts.
Description	This may include data collection and monitoring to improve the confidence in flood sources, mechanisms and risk. A review may be required to assess the need for rain and/or river gauges. Post flood surveys may be required to collect data on flooding mechanisms, risk and damage caused. Data collected can be used to inform future studies.
Delivery Lead	Action delivery lead is South Ayrshire Council and coordination will be determined once the actions have been finalised.
Indicative Delivery	This action will be delivered during Cycle 2 (2022 - 2028).
Funding	This study will be funded through South Ayrshire Council's budget provided by Scottish Government, subject to any future funding review.
Coordination	South Ayrshire Council and SEPA will work together on the potential to coordinate opportunities for joint data collection activities.
Local Detail	Gauges shall be installed in the Dyrock Burn & The Water of Girvan to monitor flow and depth information to inform a future study to commence in Cycle 3.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Description	A flood study should be carried out to improve understanding of river and surface water flood risk in Kirkmichael. The interactivity between surface water and river flooding should be assessed. The impacts of climate change on flood risk should be evaluated. If flood risk is confirmed, scoping of the next steps should be completed.
Delivery Lead	Action delivery lead is South Ayrshire Council and coordination will be determined once the actions have been finalised.
Indicative Delivery	This action will be delivered during Cycle 3 (2028 - 2034).
Funding	This study will be funded through South Ayrshire Council's budget provided by Scottish Government, subject to any future funding review.
Coordination	South Ayrshire Council will deliver this flood study with information provided by other relevant responsible authorities, which may include Scottish Water and SEPA.
Local Detail	Flood modelling will be carried out for the Dyrock Burn and Water of Girvan Flood Study, informed by data gathering in Cycle 2. Where flood risk is confirmed, scoping of the next steps will be completed.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

Annex 1: Costs of Actions

The following information in on costs has been reproduced from the SEPA FRM Plan for the Ayrshire Local Plan District:

Action	Indicative capital cost (£)	Notes
Adaptation plan	30,000	Costs can vary greatly depending on the scale and complexity of flooding
Data collection	20,000	
Flood scheme or works design	300,000	Costs can vary greatly depending on the scale and complexity of flooding, along with the ground conditions
Flood study	50,000	Costs can vary greatly depending on the scale and complexity of flooding
Flood study (existing flood defences)	80,000	
Flood study (options appraisal)	40,000	
Shoreline Management Plan (Coastal Adaptive Plan)	100,000	
Surface water management plan	30,000	
Flood scheme or works implementation	N/A	Schemes are very individual and it is not possible to provide an indicative cost.
The costs involved in the following actions are predominately from staff resource:		
Community engagement	N/A	Resources required are very specific for the individual action. It is currently not possible to estimate a resource cost.
Community flood alert	N/A	
Community resilience group	N/A	
Emergency plan	N/A	
Flood defence maintenance	N/A	Cost of maintenance is specific to the defence and is impacted by among other things age and type of the defences. It is not possible to provide indicative costs.
Flood risk management review	N/A	Resources required are very specific for the individual action. It is currently not possible to estimate a resource cost.
Flood warning maintenance	N/A	
Flood warning scoping	N/A	
Land Use Planning	N/A	
Maintain flood protection scheme	N/A	
New flood warning area	N/A	
Property flood resilience scheme	N/A	
Sewer flood risk assessment	N/A	
Site protection plan	N/A	
Strategic mapping improvements	N/A	

Annex 2: Flood Risk Management Plans Consultation

Summary

The following information in Annex 2 is largely reproduced from the SEPA FRM Plan for Ayrshire:

Asking for and listening to input from stakeholders and the public is a key part of flood risk management in Scotland. SEPA and the local authorities undertook a joint consultation, which ran in 2 phases between December 2020 and October 2021. Phase 1, opened in December 2020 and included a summary of flooding in each Local Plan District, a description of the potentially vulnerable areas and the identified local target areas. Phase 2 opened for responses on 30th July 2021 and closed on 31st October 2021. Phase 2 identified the objectives for each target area and the actions needed to achieve these objectives. It also included prioritisation of the actions by 6 year cycle. Local authorities provided more detail in the draft local flood risk management plans, which included an expanded description of the actions, and who would lead and coordinate delivery.

The consultation was open to everyone with an interest in flood risk management.

The communications campaign to publicise the consultation aimed to encourage anyone with an interest in flooding to have their say on how flood risk is managed across Scotland.

Communication activities included:

- A public notice in the Edinburgh Gazette and The Herald
- A national press release
- Social media posts on Facebook, Twitter, LinkedIn, Instagram
- A national targeted, paid social media campaign on Facebook, Twitter, and Instagram.

An animation and graphics were created to promote the consultation. These were shared with all responsible authorities in advance of the consultation and were regularly publicised via social media. The consultation was picked up by many local media outlets including local newspapers.

SEPA staff also supported several national events aimed at raising awareness of the consultation.

Demonstration of the consultation platform was provided to ensure that stakeholders were able to navigate the Citizen Space platform and answer the consultation questions.

Local authority flooding teams were provided with briefing packs with access to draft article templates and social media messages which they could use to promote the consultation within their own organisation and local area. Many local authorities used their network of community councils to promote the consultation.

In total SEPA received 677 responses. These included 654 online responses via the consultation platform Citizen Space and 23 e-mail responses received via SEPA's consultation mailbox. Compared to the first consultation on the flood risk management strategies in 2014, there has been a welcome three-fold increase in the number of responses. The majority of the responses (520) were from members of the public. This reflects increased public awareness of flooding and flood risk management, and the increasing risk due to climate change.

SEPA and the local authorities are grateful to individuals and organisations for considering the proposals and providing feedback. Responses varied from detailed comments on the actions proposed in individual target areas, to general comments on flooding and flood risk management. The sections below provide a brief outline of the responses received and changes made as a result.

Many of the aspects raised relate to the underlying requirements of the Flood Risk Management (Scotland) 2009 Act, to activities which are the responsibility of other organisations, or to the content of the local flood risk management plans. Working within safe data sharing practices, SEPA will ensure the feedback received is passed to other responsible authorities to consider and act on.

This summary is a factual statement of the responses provided. All responses received have been read and considered, resulting in a number of changes to the both the SEPA FRM Plan and the Local FRM Plan for the Ayrshire Local Plan District. Further detail on the analysis of responses will be published by SEPA in Spring 2022.

Identifying communities and infrastructure at risk

In the consultation SEPA asked whether all the main communities and infrastructure at significant risk of flooding were identified. 45% of respondents agreed that the main communities and infrastructure were identified and 29% stated they were not sure. 21% of respondents felt that some communities were missing from the plans.

Some respondents who had recently flooded were concerned that their communities were not identified as target areas. Some respondents suggested additional areas for SEPA to consider where flooding has occurred in the past. Concerns were also expressed about the method used to identify the main communities at risk.

Proposed objectives

34% of respondents supported the proposals for objectives to manage flood risk in target areas and 30% were not sure. 25% did not agree and 10% did not answer this question.

The main concerns of those who did not agree with the proposed objectives were that timescales were long-term and would not result in immediate action, objectives did not cover wider issues such as sewerage flooding, objectives were not detailed enough, and that objectives did not limit new development. There were concerns that there was no evidence being provided to show that the objectives were being met by the authorities, and that objectives were not leading to actions on the ground.

Proposed actions to manage flood risk

43% of respondents were not sure whether the actions would work towards achieving the objectives. 25% of respondents did not agree with the proposed actions to manage flood risk. 20% agreed with the proposed actions and 12% did not answer this question.

Those who did not agree expressed concerns that flood studies were not resulting in actions on the ground, that actions were not detailed enough, some stressed the need for other actions such as drain clearance being done now and some emphasised the need for a catchment-based approach and natural flood management.

Others asked for more watercourse clearing and river management and more transparency from the local authority in publicising the maintenance plan for flood defences. Concerns were also expressed that new development is not being controlled and is contributing to increased surface water flooding and that there were no actions to address sewerage flooding. Concerns were also raised about funding for actions.

NatureScot provided feedback on specific target areas and the impacts on biodiversity and designated sites.

Timescales for implementing actions

In terms of the proposed timescales, 36% of respondents did not agree and 32% were not sure of the identified timescales. 17% agreed and 15% did not respond to this question.

Those who disagreed were concerned that actions were taking too long and that more urgent action is needed in light of climate change. Respondents also commented that timescales were too vague and should be more detailed.

What can individuals, communities and organisations do to help manage flood risk?

SEPA also asked whether individuals, communities or organisations were able to help with flood risk management in Scotland. There was a range of responses to this question, with 39% of respondents agreeing that there is something they could do to help manage flood risk and 26% of respondents not sure that there are things they could do.

Those who were not sure asked for more guidance from the authorities. However, many felt that there was something that communities or individuals can do.

Suggestions included less paving of gardens to help attenuate rainwater, authorities developing information to help the public make more informed decisions, community organised clearance of watercourses where it is safe to do so, reporting blockages and flooding to the authorities, planting trees and greening of cities.

Acting on consultation feedback

Several changes were made to the final flood risk management plans as a result of the input received during the consultation. A summary of those changes is provided in the table below, and full details will be provided in the consultation digest to be published by SEPA in Spring 2022. Changes made to the Local FRM Plan are summarised in Section 1 of this plan.

Summary of changes made to the plans following the consultation	
1.	Further actions were added to manage flood risk in several target areas.
2.	Additional Local Plan District actions were added.
3.	Some actions were removed from the flood risk management plans at the request of local authorities responsible for their delivery due to completion in the time between consultation and publication.
4.	Further information was included on how climate change was assessed in the preparation of the plans.
5.	Further information was included on how potentially vulnerable areas were identified, and when they will be reviewed again.
6.	Information was included on the progress made in implementing actions and working towards objectives in the 2015 strategies.
7.	A target area boundary was amended based on new information provided.
8.	A description of the importance of community actions, recognising the work that communities do to manage flooding was included, along with further information on where support is available to help people reduce their own flood risk.
9.	A description of the catchment-based approach SEPA has taken, and the role it plays in delivering flood risk management actions was provided.
10.	The link between flood risk management plans and land use planning was clarified.
11.	Habitats Regulations Appraisal statements were added to each relevant action.
12.	Some other changes were made to the way information is presented to try to make it clearer e.g., on the timing of actions being carried out.
13.	Further information was provided on the uncertainty associated with funding of flood risk management actions.

Annex 3: Acknowledgements

North Ayrshire Council acknowledges the cooperation and input provided in preparing the Local FRM Plan for the Ayrshire Local Plan District, including the following:

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SEPA North Ayrshire Council acknowledges the provision of figures, action tables and document formatting from the SEPA FRM Plan provided by SEPA, which has formed the basis of this Local FRM Plan.

Scottish Water North Ayrshire Council acknowledges the inclusion of surface water flooding data generated by Scottish Water in preparation of flood risk information.

The Flood Hazard Research Centre Multi-coloured Manual and Multi-coloured Handbook 2016.

All contributors to the **2018 NFRA**, more information on which can be found at <https://www.sepa.org.uk/data-visualisation/nfra2018/>

APPENDIX 3: INDICATIVE COSTS

Action	Indicative capital cost (£)	Notes
Adaptation plan	30,000	Costs can vary greatly depending on the scale and complexity of flooding
Data collection	20,000	
Flood scheme or works design	300,000	Costs can vary greatly depending on the scale and complexity of flooding, along with the ground conditions
Flood study	50,000	Costs can vary greatly depending on the scale and complexity of flooding
Flood study (existing flood defences)	80,000	
Flood study (options appraisal)	40,000	
Shoreline Management Plan (Coastal Adaptive Plan)	100,000	
Surface water management plan	30,000	
Flood scheme or works implementation	N/A	Schemes are very individual and it is not possible to provide an indicative cost.
The costs involved in the following actions are predominately from staff resource:		
Community engagement	N/A	Resources required are very specific for the individual action. It is currently not possible to estimate a resource cost.
Community flood alert	N/A	
Community resilience group	N/A	
Emergency plan	N/A	
Flood defence maintenance	N/A	Cost of maintenance is specific to the defence and is impacted by among other things age and type of the defences. It is not possible to provide indicative costs.
Flood risk management review	N/A	Resources required are very specific for the individual action. It is currently not possible to estimate a resource cost.
Flood warning maintenance	N/A	
Flood warning scoping	N/A	
Land Use Planning	N/A	
Maintain flood protection scheme	N/A	
New flood warning area	N/A	
Property flood resilience scheme	N/A	
Sewer flood risk assessment	N/A	
Site protection plan	N/A	
Strategic mapping improvements	N/A	

Table 3: Indicative costs

APPENDIX 4: OVERVIEW OF ALL AYRSHIRE LOCAL FLOOD RISK MANAGEMENT PLAN ACTIONS

KEY

	NAC
	EAC
	SAC
	SEPA
	Scottish Water
2	Cycle 2 Action
3	Cycle 3 Action

			Community Engagement															
			Data Collection															
			Flood Defence Maintenance															
			Flood Risk Management Review															
			Flood Scheme or Works Implementation															
			Flood Scheme or Works Design															
			Flood Study															
			Flood Study (Existing Flood Defences)															
			Flood Study (Options Appraisal)															
			Flood Warning Maintenance															
			Flood Warning Scoping															
			Property Flood Resilience Scheme															
			Sewer Flood Risk Assessment															
			Shoreline Management Plan															
			Strategic Mapping Improvements															
			Surface Water Management Plan															
PVA	OTA REF	OTA NAME																
Largs	148	Largs North	2	3	2						2	2					3	2
Largs to Kilwinning	80	Kilwinning and Dalgarven										2			2			2
	121	Saltcoats and Stevenston			2				2			2			2			
	124	West Kilbride	3						3						2	3		
	149	Largs South										2				3	2	
	155	Fairlie	2					2									2	
Upper Garnock Catchment	76	Dalry	2				2					2			2			
	97	Kilbimie and Glengamock	2				2		2		2	2			2			
Lower Irvine and Annick Water Catchment	21	Irvine	2		2			2				2			2		2	
	122	Stewarton		2								2			2			3
	21001	Dundonald	3					3							2			
Irvine to Troon	22	Irvine Coastal							2						2	3		
	123	Troon			2				2	2		2			2		2	
Kilmamock and Upper Irvine Catchment	20	Kilmamock	2		2			2			2	2			2			
	75	Crosshouse		2					3						2			
	120	Newmilns	2					2				2			2			3
	147	Kilmaurs		2					3						2			
	153	Galston	2		2			2							2			3
	154	Darvel	2					2							2			3
Pow Burn Catchment	28	Prestwick North	2		2			2	2	2		2			2			
Prestwick and Ayr	27	Prestwick South	2		2			2		2		2			2			
	71	Ayr	2		2			2	3	3		2			2		2	
River Ayr Catchment	72	Ayr East	2					2	3						2			
Ayr South	74	Ayr Doon	2					2			2				2			
Ayr East	73	Ayr South East	2					2	2			2			2		2	
Dalrymple to Dalmellington	77	Dalrymple			2						2							
	96	Dalmellington									2							
	164	Patna									2							
Drongan	18	Drongan		2					2									
Straiton	162	Straiton		2					3									
Cumnock	19	Cumnock									2			3				
	68	Auchinleck				2												3
Catrine	16	Som									2	2						
	17	Catrine		2					2			2		3				
Girvan	78	Girvan			2				2	2	2	2					2	
Barrhill	95	Barrhill		2						3								
Isle of Arran	23	Brodick	2					2	2	2						3	2	
	24	Lamlash	2		2			2	2			2				3	2	
	25	Whiting Bay			2				2			2					2	
Great Cumbrae Island	119	Millport	2		2		2	2				2					2	
Kirkmichael	14	Kirkmichael		2						3								

Table 4: Overview of ALFRMP actions

APPENDIX 5: NORTH AYRSHIRE FLOOD STUDIES

*Carry out a shared NFM Study to save costs

Potentially Vulnerable Area (PVA)	Objective Target Area (OTA)	Flood Study Detail	Delivery Cycle	Indicative Cost	Indicative Programme		
					Cycle 2 (2022-2028)	Cycle 3 (2028-2034)	
02/12/01 (Largs)	148 (Largs north)	Largs Coastal Flood Study	2	£80,000	2022-2025		
02/12/02 (Largs to Kilwinning)	80 (Kilwinning & Dalgarven)	SASK Surface Water Management Plan	2	£30,000		2025-2028	
	121 (Saltcoats and Stevenston)	Saltcoats and Stevenston Surface Water Flood Study	2	£50,000	2022-2025		
	124 (West Kilbride)	West Kilbride Flood Study	3	TBC			2028+
02/12/03 (Upper Garnock catchment)	97 (Kilbirnie & Glengarnock)	Kilbirnie & Glengarnock Flood Study	2	£50,000	2022-2025		
		Kilbirnie & Glengarnock Flood Study (Options Appraisal)	2	£40,000	Study Complete		
02/12/05 (Irvine to Troon)	22 (Irvine Coastal)	Irvine Coastal NFM feasibility Study	2	£50,000		2025-2028	
02/12/19 (Isle of Arran)	23 (Brodict)	Brodict NFM Feasibility Study*	2	£50,000		2025-2028	
	24 (Lamlash)	Lamlash NFM Feasibility Study*	2				
	25 (Whiting Bay)	Whiting Bay Flood Study	2	£50,000	2022-2025		
Various	148 (Largs north)	Shoreline Management Plan	3	TBC			2028+
	124 (West Kilbride)						
	149 (Largs South						
	22 (Irvine Coastal)						
	23 (Brodict)						
	24 (Lamlash)						

Indicative Cycle 2 Costs: £360,000 Cycle 3 Costs: TBC

Table 5: Detail of North Ayrshire Council Studies

APPENDIX 6: PROGRESS SUMMARY OF FIRST AYRSHIRE LFRMP ACTIONS

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	✓			✓	✓	✓	✓	✓

Table 6: Progress summary of Cycle 1 Actions. GREEN denotes an action delivered on programme and within budget; AMBER denotes an action that was delivered behind programme and / or over budget but that achieved or will achieve what was anticipated by the Local FRM Plan; RED denotes an action that was delivered behind programme and / or over budget and where the outputs are unlikely to achieve what was anticipated by the Local FRM Plan. The ticked boxes confirm that the action is now complete or is envisaged to be complete by the publication of the final progress report.