Local Flood Risk Management Plan

Ayrshire Local Plan District (2022-2028)

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North Ayrshire Council
Comhairle Siorrachd Àir a Tuath

East Ayrshire Council
Comhairle Siorrachd Àir an Ear

south AYRSHIRE COUNCIL
Comhairle Siorrachd Àir a Deas

SEPA
Scottish Environment Protection Agency
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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 (this '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 same actions are contained in this Local FRM Plan, which provides more information on how the 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. Both the SEPA FRM Plan and this Local FRM Plan continue to build on the established risk-based, plan-led approach of the earlier plans.

This 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, Scottish Water and SEPA. This plan is a requirement under the Flood Risk Management (Scotland) Act 2009.

There are 13 other Local Plan Districts (LPD) covering other parts of Scotland. Each LPD 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.

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 FRM Plan has two sections:

Section 1 contains background information on flood risk management planning in Scotland and how this Local FRM Plan was developed along with information about 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.

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), Section 2 describes the 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 as well as the final progress report on the first Ayrshire Local Flood Risk Management Plan.

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. 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 this Local FRM Plan and will be central to delivery of the objectives and actions set out in Section 2.

This Local FRM Plan has been developed in partnership, which has provided the evidence through data sharing and improved understanding of each organisation's 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; and
SEPA;

Input was also sought from other authorities including NatureScot, Transport Scotland and Network Rail.

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
- Sign up to Floodline to receive messages when flooding is forecast in your area
- Know who to contact if flooding happens

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 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.

NatureScot has provided advice in the development of this Local 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 included engaging in the development of the Flood Risk Management 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 were 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 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. There were 20 responses received in connection with draft proposals within the Ayrshire Local Plan District and a further 6 responses were received in connection with the national approach to flood management by either public bodies, recognised interest groups or member organisations.

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 is available on SEPA's website at https://consultation.sepa.org.uk/evidence-and-flooding/frmplans/

The consultation responses in connection with the Ayrshire Local Plan District were noted and considered. While the responses from members of the public would not have a material impact on the planned funding, timing or coordination of the actions, the content of the responses has been shared with the relevant delivery lead for consideration during the development or implementation of relevant 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.

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 from SEPA, Historic Environment Scotland and NatureScot agreed that a follow-up Strategic Environmental Assessment was not required for the Local FRM Plan and that the Local 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.

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 Section 2 of this Local FRM Plan provide the long-term vision for delivering flood risk management in Scotland and the accompanying 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. These 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 the entire Ayrshire Local Plan District.

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:

- 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 has led on 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 Local 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 this is overseen by the water industry regulator for Scotland. Sewer flooding 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

This Local FRM 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 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 first half of the plan period or will be delivered in the second half of the plan period. For future monitoring purposes, the key dates for action delivery 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 – Flood Protection Scheme Actions

SEPA carried out a national prioritisation exercise to ensure that the flood protection scheme actions contained in the SEPA FRM Plan and this Local FRM Plan are based on the best available understanding of flood risk, the predicted cost benefit ratio and the other material benefits that would be provided. At time of publication, the outcome of the national prioritisation exercise has not been shared.

The Local Government General Capital Grant currently includes £42million per annum which, following joint agreement between the Scottish Government and COSLA Leaders, is allocated towards flooding projects with 80% of this allocated towards the Cycle 1 projects.

This agreement ends in 2026/27. Beyond this, it is expected that the Local Government General Capital Grant will continue to include resources allocated towards flooding projects and the decision on the quantum/distribution will be taken by Scottish Ministers and COSLA Leaders nearer the time.

Given the above, there may be changes to the ability to deliver flood protection scheme actions.

The progress of all actions in this Local FRM Plan will be the subject of interim and final progress reporting. The publication of these reports is a requirement of the Flood Risk Management (Scotland) Act 2009.

Inclusion of an action in this Local FRM Plan does not formally commit a local authority to implementing specific actions, if reasons arise which make any actions undeliverable, including inability to secure adequate funding.

Funding for other types of flood risk management actions is specified in the relevant parts of Section 2 of this Local FRM 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 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

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	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. Local authorities undertake additional awareness raising activities when developing any specific project proposals and will engage with community resilience groups and local communities. 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. 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.
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. 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.
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	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. 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. 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.
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 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.

	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	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. 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.
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	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. 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. 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. 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.
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	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. 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. 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. SEPA has set its own target to be a regenerative organisation by 2030 and the next set of plans will further this ambition. 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.
Indicative Delivery	Ongoing throughout the plan period (2022-2028). Flooding services strategy will be delivered in 2023 and the next flood risk management plans will be published in 2027.
Funding	SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	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.

	Guidance development
Action	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. Technical guidance to support flood risk management partners will be reviewed and updated by SEPA where required. Scottish Forestry, in collaboration with its UK counterparts, published '*Designing and managing forests and woodlands to reduce flood risk: UK Forestry Standard Practice Guide'* in 2022. 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.
Indicative Delivery	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.
Funding	SEPA's role in this action is funded by Scottish Government through SEPA's grant in aid settlement.
Coordination	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.

	Hazard mapping updates
Action	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: 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.
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 deliver 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	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. Scottish Water will continue to 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.
Indicative Delivery	Ongoing throughout the plan period (2022-2028)
Funding	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. Funding for this action is secured within Scottish Water's business plan.
Coordination	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. Scottish Water will keep responsible authorities informed of large-scale capital maintenance work to identify opportunities for co-ordination.

	Natural flood management mapping
Action	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. 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. In addition to flooding benefits, natural flood management measures can also provide many additional benefits to biodiversity, water quality, recreation, and carbon storage.
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	SEPA will work with key stakeholders to review and update the opportunities mapping.

	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 wholescale 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	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: Flood Re Flood Insurance Directory - BIBA Floodline Scotland Scottish Flood Forum 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.
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. North Ayrshire, East Ayrshire and South Ayrshire's role in this action will be funded through revenue budgets provided by the Scottish Government.
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. 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.

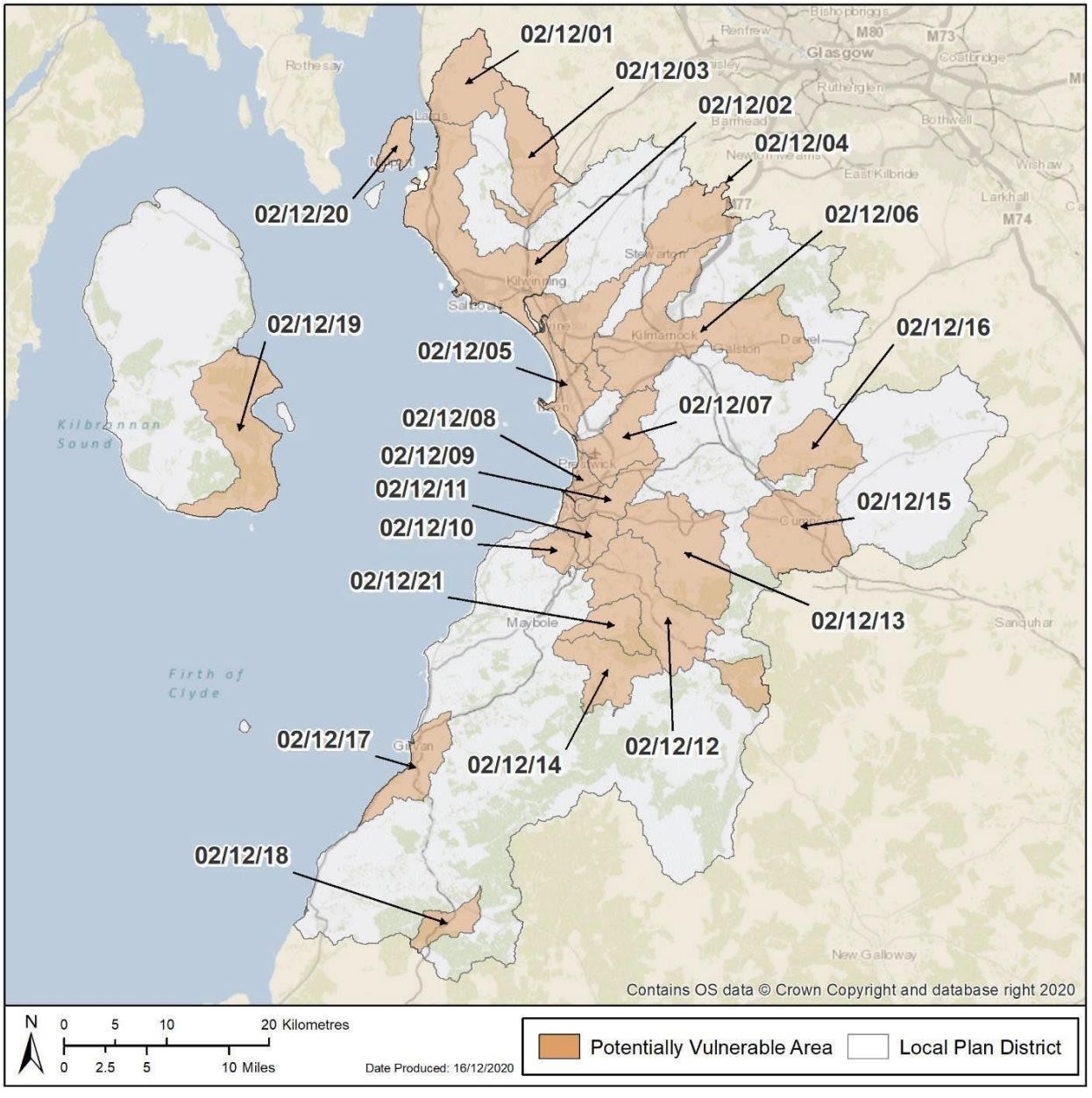


Figure 1. Potentially vulnerable areas in Ayrshire Local Plan District

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	56
02/12/04	Lower Irvine and Annick Water catchment	East Ayrshire, North Ayrshire, South Ayrshire	66
02/12/05	Irvine to Troon	North Ayrshire, South Ayrshire	80
02/12/06	Kilmarnock and Upper Irvine catchment	East Ayrshire	89
02/12/07	Pow Burn catchment	South Ayrshire	114
02/12/08	Prestwick and Ayr	South Ayrshire	121
02/12/09	River Ayr catchment	South Ayrshire	134
02/12/10	Ayr south	South Ayrshire	139
02/12/11	Ayr east	South Ayrshire	144
02/12/12	Dalrymple to Dalmellington	East Ayrshire	150
02/12/13	Drongan	East Ayrshire	158
02/12/14	Straiton	South Ayrshire	162
02/12/15	Cumnock	East Ayrshire	166
02/12/16	Catrine	East Ayrshire	173
02/12/17	Girvan	South Ayrshire	181

PVA Ref	PVA Name	Local authority area	Page number
02/12/18	Barrhill	South Ayrshire	187
02/12/19	Isle of Arran	North Ayrshire	191
02/12/20	Great Cumbrae Island	North Ayrshire	207
02/12/21	Kirkmichael	South Ayrshire	215

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)

Flood risk management plan datasheet

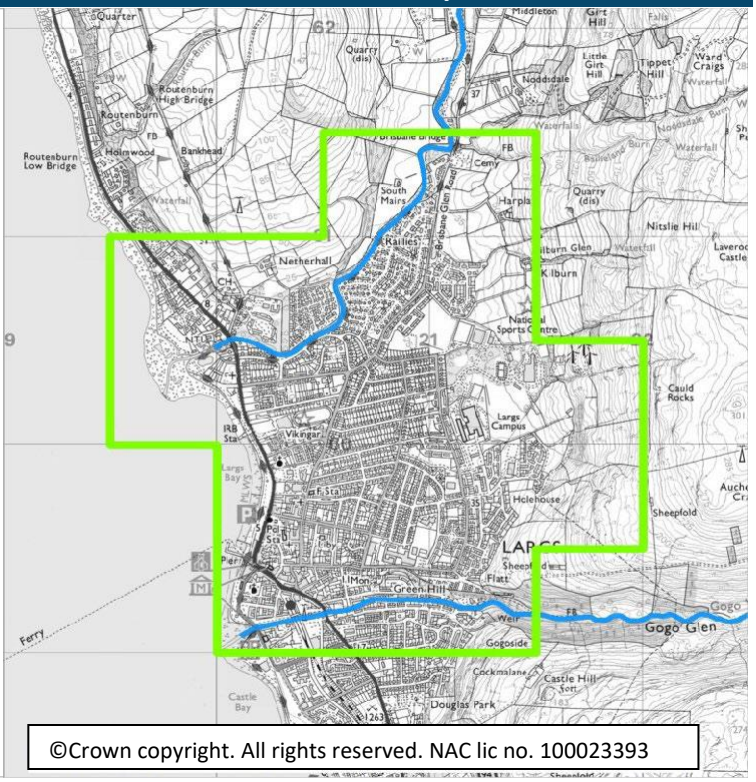
Largs north (target area 148)

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 multiple outcomes.

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?

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	This action will be delivered during the first half of Cycle 2 (2022 - 2025).
Funding	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)
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)
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 requirement for and priority of actions for cycle 3 will be reviewed during the preparation of the next set of flood risk management plans. Information on how and when these actions are delivered will be provided in 2028.

	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)
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)
Local Detail	Details of this action will be informed by developments in flood risk management planning between 2022-2028.

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.

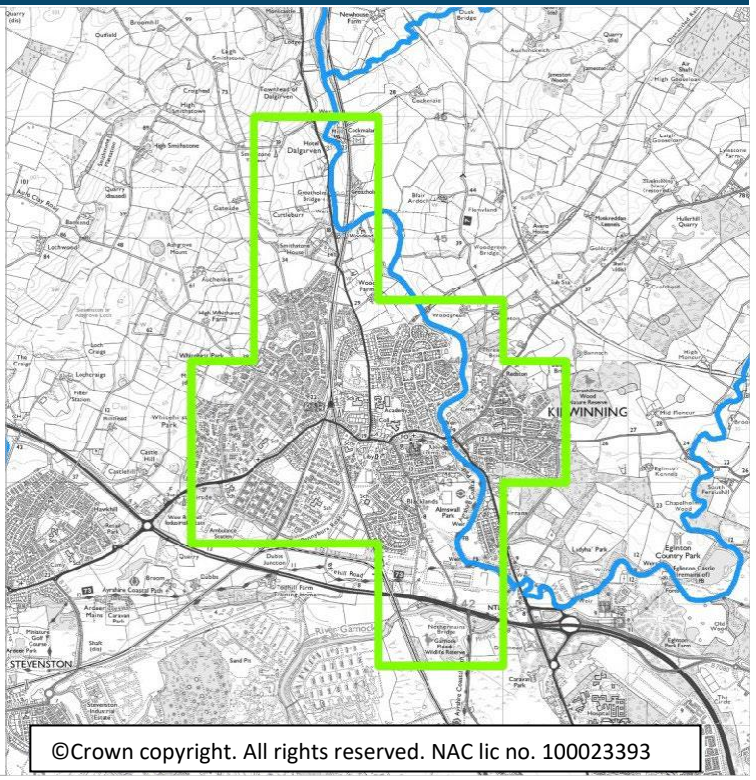
There are 5 target areas in this potentially vulnerable area, which have been the focus of further assessment, these are listed below. Further information on the objectives and actions to manage flood risk within this area is provided below.

List of target areas

Kilwinning and Dalgarven	(target area 80)
Saltcoats and Stevenston	(target area 121)
West Kilbride	(target area 124)
Largs south	(target area 149)
Fairlie	(target area 155)

Flood risk management plan datasheet

Kilwinning and Dalgarven (target area 80)

Summary	Location map
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.	

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 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

What actions are proposed for this area?

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)
Action	The volume of water that would overwhelm the sewer system and cause flooding from manholes 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.

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.

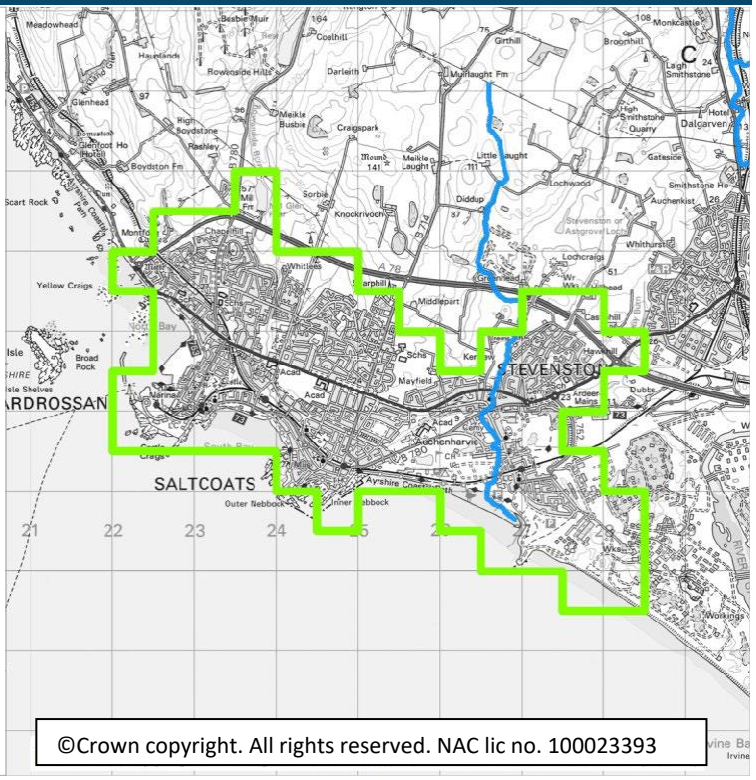
Flood risk management plan datasheet

Saltcoats and Stevenston (target area121)

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?

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, including Scottish Water.
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 manholes 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.

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

Flood risk management plan datasheet

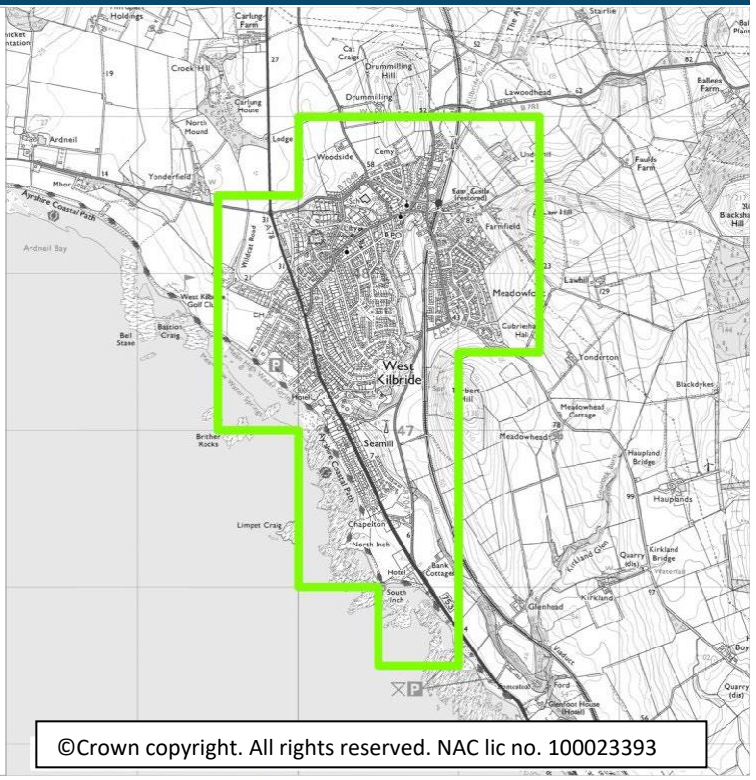
West Kilbride (target area 124)

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?

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 manholes 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.

Actions proposed after June 2028

The requirement for and priority of actions for cycle 3 will be reviewed during the preparation of the next set of flood risk management plans. Information on how and when these actions are delivered will be provided in 2028.

	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).
Local Detail	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. Where flood risk is confirmed, a second phase of the study shall be commissioned to scope the next steps towards reducing flood risk.

	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)
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).
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.

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.

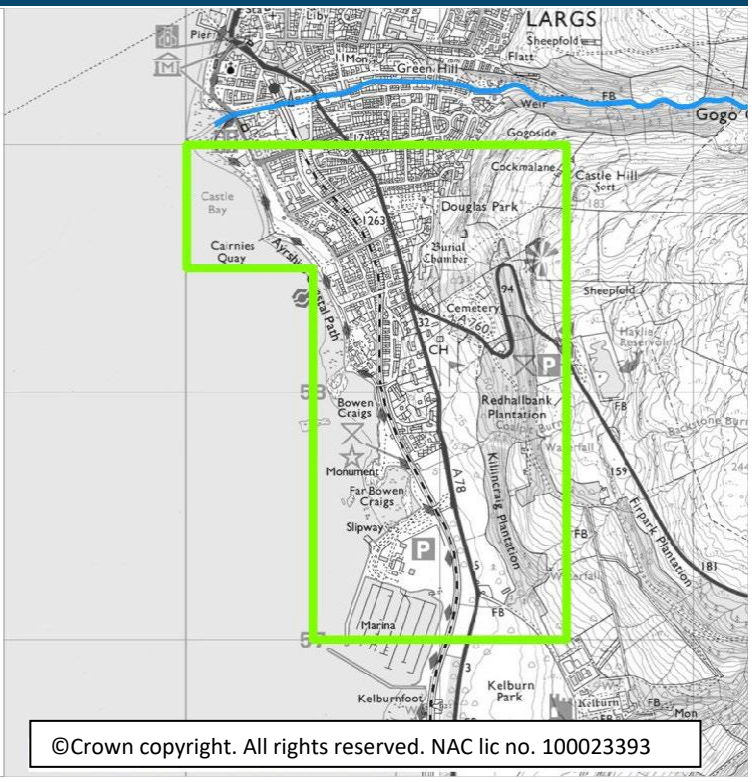
Flood risk management plan datasheet

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?

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 about the service when required.
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 requirement for and priority of actions for cycle 3 will be reviewed during the preparation of the next set of flood risk management plans. Information on how and when these actions are delivered will be provided in 2028.

	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)
Local Detail	Details of this action will be informed by developments in flood risk management planning between 2022-2028.

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.

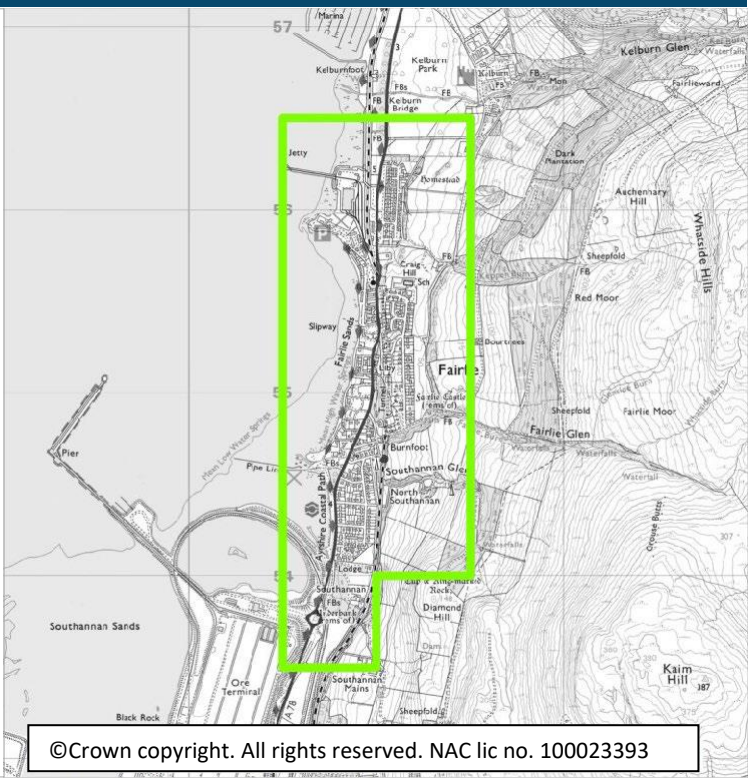
Flood risk management plan datasheet

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
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?

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 the detailed design for the 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 provisions 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 provisions for this action are confirmed, there can be no further progress on the delivery of this action. Progression of the scheme is also reliant on the availability of resources from Transport Scotland and Network Rail. Transport Scotland have confirmed their support for the scheme while Network Rail's 5-yearly budget will next be confirmed in March 2023.
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. 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 provisions 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 provisions are confirmed, further progress on the delivery of this action will be kept under 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 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.

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	(target area 76)
Kilbirnie and Glengarnock	(target area 97)

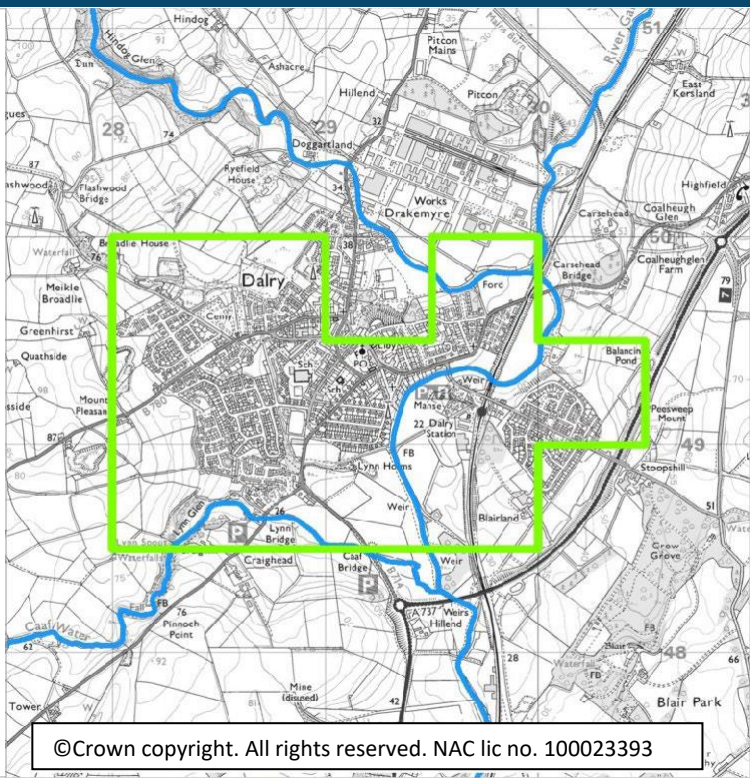
Flood risk management plan datasheet

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, and surface water 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

What actions are proposed for this area?

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	The flood scheme is currently under construction.
Description	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 manholes 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 (7604)
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.

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.

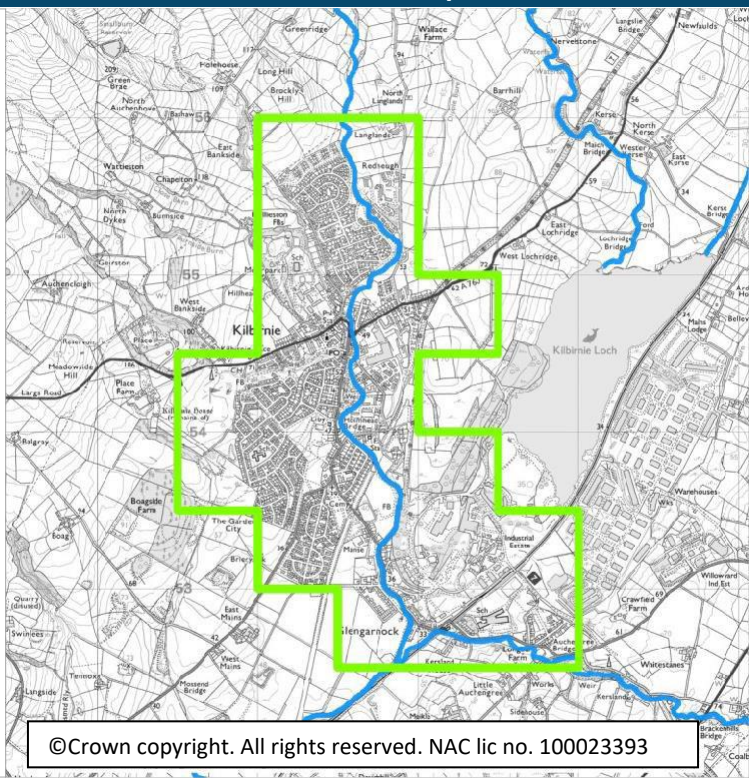
Flood risk management plan datasheet

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

What actions are proposed for this area?

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	The flood scheme is currently under construction.
Description	The flood scheme north of Kilbirnie involves the construction of the flood storage dam across the River Garnock at Greenridge and Langlands Farms. This will temporarily reduce river flow during periods of high rainfall to reduce flood risk to properties downstream. Works at Paddockholm Industrial Estate in 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.
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	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.
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	N/A.

	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	A natural flood management study for the Upper Garnock has already been completed. 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. The completed study has identified opportunities for natural flood management and has assessed their effectiveness.
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 manholes 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.

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	(target area 21)
Stewarton	(target area 122)
Dundonald	(target area 21001)

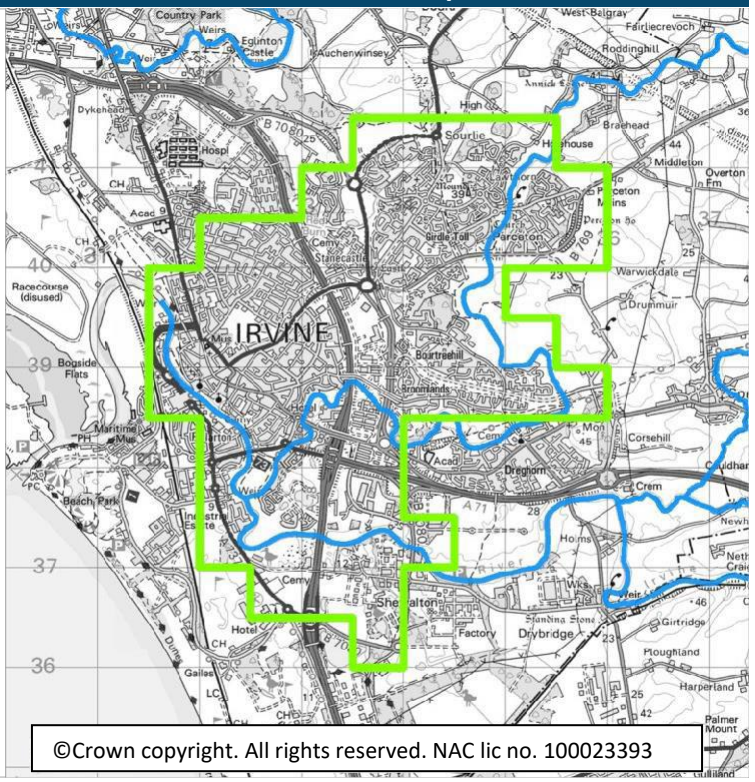
Flood risk management plan datasheet

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?

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 (2101)
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	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. 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. 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 provisions 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 provisions for this action are confirmed, there can be no further progress on the delivery of this action.
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 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. North Ayrshire Council proposes this action as the best viable option for managing flood risk in this community.

	Community engagement (2102)
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 provisions 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 provisions are confirmed, further progress on the delivery of this action will be kept under 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 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 manholes 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)
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)
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.

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.

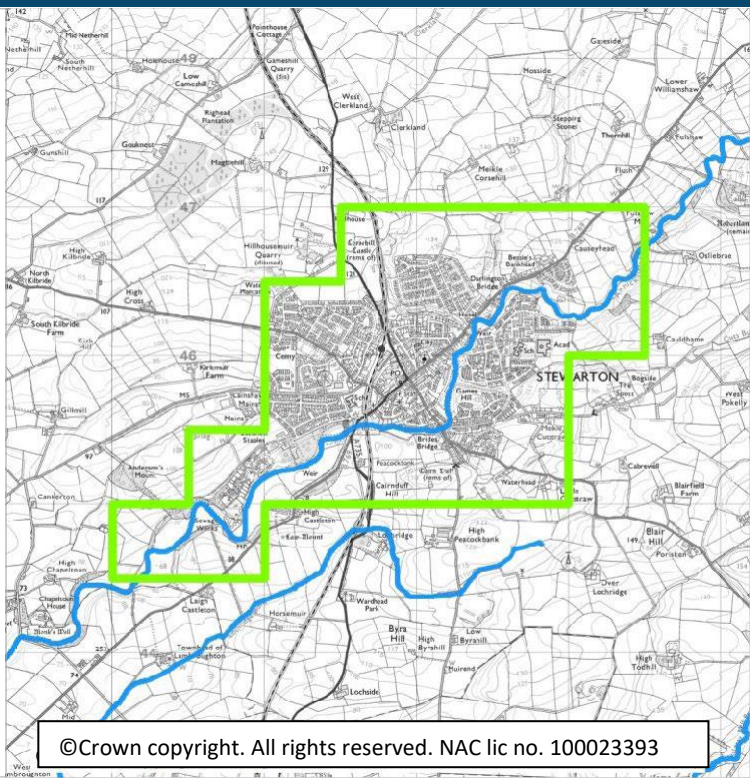
Flood risk management plan datasheet

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

What actions are proposed for this area?

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	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	Action delivery lead is East Ayrshire Council and coordination will be determined once the actions have been finalised. 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)
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 manholes 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 requirement for and priority of actions for cycle 3 will be reviewed during the preparation of the next set of flood risk management plans. Information on how and when these actions are delivered will be provided in 2028.

	Surface water management plan (12204)
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 forthe 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).
Local Detail	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.

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.

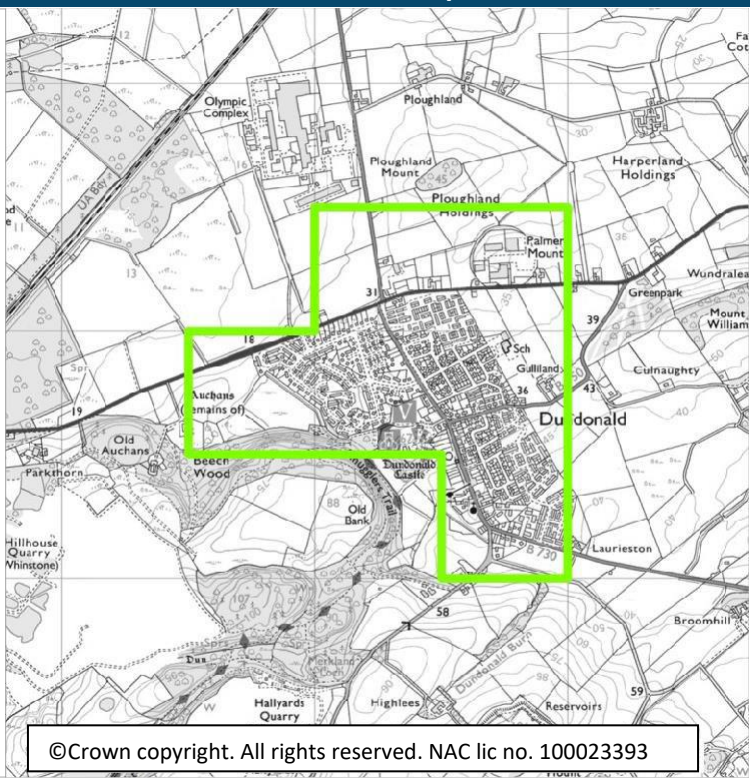
Flood risk management plan datasheet

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 flood, 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

What actions are proposed for this area?

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 manholes 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 requirement for and priority of actions for cycle 3 will be reviewed during the preparation of the next set of flood risk management plans. Information on how and when these actions are delivered will be provided in 2028.

	Flood scheme or works design (2100102)
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).
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.
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.

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.

02/12/05 (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	(target area 22)
Troon	(target area 123)

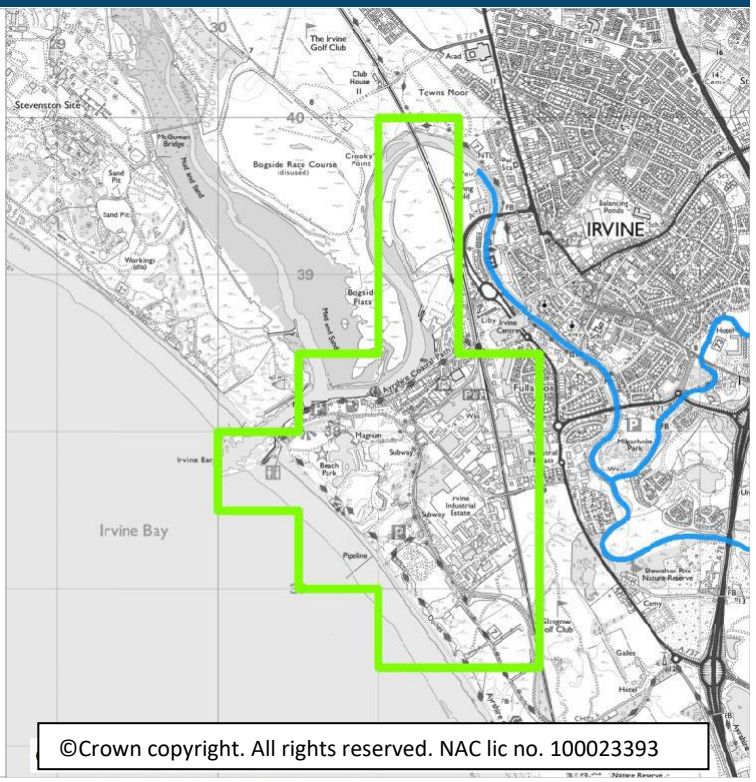
Flood risk management plan datasheet

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

What actions are proposed for this area?

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 and 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 manholes 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 requirement for and priority of actions for cycle 3 will be reviewed during the preparation of the next set of flood risk management plans. Information on how and when these actions are delivered will be provided in 2028.

	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)
Local Detail	Details of this action will be informed by developments in flood risk management planning between 2022-2028.

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.

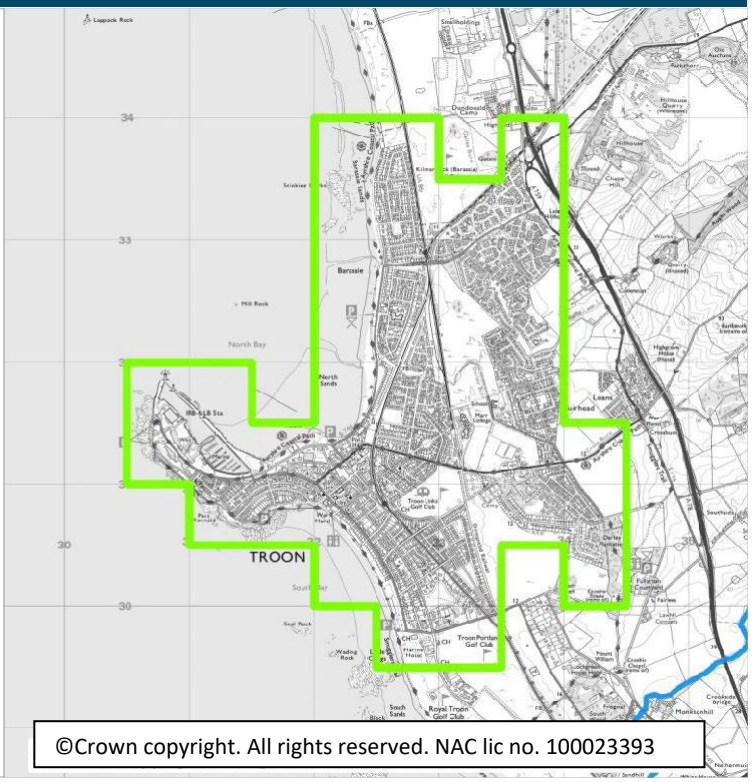
Flood risk management plan datasheet

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
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?

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	SEPA will work with South Ayrshire Council 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)
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)
Action	The volume of water that would overwhelm the sewer system and cause flooding from manholes 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)
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.

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	(target area 20)
Crosshouse	(target area 75)
Newmilns	(target area 120)
Kilmaurs	(target area 147)
Galston	(target area 153)
Darvel	(target area 154)

Flood risk management plan datasheet

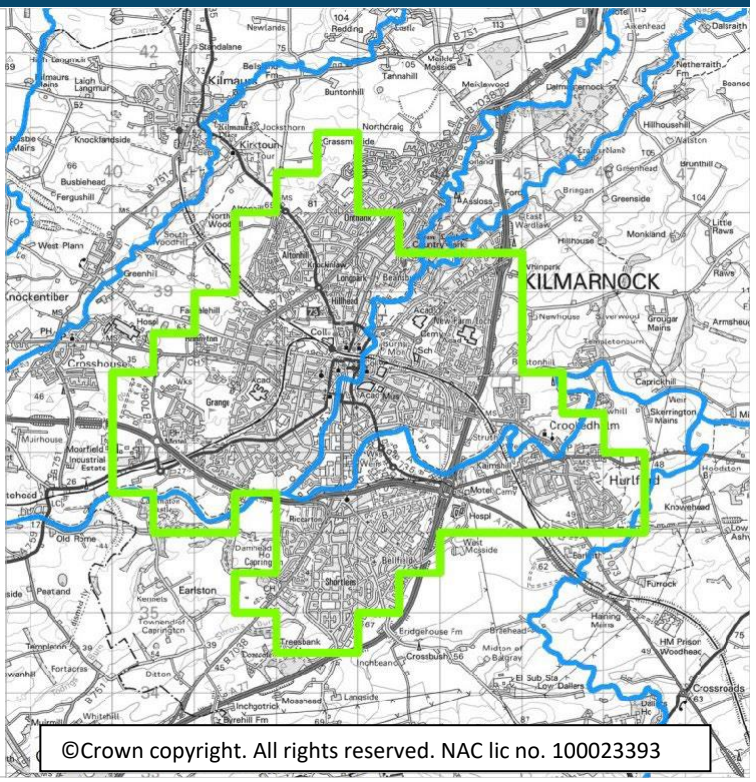
Kilmarnock (target area 20)

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

What actions are proposed for this area?

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 provisions 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 provisions for this action are confirmed, there can be no further progress on the delivery of this action.
Coordination	East Ayrshire Council and North Ayrshire Council.
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 (2001) for a number of climate change scenarios. This information will support a climate adaptive plan for this flood protection asset. 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 provisions 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 provisions are confirmed, further progress on the delivery of this action will be kept under review.
Coordination	East Ayrshire Council 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)
Action	The volume of water that would overwhelm the sewer system and cause flooding from manholes 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 and Scottish Water.
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)
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.

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.

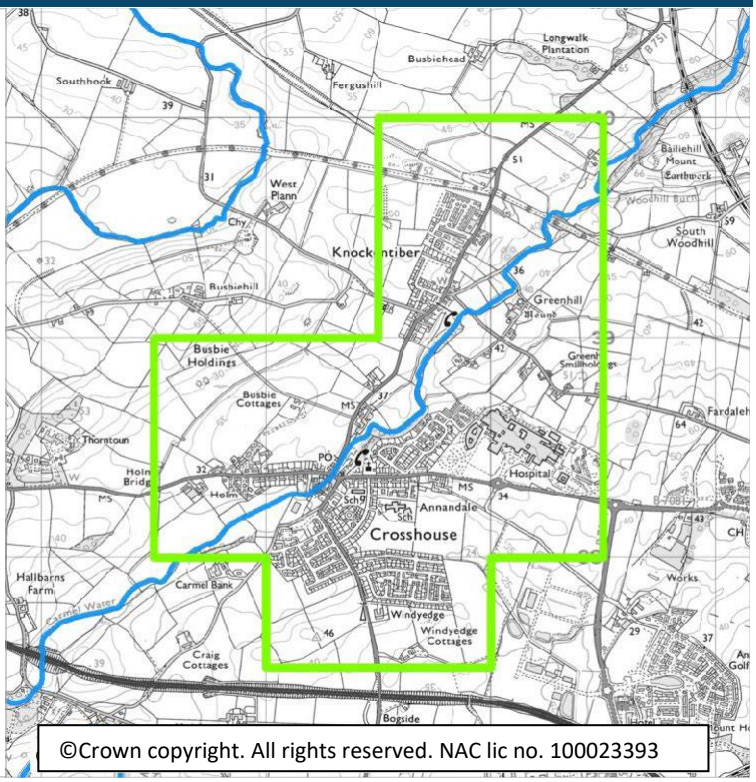
Flood risk management plan datasheet

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

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 and2028

	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	New data collection equipment is to be installed to help inform the flood study that is planned for Cycle 3 (2028 – 2034).
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	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 to determine the best locations for the installation of new data collection equipment.

	Sewer flood risk assessment (7502)
Action	The volume of water that would overwhelm the sewer system and cause flooding from manholes 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 requirement for and priority of actions for cycle 3 will be reviewed during the preparation of the next set of flood risk management plans. Information on how and when these actions are delivered will be provided in 2028.

	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).
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.

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.

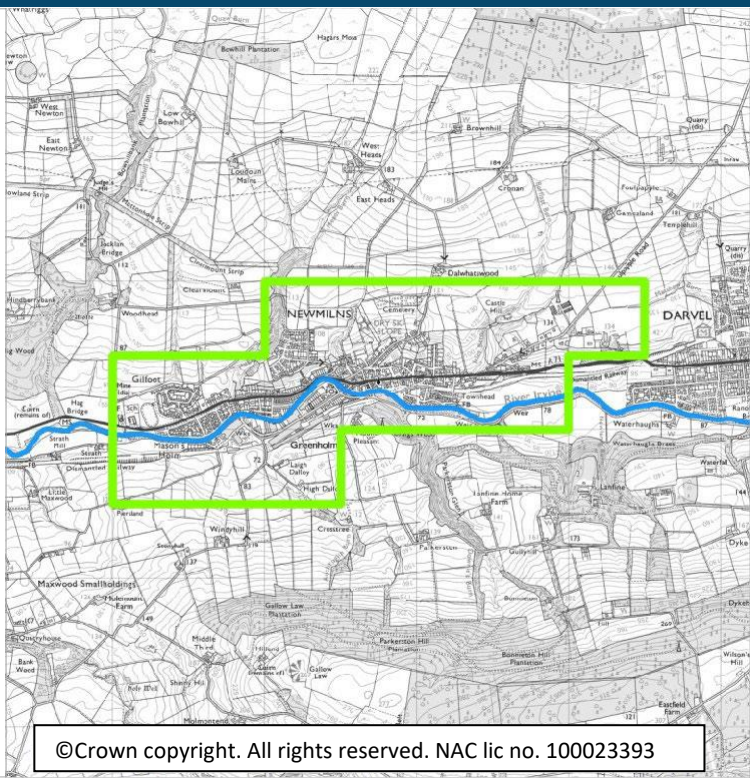
Flood risk management plan datasheet

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

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.
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 provisions 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 provisions for this action are confirmed, there can be no further progress on the delivery of this action.
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 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 (12002)
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 provisions 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 provisions are confirmed, further progress on the delivery of this action will be kept under review.
Coordination	East Ayrshire Council 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)
Action	The volume of water that would overwhelm the sewer system and cause flooding from manholes 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 requirement for and priority of actions for cycle 3 will be reviewed during the preparation of the next set of flood risk management plans. Information on how and when these actions are delivered will be provided in 2028.

	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).
Local Detail	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.

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.

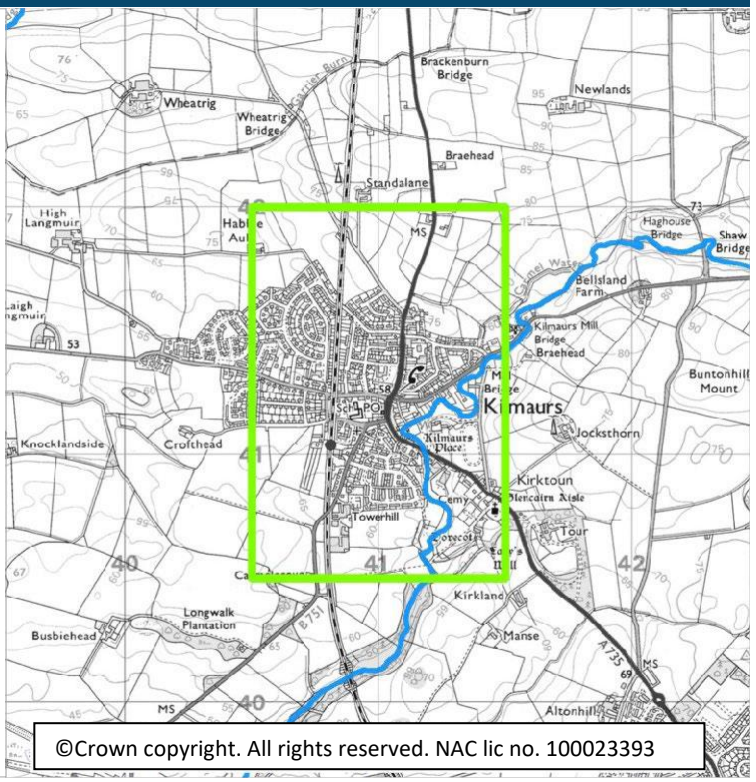
Flood risk management plan datasheet

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

What actions are proposed for this area?

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	New data collection equipment is to be installed to help inform the flood study that is planned for Cycle 3 (2028 – 2034).
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	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 to determine the best locations for the installation of new data collection equipment.

	Sewer flood risk assessment (14702)
Action	The volume of water that would overwhelm the sewer system and cause flooding from manholes 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 requirement for and priority of actions for cycle 3 will be reviewed during the preparation of the next set of flood risk management plans. Information on how and when these actions are delivered will be provided in 2028.

	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).
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.

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.

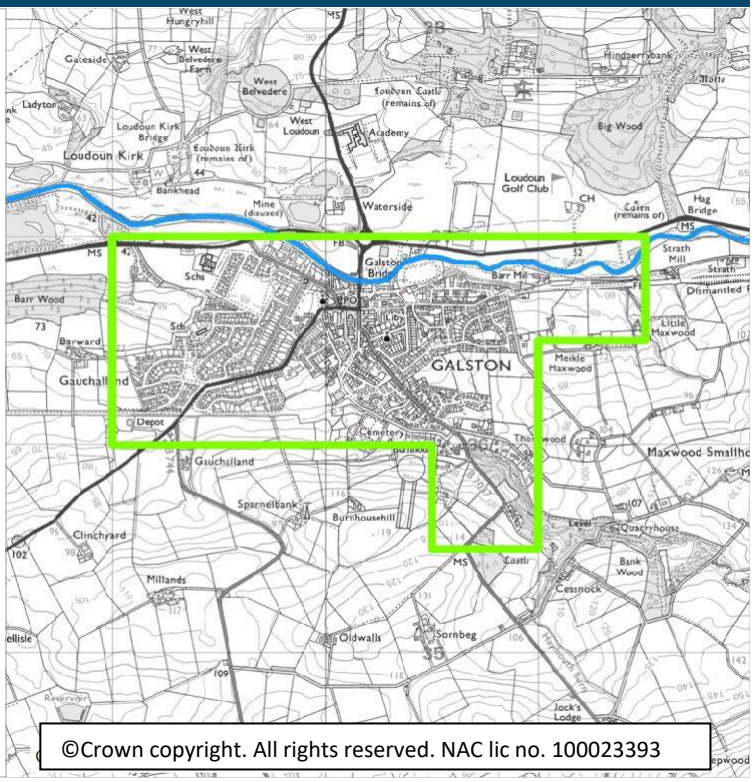
Flood risk management plan datasheet

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

What actions are proposed for this area?

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.
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 provisions 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 provisions for this action are confirmed, there can be no further progress on the delivery of this action.
Coordination	East Ayrshire Council and North Ayrshire Council.
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 (15302)
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 provisions 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 provisions are confirmed, further progress on the delivery of this action will be kept under review.
Coordination	East Ayrshire Council 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)
Action	The volume of water that would overwhelm the sewer system and cause flooding from manholes 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 requirement for and priority of actions for cycle 3 will be reviewed during the preparation of the next set of flood risk management plans. Information on how and when these actions are delivered will be provided in 2028.

	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).
Local Detail	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.

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.

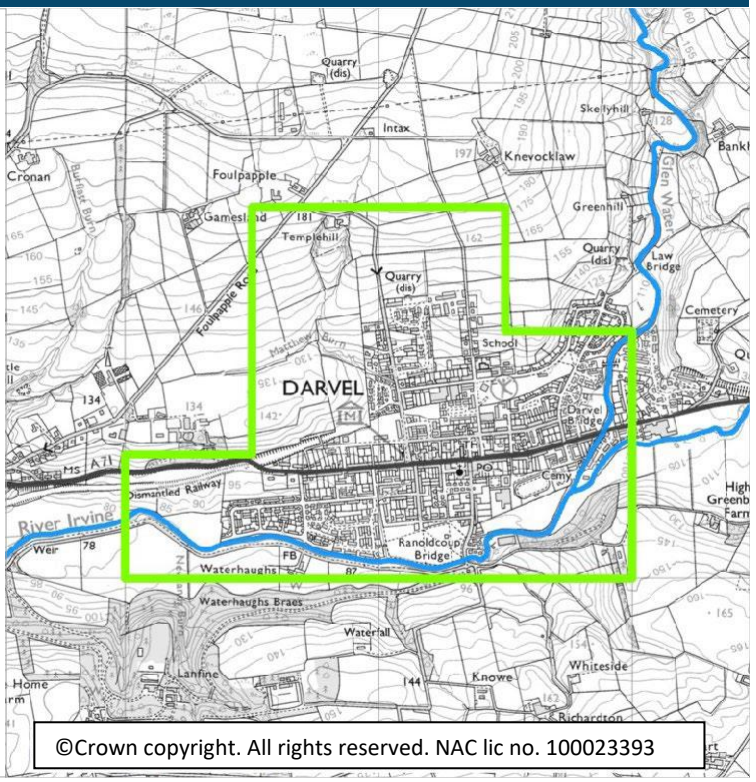
Flood risk management plan datasheet

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

What actions are proposed for this area?

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.
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 provisions 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 provisions for this action are confirmed, there can be no further progress on the delivery of this action.
Coordination	East Ayrshire Council and North Ayrshire Council.
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)
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 provisions 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 provisions are confirmed, further progress on the delivery of this action will be kept under review.
Coordination	East Ayrshire Council 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 manholes 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 requirement for and priority of actions for cycle 3 will be reviewed during the preparation of the next set of flood risk management plans. Information on how and when these actions are delivered will be provided in 2028.

	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).
Local Detail	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.

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)

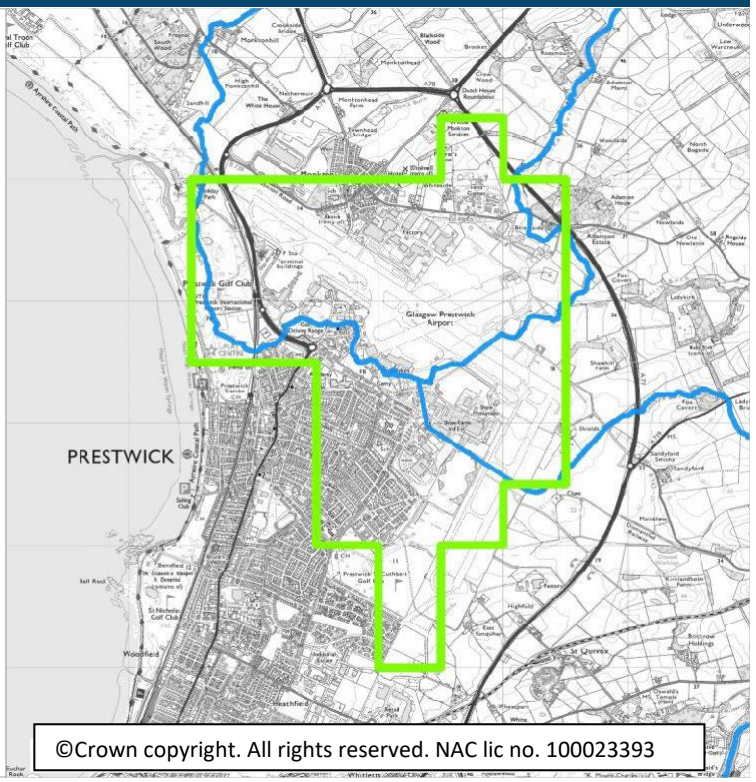
Flood risk management plan datasheet

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

What actions are proposed for this area?

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 targeted 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 the 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 (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 provisions 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 provisions for this action are confirmed, there can be no further progress on the delivery of this action.
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)
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 provisions 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 provisions are confirmed, further progress on the delivery of this action will be kept under review.
Coordination	South Ayrshire Council 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)
Action	The volume of water that would overwhelm the sewer system and cause flooding from manholes 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)
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 (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 about the service when required.
Local Detail	N/A.

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	(target area 27)
Ayr	(target area 71)

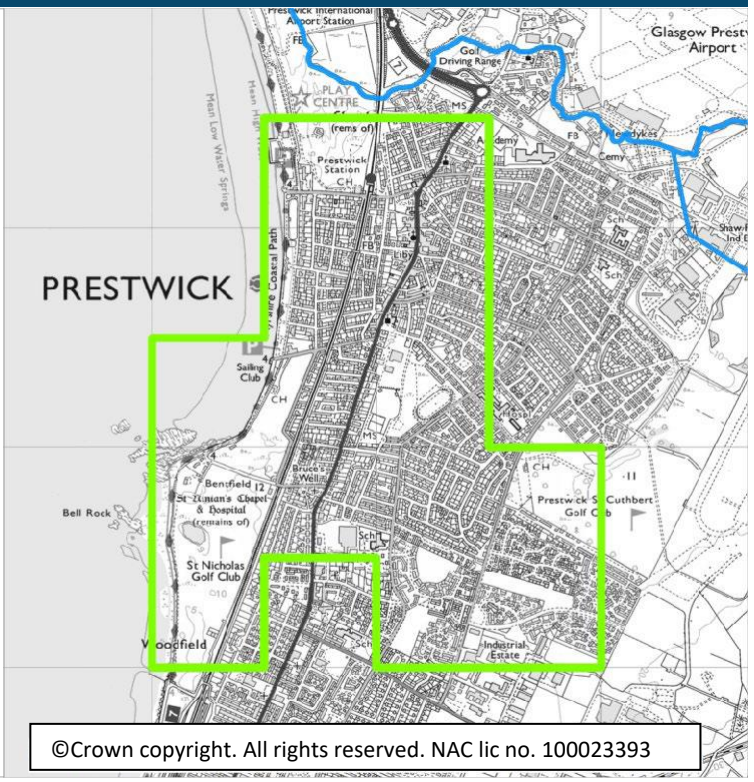
Flood risk management plan datasheet

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?

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 targeted 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 the 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)
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 provisions 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 provisions for this action are confirmed, there can be no further progress on the delivery of this action.
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 provisions 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 provisions are confirmed, further progress on the delivery of this action will be kept under review.
Coordination	South Ayrshire Council 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 manholes 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)
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.

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.

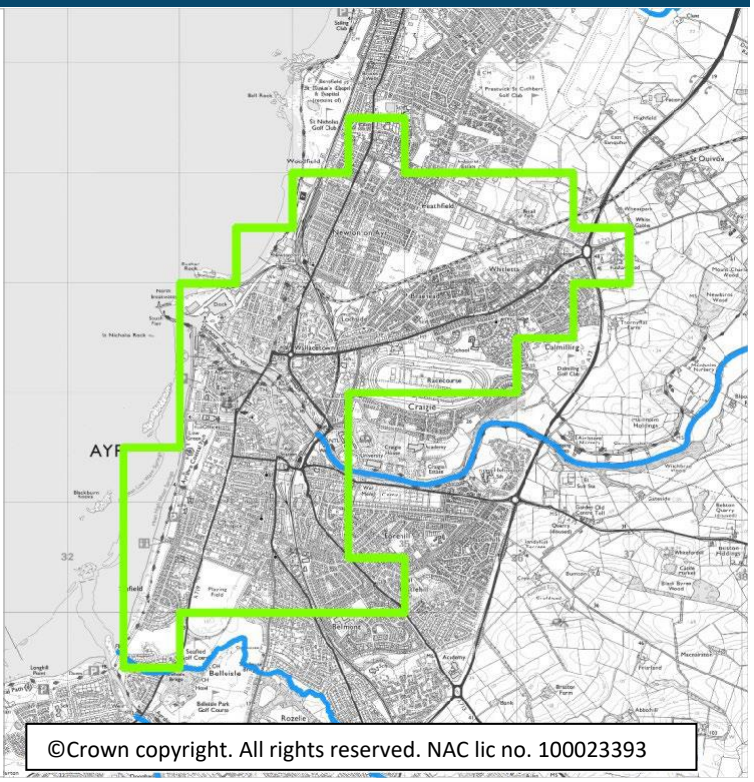
Flood risk management plan datasheet

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
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?

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 provisions 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 provisions for this action are confirmed, there can be no further progress on the delivery of this action.
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 provisions 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 provisions are confirmed, further progress on the delivery of this action will be kept under review.
Coordination	South Ayrshire Council 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 manholes 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)
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)
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 requirement for and priority of actions for cycle 3 will be reviewed during the preparation of the next set of flood risk management plans. Information on how and when these actions are delivered will be provided in 2028.

	Flood study (7107)
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 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).
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)
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)
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.

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)

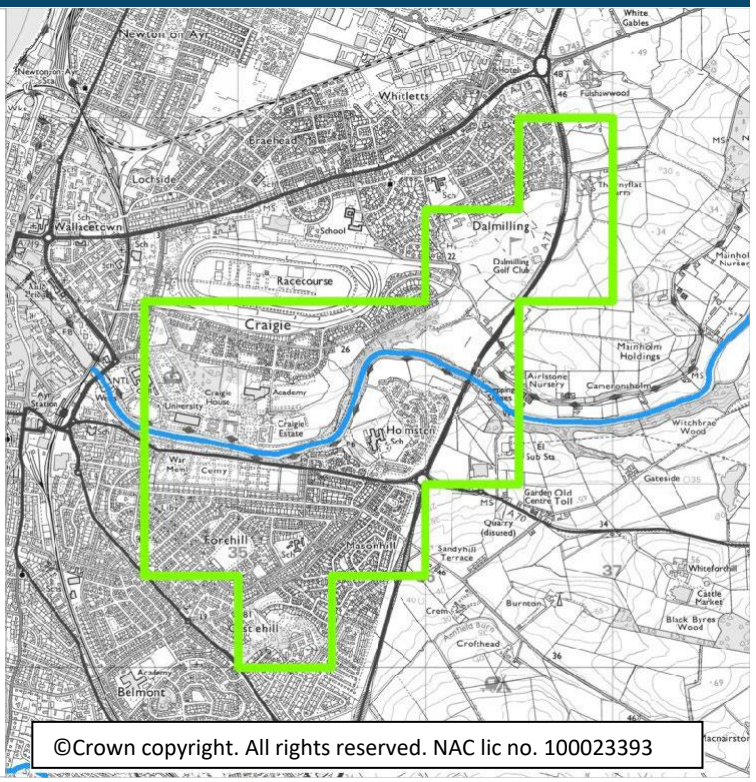
Flood risk management plan datasheet

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

What actions are proposed for this area?

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 provisions 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 provisions for this action are confirmed, there can be no further progress on the delivery of this action.
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 accordance 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)
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 provisions 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 provisions are confirmed, further progress on the delivery of this action will be kept under review.
Coordination	South Ayrshire Council 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 manholes 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 requirement for and priority of actions for cycle 3 will be reviewed during the preparation of the next set of flood risk management plans. Information on how and when these actions are delivered will be provided in 2028.

	Flood study (7204)
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).
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.

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)

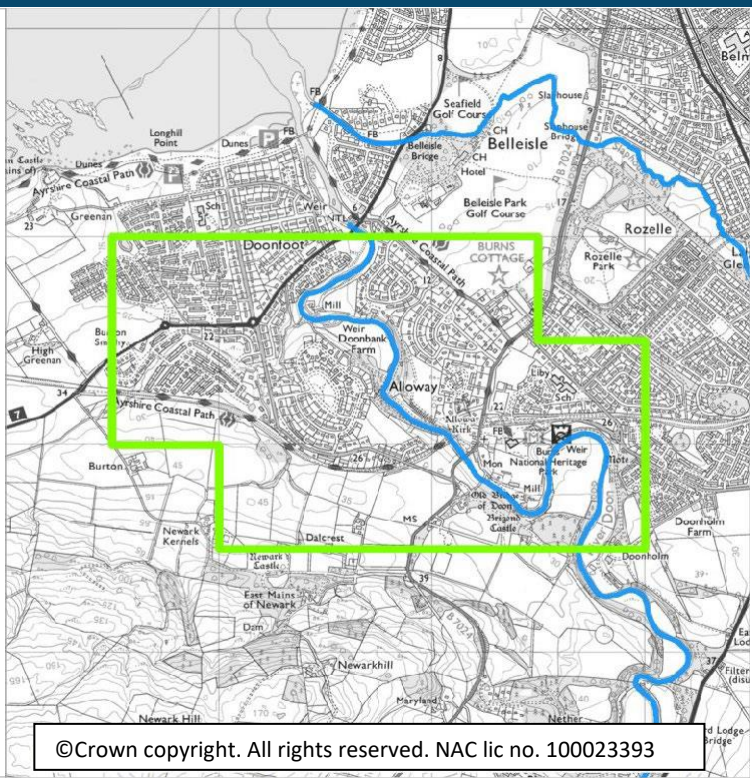
Flood risk management plan datasheet

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

What actions are proposed for this area?

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 provisions 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 provisions for this action are confirmed, there can be no further progress on the delivery of this action.
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 accordance 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)
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 provisions 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 provisions are confirmed, further progress on the delivery of this action will be kept under review.
Coordination	South Ayrshire Council 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.

	Sewer flood risk assessment (7404)
Action	The volume of water that would overwhelm the sewer system and cause flooding from manholes 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.

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)

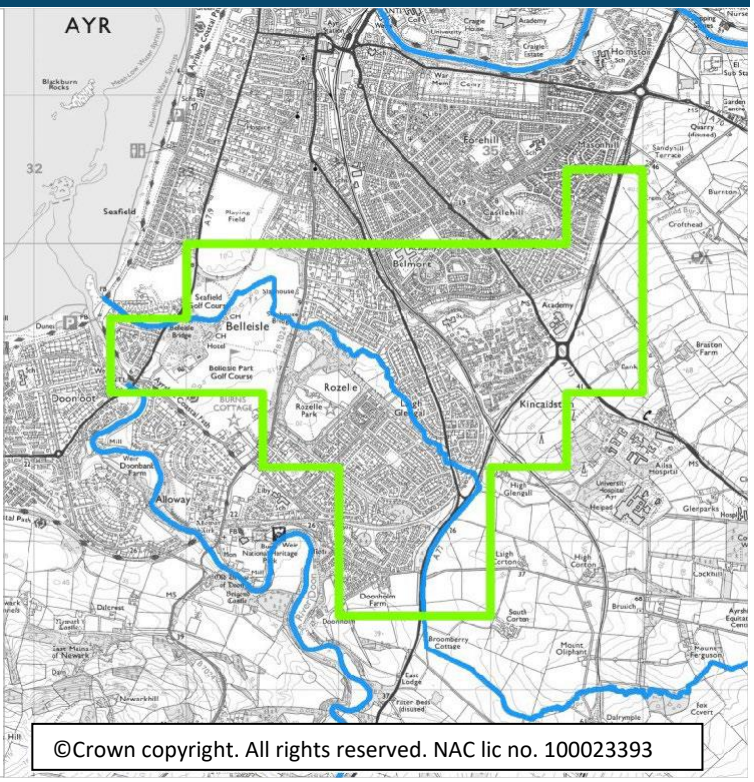
Flood risk management plan datasheet

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
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?

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 provisions 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 provisions for this action are confirmed, there can be no further progress on the delivery of this action.
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)
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 provisions 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 provisions are confirmed, further progress on the delivery of this action will be kept under review.
Coordination	South Ayrshire Council 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)
Action	The volume of water that would overwhelm the sewer system and cause flooding from manholes 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)
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.

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	(target area 77)
Dalmellington	(target area 96)
Patna	(target area 164)

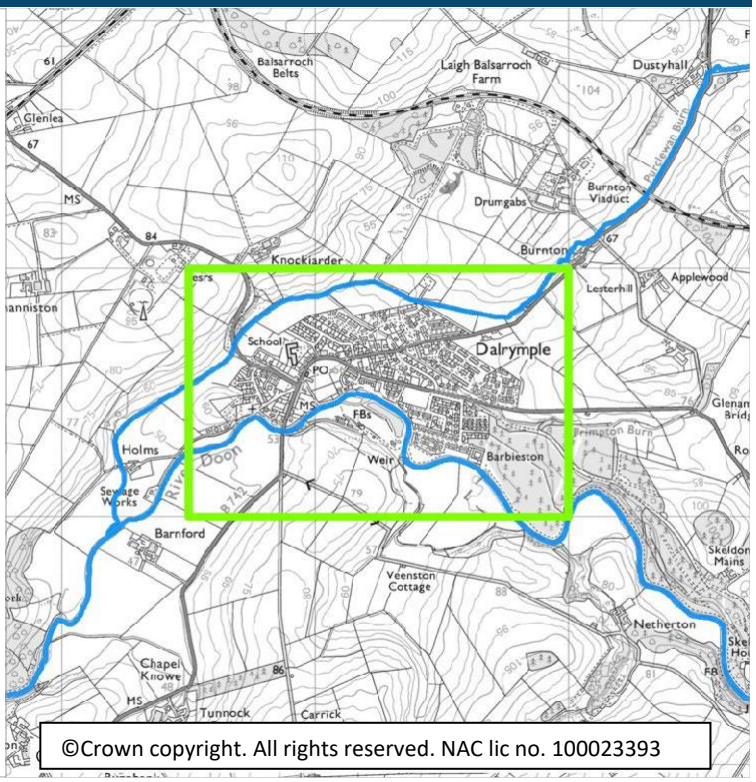
Flood risk management plan datasheet

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

What actions are proposed for this area?

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.

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.

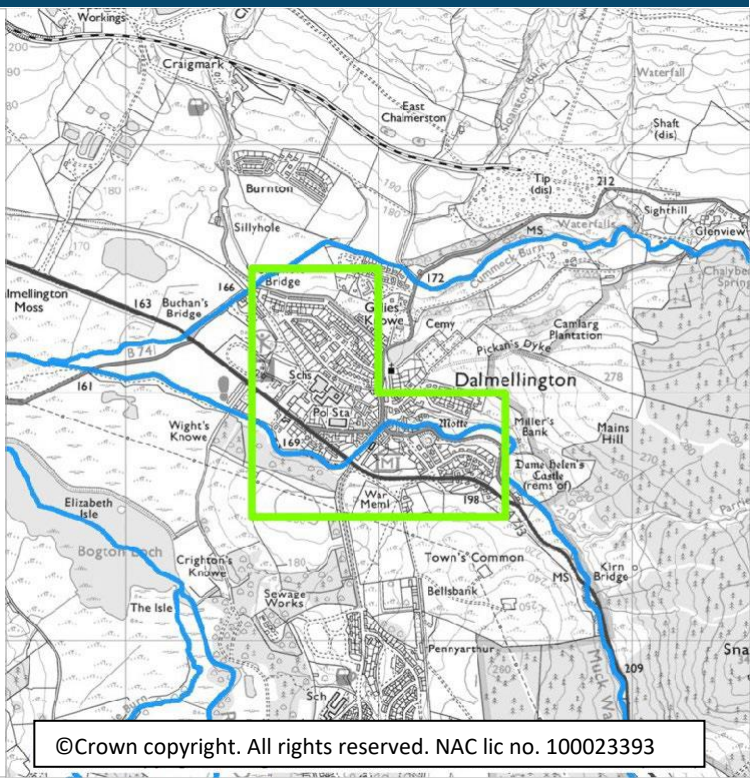
Flood risk management plan datasheet

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 and surface water 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

What actions are proposed for this area?

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.

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.

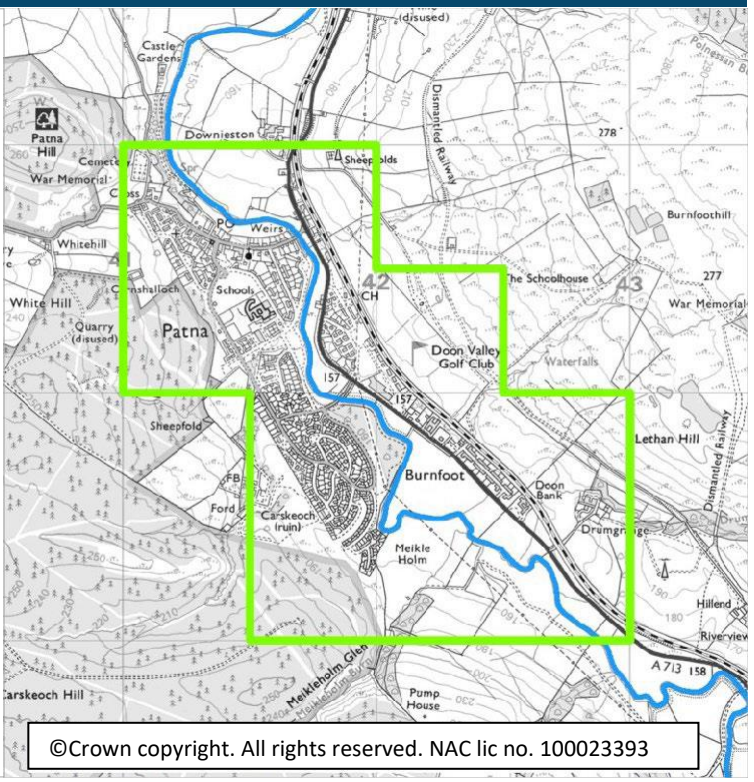
Flood risk management plan datasheet

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, and surface water 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

What actions are proposed for this area?

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.

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)

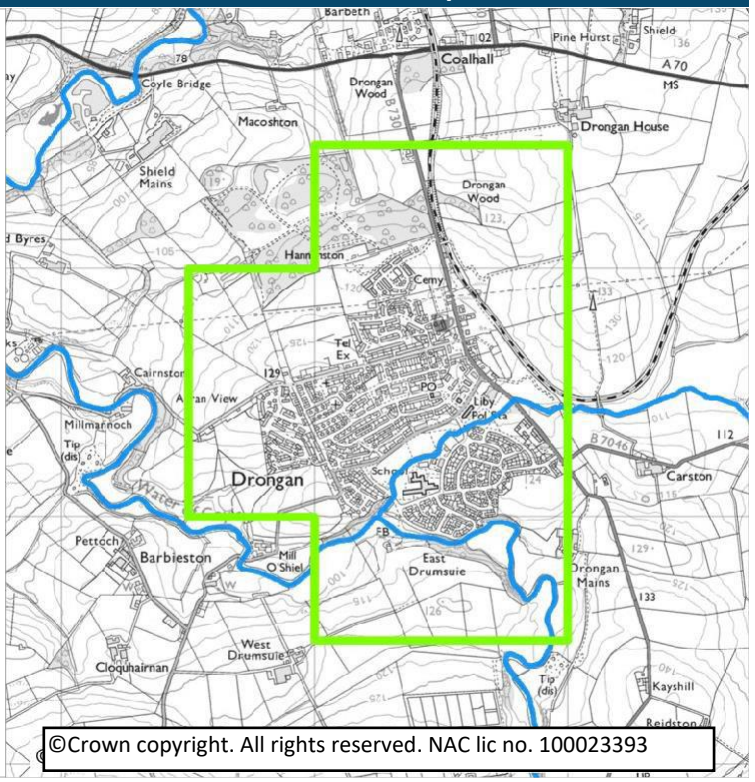
Flood risk management plan datasheet

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 and surface water 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

What actions are proposed for this area?

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	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)
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.

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)

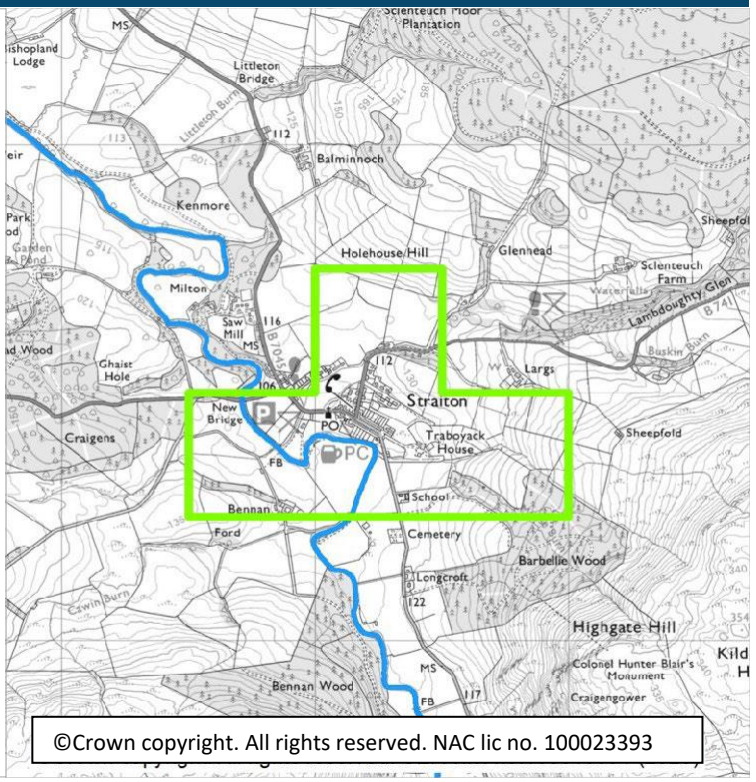
Flood risk management plan datasheet

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 and surface water 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

What actions are proposed for this area?

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 requirement for and priority of actions for cycle 3 will be reviewed during the preparation of the next set of flood risk management plans. Information on how and when these actions are delivered will be provided in 2028.

	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).
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.

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	(target area 19)
Auchinleck	(target area 68)

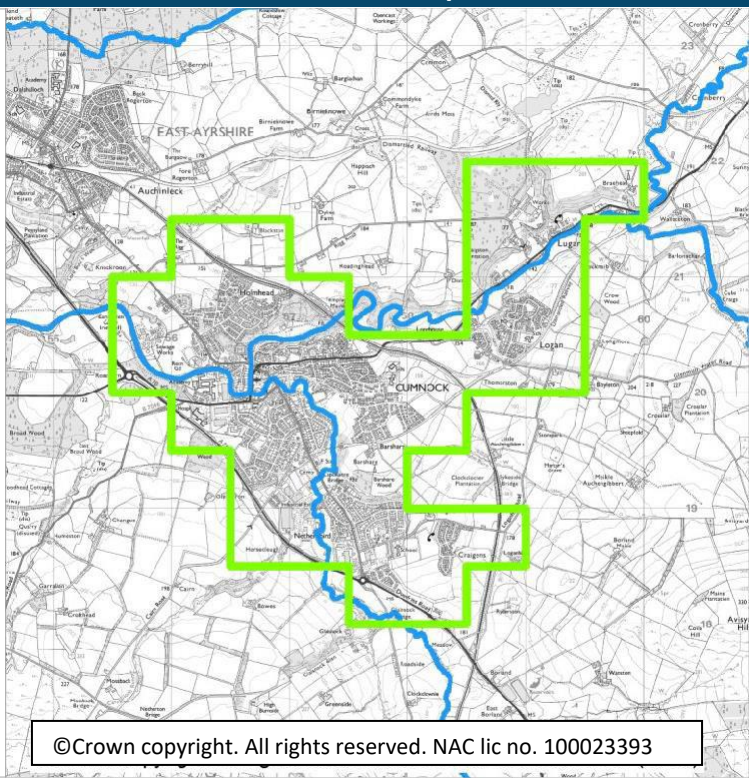
Flood risk management plan datasheet

Cumnock (target area 19)

Summary

The town of Cumnock and the villages of Netherthird, Craigens 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 and 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

What actions are proposed for this area?

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 requirement for and priority of actions for cycle 3 will be reviewed during the preparation of the next set of flood risk management plans. Information on how and when these actions are delivered will be provided in 2028.

	Property flood resilience scheme (1902)
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).
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.

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.

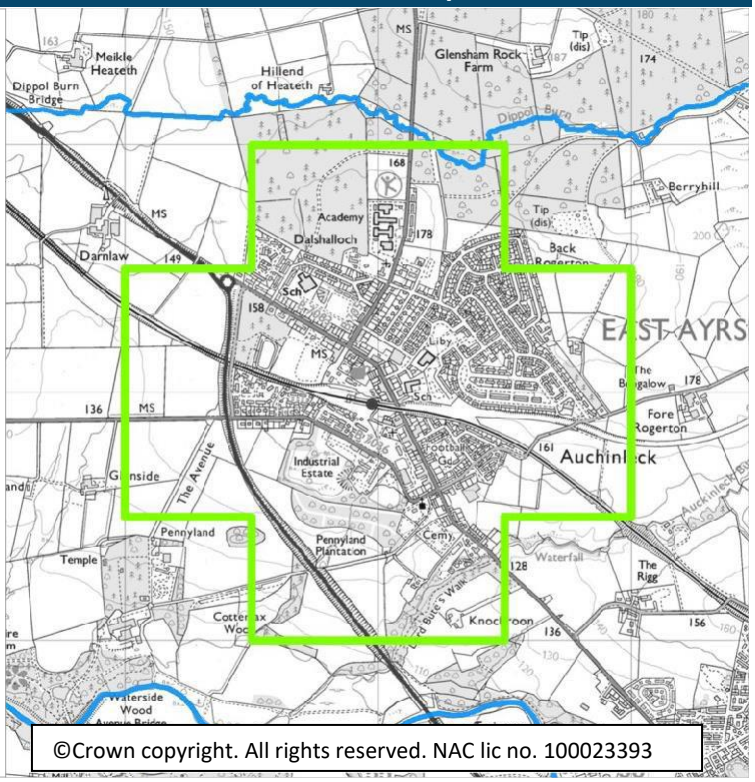
Flood risk management plan datasheet

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 and 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

What actions are proposed for this area?

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. 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.
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	N/A.

Actions proposed after June 2028

The requirement for and priority of actions for cycle 3 will be reviewed during the preparation of the next set of flood risk management plans. Information on how and when these actions are delivered will be provided in 2028.

	Surface water management plan (6802)
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 forthe 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).
Local Detail	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.

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	(target area 16)
Catrine	(target area 17)

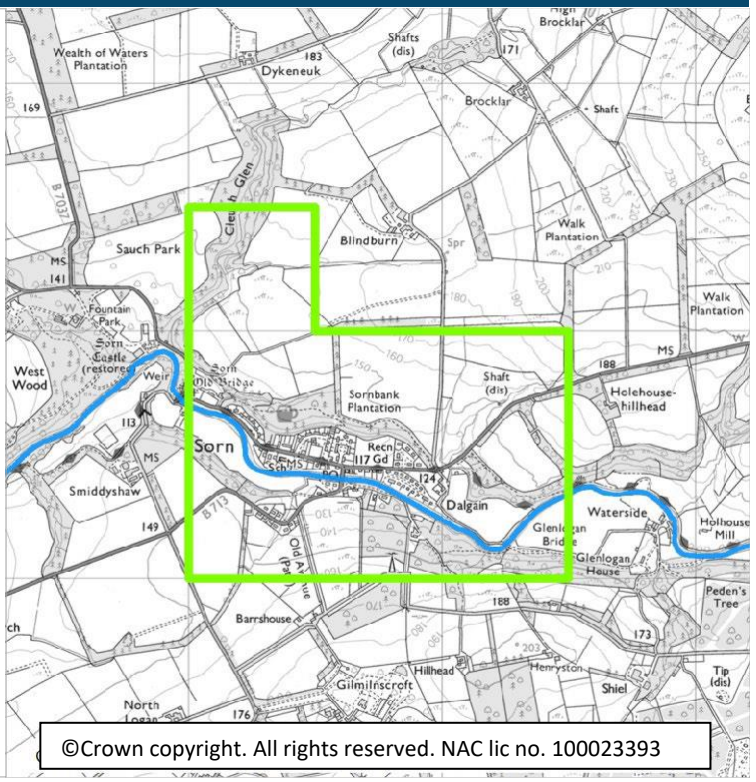
Flood risk management plan datasheet

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 and surface water 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

What actions are proposed for this area?

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.

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.

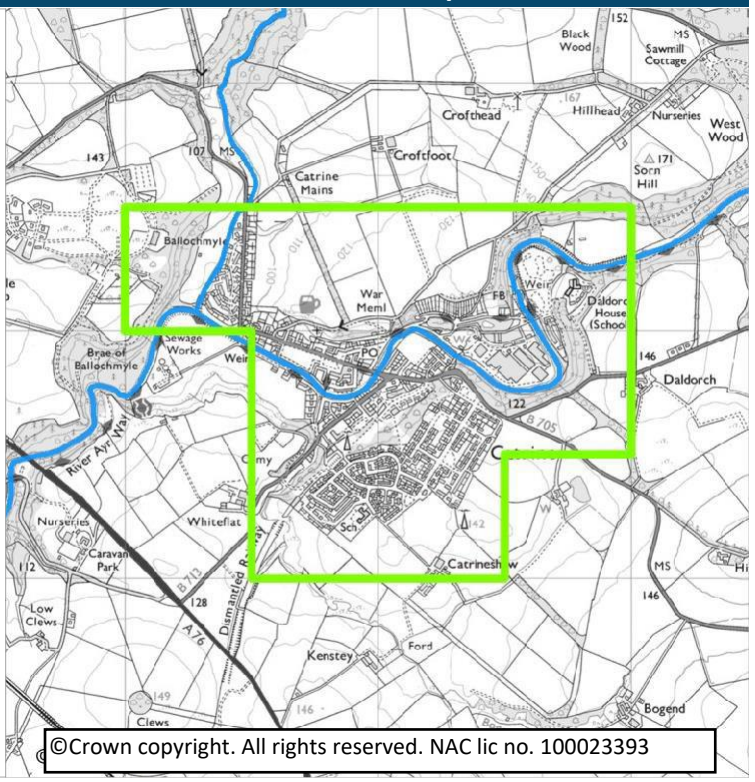
Flood risk management plan datasheet

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 and surface water 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

What actions are proposed for this area?

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)
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.
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 requirement for and priority of actions for cycle 3 will be reviewed during the preparation of the next set of flood risk management plans. Information on how and when these actions are delivered will be provided in 2028.

	Property flood resilience scheme (1704)
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).
Local Detail	The outcomes of the flood study for the River Ayr, East Ayrshire Council shall review the benefit of the property resilience program.

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)

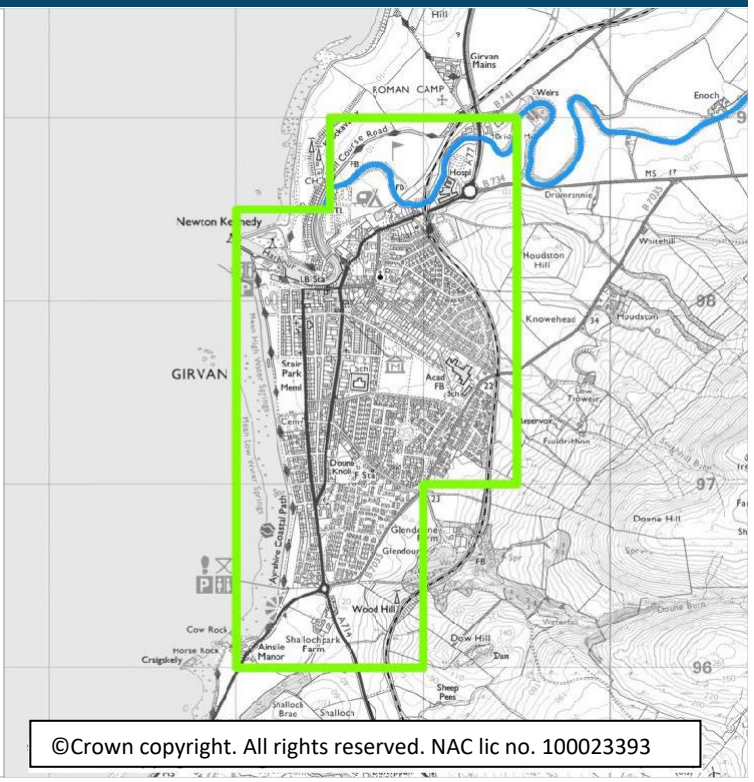
Flood risk management plan datasheet

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
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?

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.
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 provisions 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 provisions for this action are confirmed, there can be no further progress on the delivery of this action.
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)
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)
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 requirement for and priority of actions for cycle 3 will be reviewed during the preparation of the next set of flood risk management plans. Information on how and when these actions are delivered will be provided in 2028.

	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).
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)
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)
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.

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)

Flood risk management plan datasheet

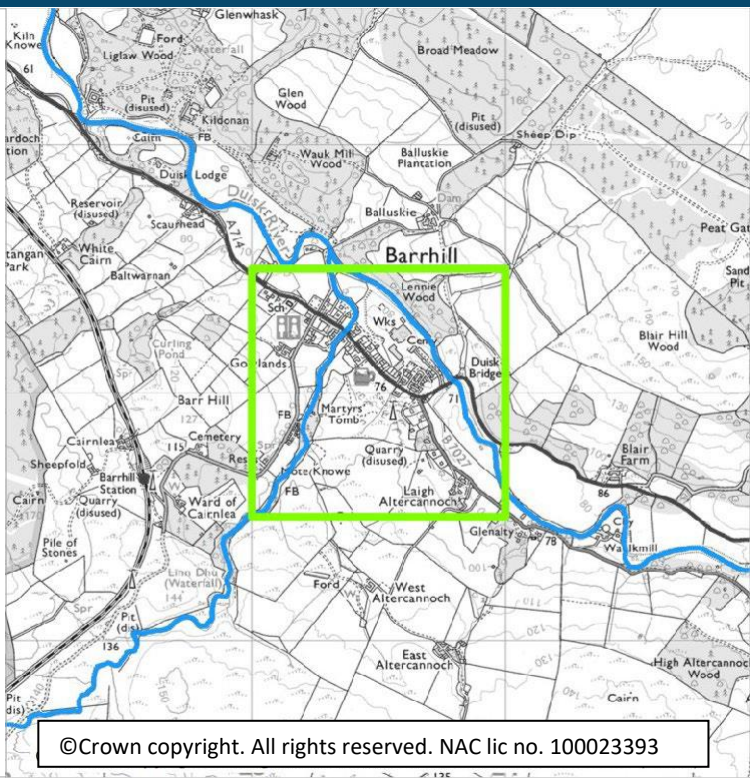
Barrhill (target area 95)

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

What actions are proposed for this area?

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 requirement for and priority of actions for cycle 3 will be reviewed during the preparation of the next set of flood risk management plans. Information on how and when these actions are delivered will be provided in 2028.

	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).
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.

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)

Flood risk management plan datasheet

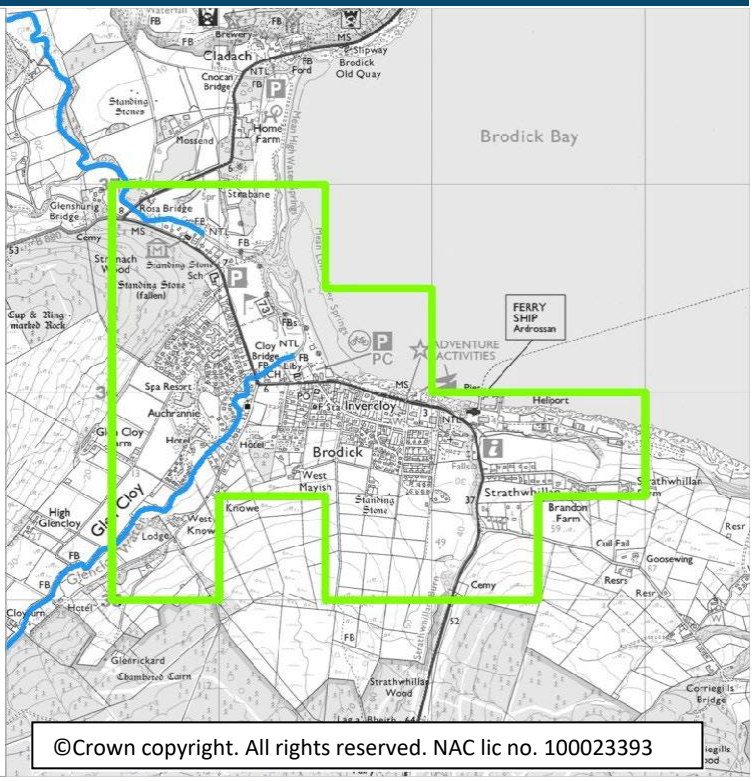
Brodick (target area 23)

Summary

Brodick 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 Brodick 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
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?

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 provisions 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 provisions for this action are confirmed, there can be no further progress on the delivery of this action.
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 provisions 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 provisions are confirmed, further progress on the delivery of this action will be kept under 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 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)
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 requirement for and priority of actions for cycle 3 will be reviewed during the preparation of the next set of flood risk management plans. Information on how and when these actions are delivered will be provided in 2028.

	Shoreline management plan (coastal adaptive plan) (2305)
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)
Local Detail	Details of this action will be informed by developments in flood risk management planning during Cycle 2 (2022-2028).

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.

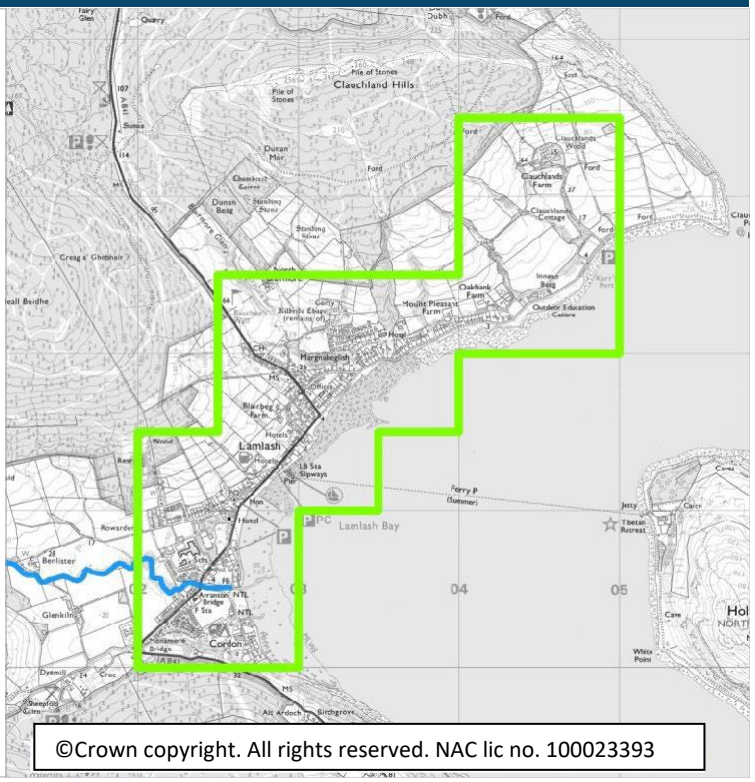
Flood risk management plan datasheet

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
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?

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)
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 public engagement. The recommended option combines embankments, flood walls and demountable barriers in order to provide protection up to the 200 year flood event. 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 provisions 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 provisions for this action are confirmed, there can be no further progress on the delivery of this action.
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 and flood warning actions.
Local Detail	The detail design for proposed embankments in Lamlash 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)
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 ongoing, linked to the design of the Brodick Flood Protection Scheme.
Funding	The funding provisions 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 provisions are confirmed, further progress on the delivery of this action will be kept under 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 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)
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 in accordance with inspection schedules

	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)
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 requirement for and priority of actions for cycle 3 will be reviewed during the preparation of the next set of flood risk management plans. Information on how and when these actions are delivered will be provided in 2028.

	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)
Local Detail	Details of this action will be informed by developments in flood risk management planning between 2022-2028.

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.

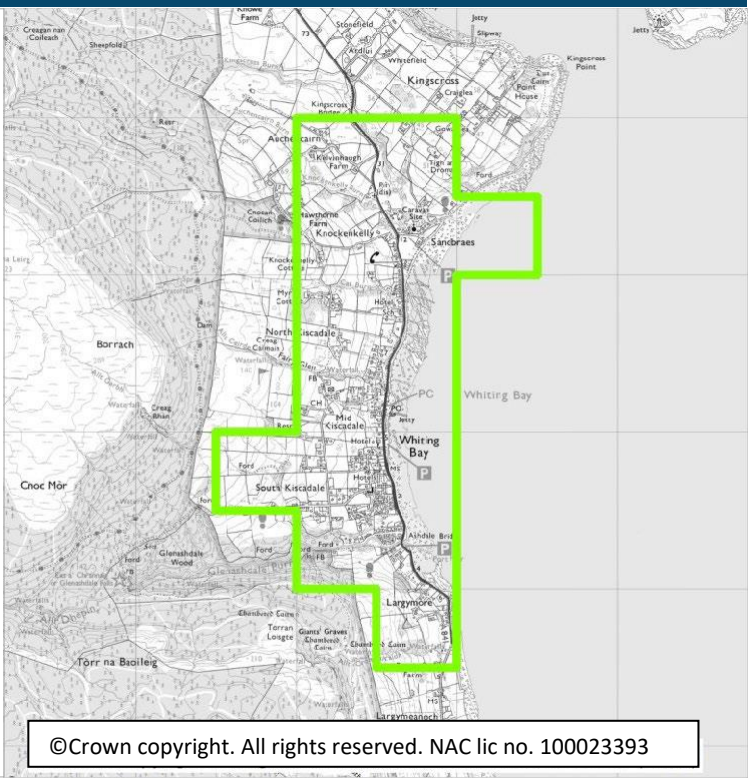
Flood risk management plan datasheet

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?

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)
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.

	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.

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)

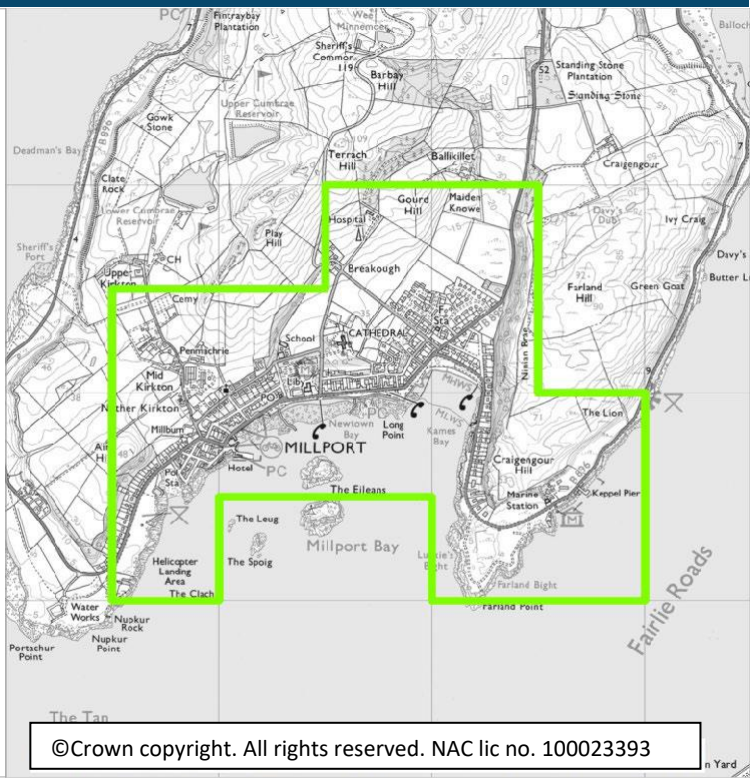
Flood risk management plan datasheet

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

What actions are proposed for this area?

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. SEPA will work with the local authority on the potential to coordinate this action with work on coastal flood mapping.
Local Detail	North Ayrshire Council confirmed the Mill Burn Flood Protection Scheme on the 15th of 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)
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	On the 10th November 2020 the North Ayrshire 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). 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.
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	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 work on coastal flood mapping and flood warning actions.
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)
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)
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.

	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.

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

02/12/21 (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)

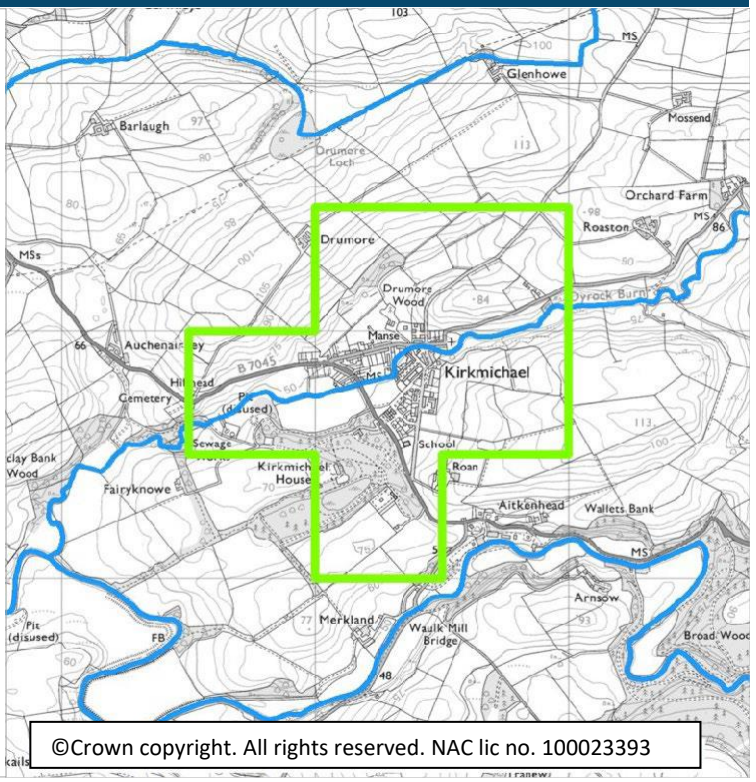
Flood risk management plan datasheet

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

What actions are proposed for this area?

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 requirement for and priority of actions for cycle 3 will be reviewed during the preparation of the next set of flood risk management plans. Information on how and when these actions are delivered will be provided in 2028.

	Flood study (1402)
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).
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.

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 was 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. These changes have also been incorporated to the Local Flood Risk Management Plans. A summary of those changes is provided in the table below, and full details were provided in the consultation digest that was published by SEPA in Spring 2022. Changes made to the Ayrshire Local Flood Risk Management Plan are summarised in Section 1 of this document.

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**

Annex 4: Final Progress Report on the First Ayrshire Flood Risk Management Plan

The Final Report as required under Section 38 of the Flood Risk Management (Scotland) Act 2009 provides information on the progress made towards implementing the actions identified in the first Ayrshire Local Flood Risk Management Plan. The Final Report can be downloaded from the North Ayrshire Council website.