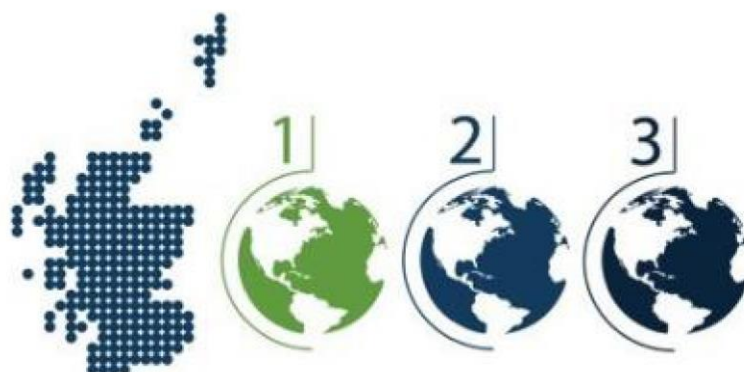




Ayrshire Local Plan District (LPD 12)

Draft flood risk management plans 2022-2028

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If you wish to post your comments, please mark them for the attention of FRM consultation and send them to:

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Angus Smith Building
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This document has been produced in collaboration with:



Ayrshire Local Plan District (LPD 12)

Draft flood risk management plans 2022-2028

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 36 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 area 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 Strategies for Scotland and delivery of flood warning services. North Ayrshire Council are the Lead Local Authority for the Ayrshire Local Plan District which comprises of North Ayrshire Council, East Ayrshire Council and South Ayrshire Council. Other responsible authorities include Scottish Water.

They are supported by Scottish Government agencies including Forestry and Land Scotland, Scottish Forestry and Transport Scotland.

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

Actions across the Local Plan District

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

	Awareness raising
Action	<p>SEPA the responsible authorities and other organisations such as the Scottish Flood Forum work together to help communities understand the risk of flooding and what actions individuals can take through national and local initiatives. Improved awareness of flood risk and actions that prepare individuals, homes and businesses for flooding can reduce the overall impact of flooding.</p> <p>Local authorities undertake additional awareness raising activities when developing any specific project proposals and will engage with community resilience groups and local communities.</p> <p>Scottish Flood Forum support flood risk communities by raising community awareness, promoting self-help, developing community groups and establish a recovery support programme after a flood.</p>

Emergency response and plans	
Action	<p>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.</p>

Flood forecasting	
Action	<p>The Scottish Flood Forecasting Service is a partnership between SEPA and the Met Office. The service continues to produce a daily, national flood guidance statement, issued to emergency responders, local authorities and other organisations with flood risk management duties. As the flood warning authority for Scotland SEPA continues to provide its flood warning service issuing flood alerts and warnings when required, giving people a better chance of reducing the impact of flooding on their home or business.</p>

Flood Warning Development Framework	
Action	<p>SEPA will publish a new Flood Warning Development Framework by March 2022, which will detail its ambitions and strategic actions to maintain and improve our flood warning service across Scotland.</p> <p>SEPA will continue to develop the Scottish Flood Forecast, a 3 day forecast of flood risk across Scotland and bring together all live information such as flood warnings, river levels and rainfall data into a central hub easily accessible for the public.</p> <p>Working in close partnership with the Met Office through the Scottish Flood Forecasting Service, SEPA will develop its capability in surface water flooding forecasting, focusing initially on the transport sector to support climate-ready infrastructure. SEPA will also undertake a prioritised improvement programme of existing river and coastal flood warning schemes to provide more accurate forecast with improved lead time.</p>

Guidance development	
Action	<p>The Scottish Government and SEPA will develop and update guidance to inform flood risk management projects. This guidance will be produced by June 2022 and will look at how best to adapt to the long-term impacts of climate change and the most appropriate methods of assessing the benefits of flood risk management actions.</p> <p>Technical guidance to support flood risk management partners will also be reviewed and updated by SEPA where required.</p>

Hazard mapping updates	
Action	<p>An understanding of flooding is essential to develop a plan led risk-based approach to flood risk management. SEPA will continue to update their national hazard mapping, which shows the likelihood of flooding in Scotland from different flooding sources. (Flood Maps link) 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.</p>

Land use planning	
Action	<p>National planning policies set out the Scottish Ministers' priorities for the operation of the planning system and 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, the Scottish Planning Policy and accompanying Planning Advice notes restrict development within the floodplain and limit exposure of new receptors to flood risk. Local planning policies may place further requirements within their area of operation to restrict inappropriate development and prevent unacceptable risk.</p> <p>Local authorities, SEPA and Scottish Water all have a role to support sustainable development.</p>

Maintenance	
Action	<p>Local authorities have a duty to assess bodies of water and to carry out clearance and repair works where such works would substantially reduce flood risk. Local authorities are also responsible for the drainage of roads. In addition, local authorities may also be responsible for maintenance of any existing flood protection schemes or works.</p> <p>Scottish Water will continue to undertake risk-based inspection, maintenance and repair on the public sewer network.</p> <p>Asset owners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk.</p>

Natural flood management mapping	
Action	SEPA will review and update the opportunities mapping for natural flood management. This work will focus on the suburban environment and look at linking blue-green infrastructure with the surrounding natural catchment. 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 and recreation.

National flood risk assessment	
Action	Understanding the future impacts of climate change remains a central theme of SEPA's flood risk management activity. SEPA will use the latest UK information on climate change to support an improved understanding of the changes in flood risk across the 21 st century. SEPA will use the most suitable data to develop the National Flood Risk Assessment 2024. This assessment will be used to identify future Potentially Vulnerable Areas.

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 six-year cycle SEPA will look to vastly improve its national understanding of surface flood risk by undertaking a wholesale update of the national surface water maps to reflect developments in data and understanding, including the impact of climate change.

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.

Scottish Flood Defence Asset Database	
Action	We are in a global climate emergency. The evidence is clear. In Scotland one of the main impacts of climate change will be increased flooding. SEPA will push forward the development of adaptation planning within Scotland. This work will start by reviewing and developing our understand of how and when Scotland's flood defence assets can be adapted to continue to provide vital protection from flooding in the future.

	Self help
Action	<p>Everyone is responsible for protecting themselves and their property from flooding. Property and business owners can take simple steps to reduce damage and disruption to their homes and businesses should flooding happen. This includes preparing a flood plan and flood kit, installing property flood resilience measures, signing up to Floodline, engaging with their local flood group, and ensuring that properties and businesses are insured against flood damage.</p> <p>Responsible authorities and SEPA will continue to develop the understanding of flood risk to communities and promote measures to help individuals and businesses to reduce their risk.</p>

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 ([link](#)). As part of continued analysis of flood risk, the National Flood Risk Assessment and Potentially Vulnerable Areas (PVA) will be reviewed every six 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.

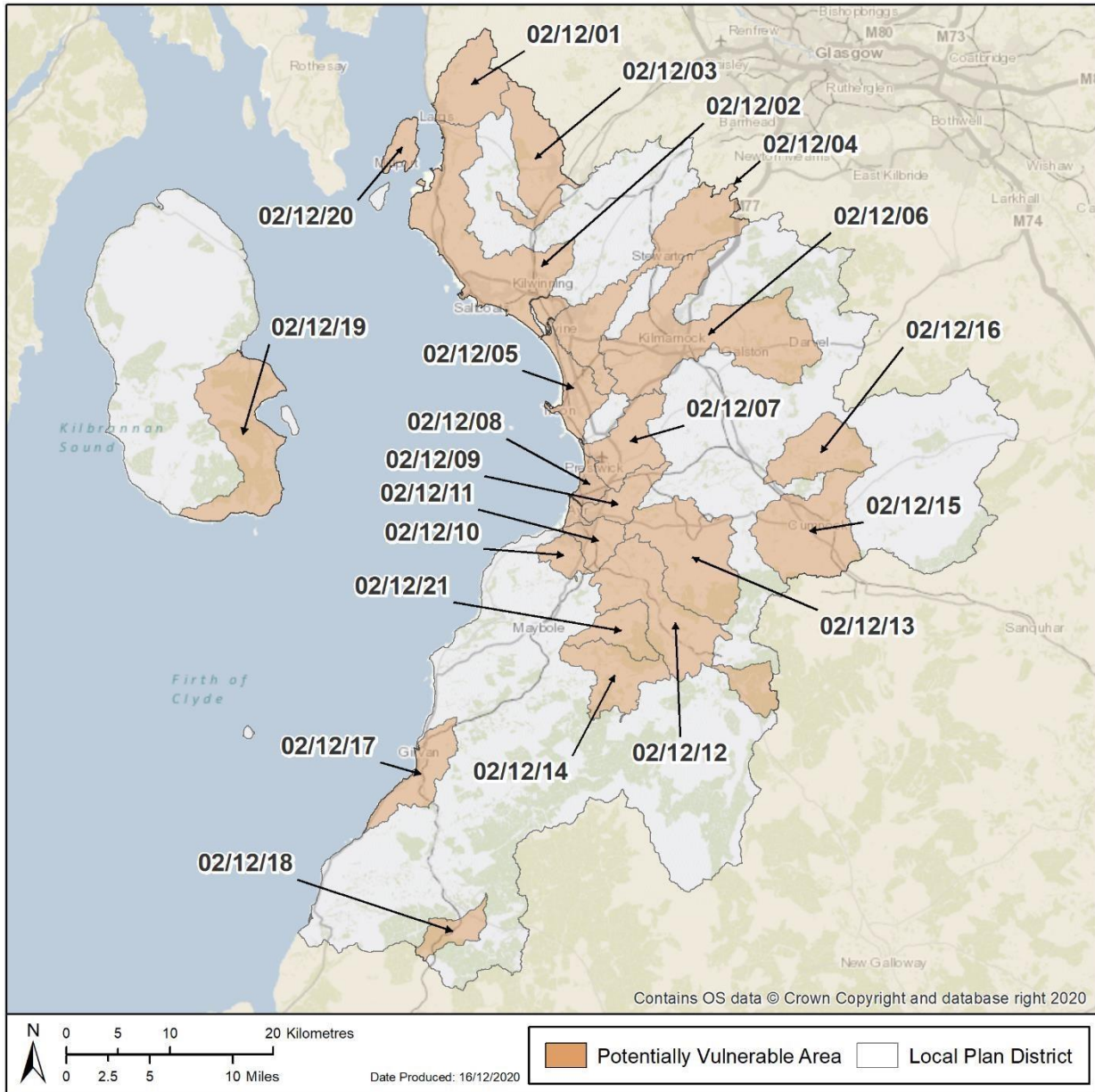


Figure 1. Potentially Vulnerable Areas in Ayrshire Local Plan District

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Click the [blue text](#) to select your area of interest

PVA Ref	PVA NAME	Local authority
02/12/01	Largs	North Ayrshire
02/12/02	Largs to Kilwinning	North Ayrshire
02/12/03	Upper Garnock catchment	North Ayrshire
02/12/04	Lower Irvine and Annick Water catchment	East Ayrshire, North Ayrshire, South Ayrshire
02/12/05	Irvine to Troon	North Ayrshire, South Ayrshire
02/12/06	Kilmarnock and Upper Irvine catchment	East Ayrshire
02/12/07	Pow Burn catchment	South Ayrshire
02/12/08	Prestwick and Ayr	South Ayrshire
02/12/09	River Ayr catchment	South Ayrshire
02/12/10	Ayr South	South Ayrshire
02/12/11	Ayr East	South Ayrshire
02/12/12	Dalrymple to Dalmellington	East Ayrshire
02/12/13	Drongan	East Ayrshire
02/12/14	Straiton	South Ayrshire
02/12/15	Cumnock	East Ayrshire
02/12/16	Catrine	East Ayrshire
02/12/17	Girvan	South Ayrshire

PUBLIC

PVA Ref	PVA NAME	Local authority
02/12/18	Barrhill	South Ayrshire
02/12/19	Isle of Arran	North Ayrshire
02/12/20	Great Cumbrae Island	North Ayrshire
02/12/21	Kirkmichael	South Ayrshire

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

List of target areas

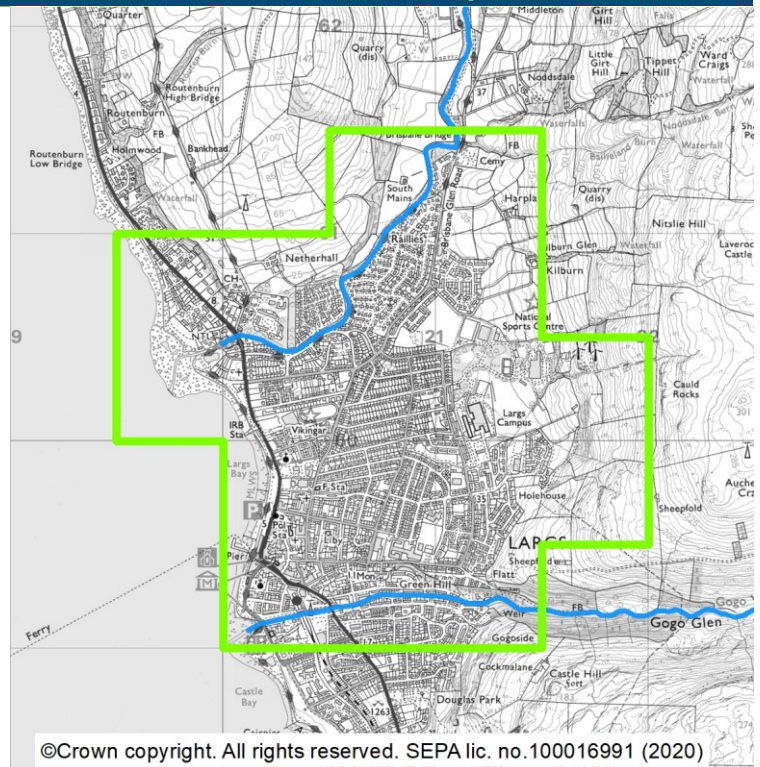
Largs North (target area 148)

Largs north (target area 148)

Summary

Largs North covers the coastal town of Largs which is located on the banks of Noddsdale Water and Gogo Water. It is in 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?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

Flood study (options appraisal) (Ref: 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.
Action detail	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.
Coordination	Action delivery lead is North Ayrshire Council and coordination will be determined once the actions have been finalised.

Community engagement (Ref: 14802)	
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	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.
Coordination	Action delivery lead is North Ayrshire Council and coordination will be determined once the actions have been finalised.

Flood defence maintenance (Ref: 14803)

Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Action detail	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.
Coordination	Action delivery lead is North Ayrshire Council and coordination will be determined once the actions have been finalised.

Flood warning maintenance (Ref: 14804)

Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Firth of Clyde coastal flood warning scheme.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

Strategic mapping improvements (Ref: 14805)

Action	SEPA will continue to update flood maps based on new information.
Action detail	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.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

Actions proposed after June 2028

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

Data collection (Ref: 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.
Action detail	Further details of the action to be determined.
Coordination	Action delivery lead is North Ayrshire Council in coordination with SEPA.

Shoreline Management Plan (Coastal Adaptive Plan) (Ref: 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.
Action detail	Further details of the action to be determined.
Coordination	Action delivery lead is North Ayrshire Council in coordination with South Ayrshire Council.

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

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

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

List of target areas

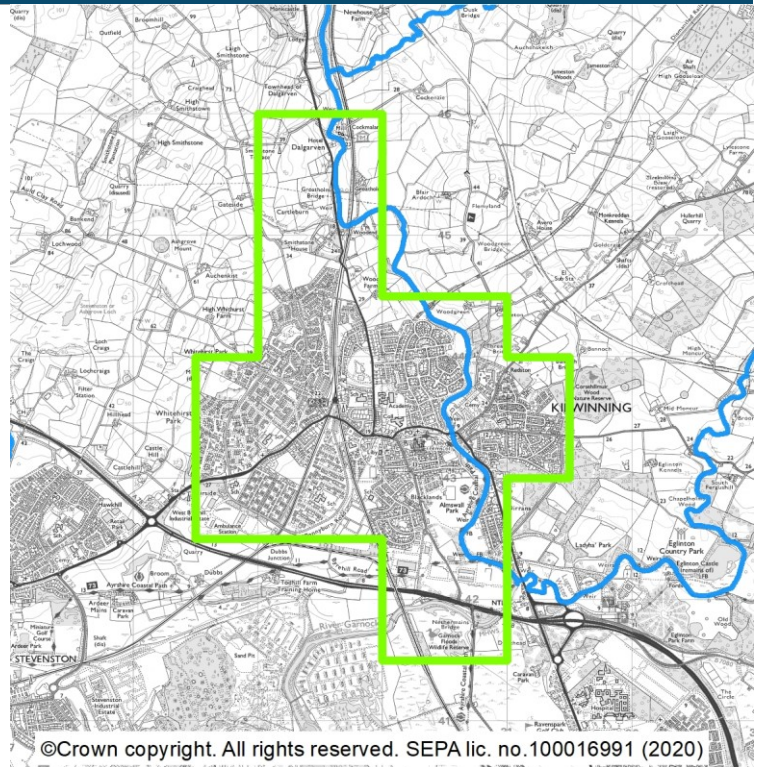
Kilwinning and Dalgarven	(target area 80)
Saltcoats and Stevenston	(target area 121)
West Kilbride	(target area 124)
Largs South	(target area 149)
Fairlie	(target area 155)

Kilwinning and Dalgarven (target area 80)

Summary

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

Location map



What is the current understanding of flood risk?

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

What are the objectives for the area?

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

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

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

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

Surface water management plan (Ref: 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.
Action detail	North Ayrshire Council to complete the development of the plan pre-2022. The impacts of climate change on flood risk should be assessed. Interactions with fluvial sources and a review of existing study will be considered.
Coordination	Action delivery lead is North Ayrshire Council in coordination with Scottish Water.

Sewer flood risk assessment (Ref: 8002)	
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	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.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

Flood warning maintenance (Ref: 8003)	
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the River Garnock flood warning scheme. The scheme should be investigated for improvement and/or recalibration.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

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

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

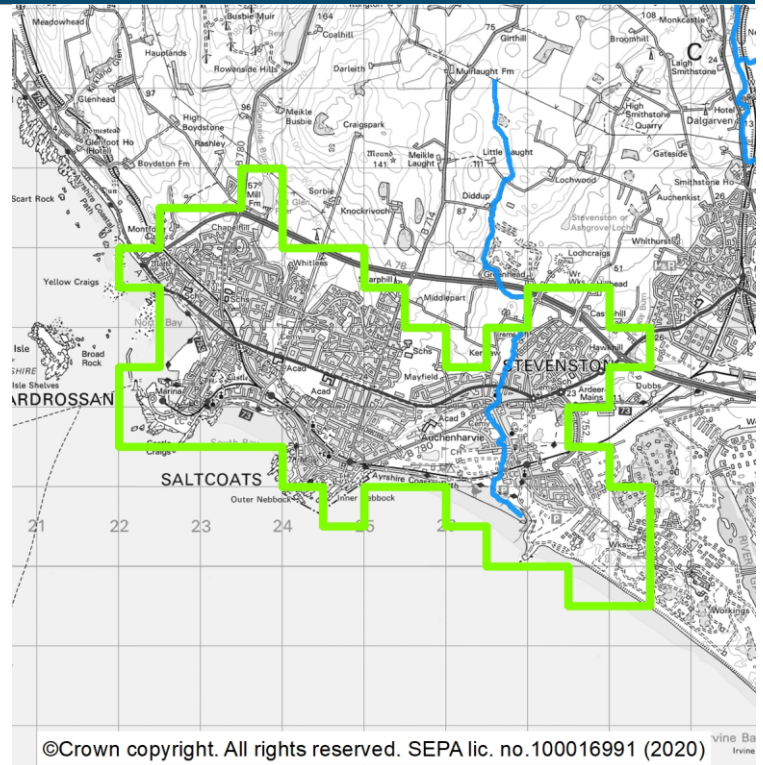
There is potential to work with SEPA's River Basin Management team to improve the physical condition of the water environment.

Saltcoats and Stevenston (target area 121)

Summary

This area covers the coastal towns of Saltcoats, Stevenston and Ardrrossan. It is 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?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

Flood study (Ref: 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.
Action detail	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.
Coordination	Action delivery lead is North Ayrshire Council and coordination will be determined once the actions have been finalised.

Sewer flood risk assessment (Ref: 12102)	
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	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.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

Flood defence maintenance (Ref: 12103)	
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Action detail	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.
Coordination	Action delivery lead is North Ayrshire Council and coordination will be determined once the actions have been finalised.

Flood warning maintenance (Ref: 12104)

Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Firth of Clyde coastal flood warning scheme.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

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

What are the opportunities for joint working?

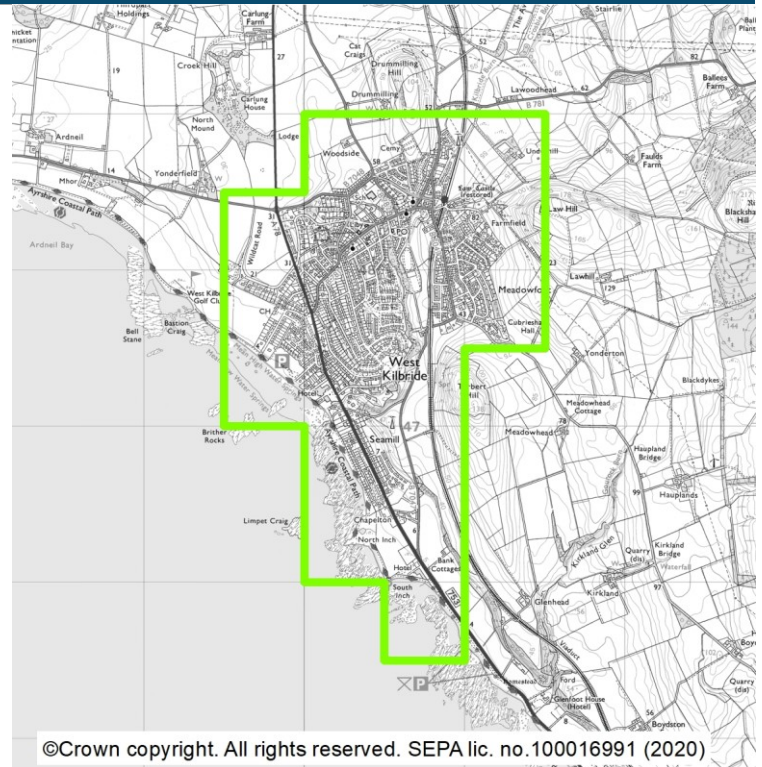
Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

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?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

Sewer flood risk assessment (Ref: 12401)	
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	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.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

Actions proposed after June 2028

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

Flood study (Ref: 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.
Action detail	Further details of the action to be determined.
Coordination	Action delivery lead is North Ayrshire Council and coordination will be determined once the actions have been finalised.

Community engagement (Ref: 12403)	
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	Further details of the action to be determined.
Coordination	Action delivery lead is North Ayrshire Council and coordination will be determined once the actions have been finalised.

Shoreline Management Plan (Coastal Adaptive Plan) (Ref: 12404)	
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.
Action detail	Further details of the action to be determined.
Coordination	Action delivery lead is North Ayrshire Council and coordination will be determined once the actions have been finalised.

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

What are the opportunities for joint working?

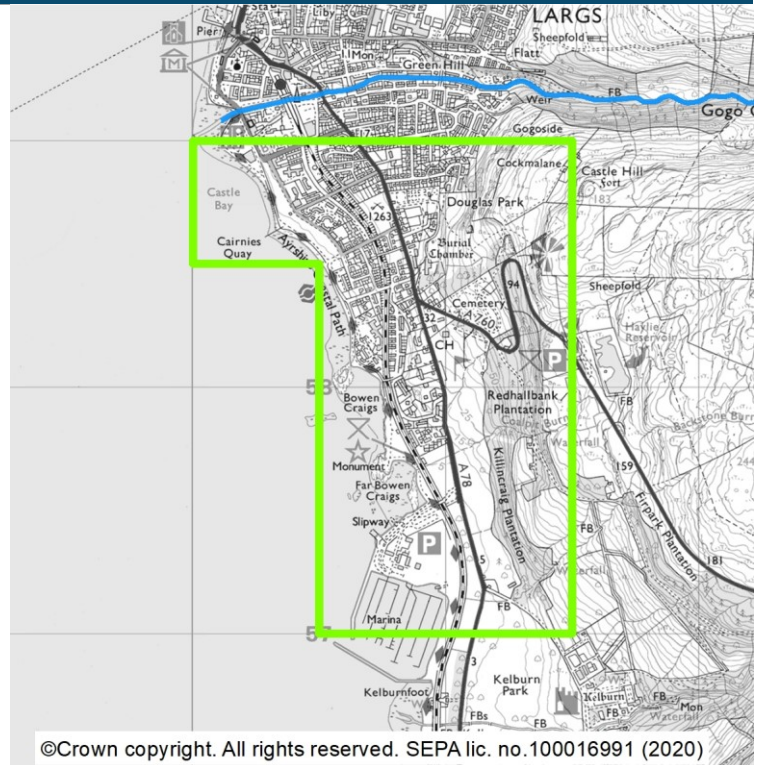
Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

Largs south (target area 149)

Summary

Largs South includes the southern part of the coastal town of Largs, which is located near Haylie Reservoir. It is 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 outcomes.

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?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

Flood warning maintenance (Ref: 14901)	
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Firth of Clyde coastal flood warning scheme.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

Strategic mapping improvements (Ref: 14902)	
Action	SEPA will continue to update flood maps based on new information.
Action detail	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.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

Actions proposed after June 2028

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

Shoreline Management Plan (Coastal Adaptive Plan) (Ref: 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.
Action detail	Further details of the action to be determined.
Coordination	Action delivery lead is North Ayrshire Council and coordination will be determined once the actions have been finalised.

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

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

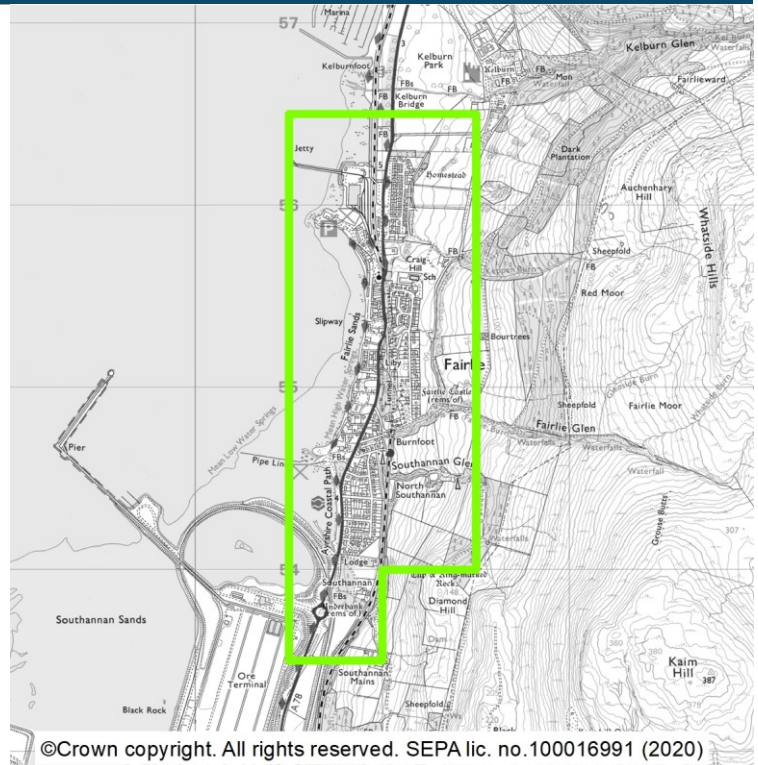
There are opportunities to work with local landowners/ estate managers from the upper catchments to jointly develop and implement Natural Flood Management mitigation measures.

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 outcomes.

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?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

Flood scheme or works design (Ref: 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.
Action detail	North Ayrshire Council to develop detailed design for Fairlie Flood Protection Scheme based on the preferred option from the flood study and stakeholder engagement. The preferred option provides a standard of protection for the 1 in 200 year (0.5% annual exceedance probability) event plus a 20% allowance for climate change and consists of channel widening, regrading and culvert enlarging. The responsible authority proposes this action as the best viable option for managing flood risk in this community. The delivery of this action is subject to capital funding being made available.
Coordination	Action delivery lead is North Ayrshire Council in coordination with the Scottish Government and SEPA.

Community engagement (Ref: 15502)	
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	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.
Coordination	Action delivery lead is North Ayrshire Council in coordination with the Scottish Government.

Strategic mapping improvements (Ref: 15503)	
Action	SEPA will continue to update flood maps based on new information.
Action detail	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.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

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

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

There are opportunities to work with local landowners/ estate managers from the upper catchments to jointly develop and implement Natural Flood Management mitigation measures.

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 of the River Garnock.

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

List of target areas

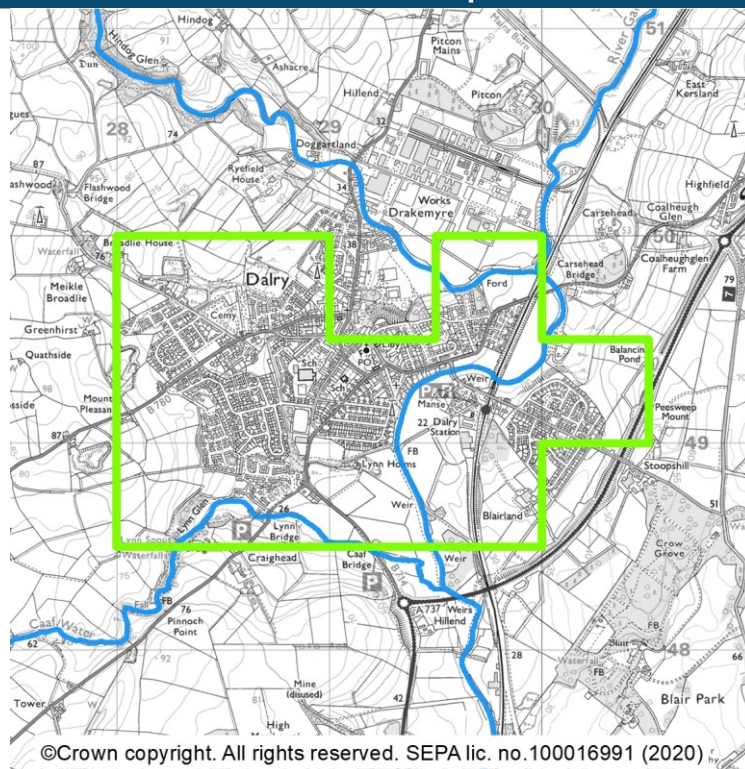
Dalry	(target area 76)
Kilbirnie and Glengarnock	(target area 97)

Dalry (target area 76)

Summary

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

Location map



What is the current understanding of flood risk?

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

What are the objectives for the area?

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

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

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

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

Flood scheme or works implementation (Ref: 7601)	
Action	The flood scheme is currently under construction.
Action detail	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.
Coordination	Action delivery lead is North Ayrshire Council in coordination with the Scottish Government.

Community engagement (Ref: 7602)	
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	North Ayrshire Council began engagement in the community in Dalry associated with the Upper Garnock Flood Protection Scheme which began construction in August 2020.
Coordination	Action delivery lead is North Ayrshire Council and coordination will be determined once the actions have been finalised.

Sewer flood risk assessment (Ref: 7603)	
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	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.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

Flood warning maintenance (Ref: 7604)	
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the River Garnock flood warning scheme. The scheme should be investigated for improvement and/or recalibration.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

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

What are the opportunities for joint working?

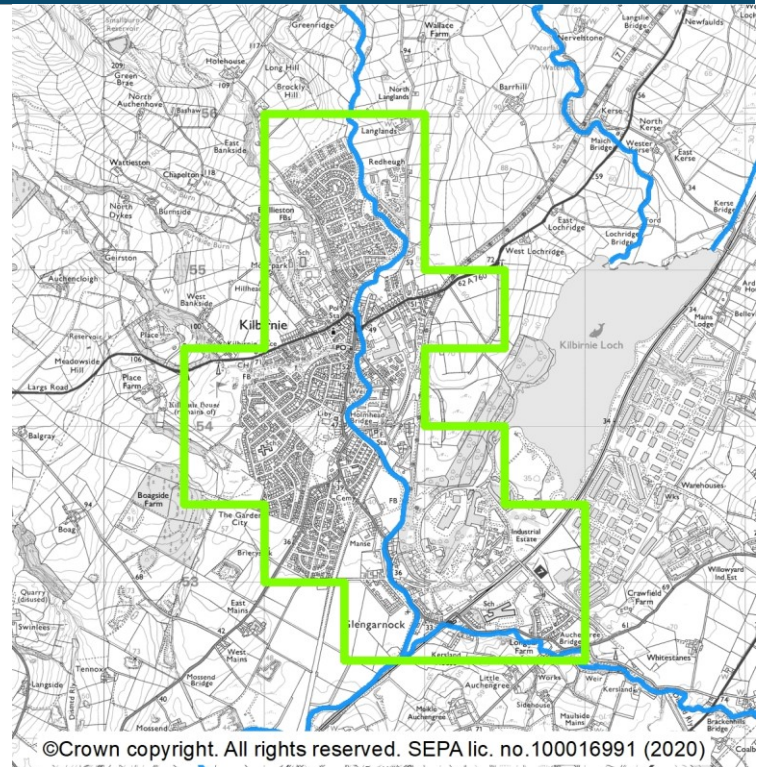
Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

Kilbirnie and Glengarnock (target area 97)

Summary

Kilbirnie and Glengarnock are located near Kilbirnie Loch at the banks of the River Garnock. They are in 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?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

Flood scheme or works implementation (Ref: 9701)	
Action	The flood scheme is currently under construction.
Action detail	The flood scheme in north of Kilbirnie involves the construction of the flood storage dam across the River Garnock at Greenridge and Langlands Farms just north of Kilbirnie. This will temporarily reduce river flow during periods of high rainfall, to reduce flood risk to properties downstream. Works at Paddockholme Industrial Estate Kilbirnie include the reinstatement of flood defence walls and the construction of a new flood defence embankment, in order to reduce flood risk to this area. Works at Powgree Burn, Glengarnock include the construction of a formal flood defence wall adjacent to the Powgree Burn and the Glendale Arms.
Coordination	Action delivery lead is North Ayrshire Council in coordination with the Scottish Government.

Community engagement (Ref: 9702)	
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	
Coordination	Action delivery lead is North Ayrshire Council and coordination will be determined once the actions have been finalised.

Flood study (Ref: 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.
Action detail	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.
Coordination	Action delivery lead is North Ayrshire Council in coordination with SEPA.

Flood study (options appraisal) (Ref: 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.
Action detail	A natural flood management study for the Upper Garnock is progressing to complement the core engineering work as a separate study. 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 approach to this study is to carry out two phases. Phase one, completed in March 2020, was to carry out a natural flood management baseline study consisting of a catchment characterisation and the identification of opportunities for natural flood management. Phase two of the Upper Garnock study (expected to complete by Summer 2021) is assessing the effectiveness and impact of natural flood management measures and develop options.
Coordination	Action delivery lead is North Ayrshire Council and coordination will be determined once the actions have been finalised.

Sewer flood risk assessment (Ref: 9705)

Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	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.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

Flood warning maintenance (Ref: 9706)

Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the River Garnock flood warning scheme. The scheme should be investigated for improvement and/or recalibration.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

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

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

There are opportunities to work with local landowners/ estate owners from the upper catchments to jointly develop and implement Natural Flood Management mitigation measures.

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

List of target areas

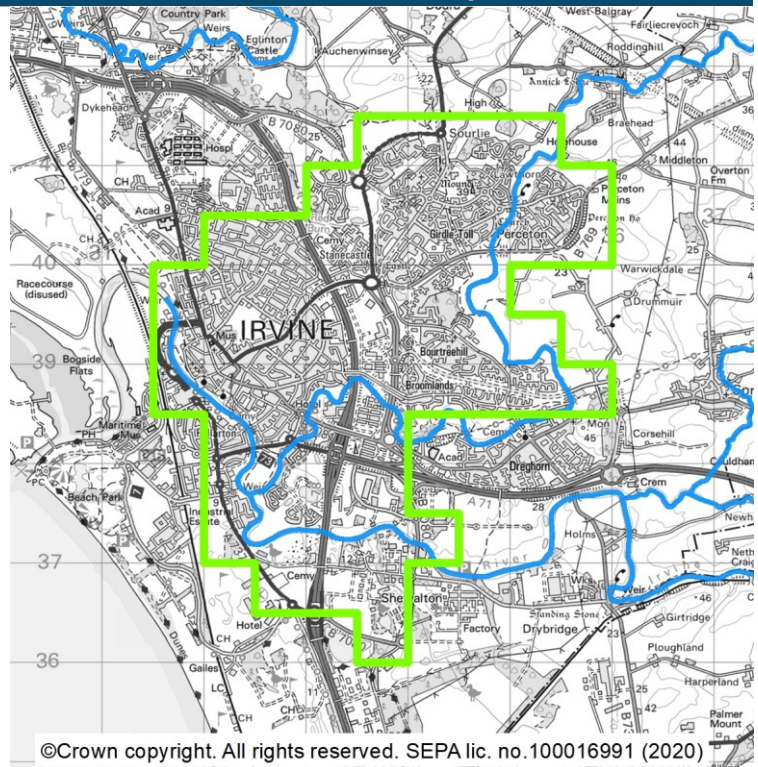
Irvine	(target area 21)
Stewarton	(target area 122)
Dundonald	(target area 21001)

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?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

Flood scheme or works design (Ref: 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.
Action detail	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 on 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.
Coordination	Action delivery lead is North Ayrshire Council in coordination with the Scottish Government and SEPA.

Community engagement (Ref: 2102)	
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	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.
Coordination	Action delivery lead is North Ayrshire Council in coordination with the Scottish Government and SEPA.

Sewer flood risk assessment (Ref: 2103)

Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	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.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

Flood defence maintenance (Ref: 2104)

Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Action detail	North Ayrshire Council is to continue to inspect and maintain the Irvine Waterside Flood Embankment Flood Protection Scheme.
Coordination	Action delivery lead is North Ayrshire Council and coordination will be determined once the actions have been finalised.

Flood warning maintenance (Ref: 2105)

Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Ayr, Annick and Irvine flood warning schemes.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

Strategic mapping improvements (Ref: 2106)

Action	SEPA will continue to update flood maps based on new information.
Action detail	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.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

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

What are the opportunities for joint working?

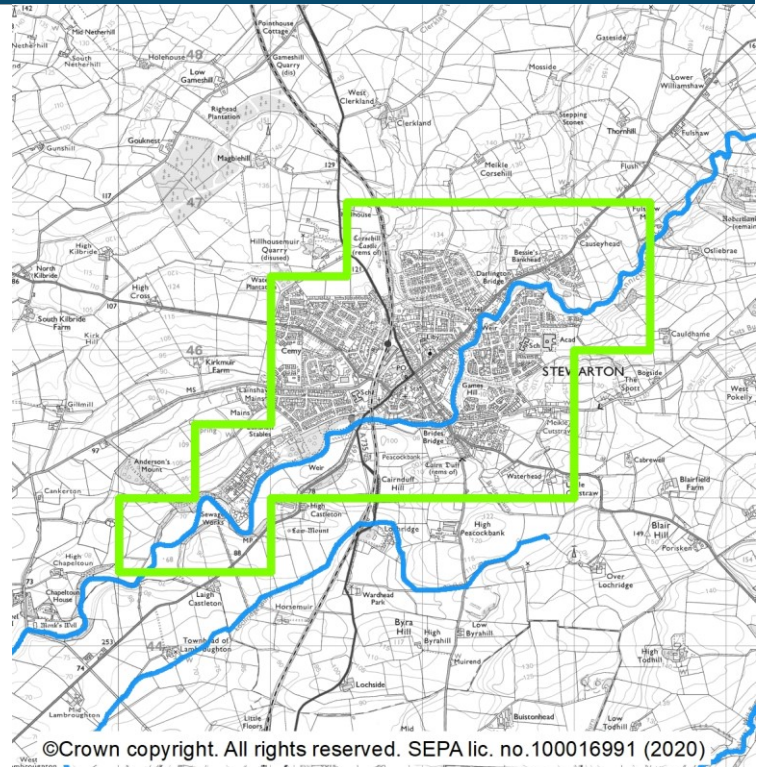
Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

Stewarton (target area 122)

Summary

Stewarton is a town in East Ayrshire 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, surface water and coastal 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?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

Data collection (Ref: 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.
Action detail	Data collection and monitoring will be carried out to inform the basis of future studies.
Coordination	Action delivery lead is East Ayrshire Council and coordination will be determined once the actions have been finalised.

Flood warning maintenance (Ref: 12202)	
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Ayr Annick and Irvine flood warning scheme.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

Sewer flood risk assessment (Ref: 12203)	
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	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.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

Actions proposed after June 2028

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

Surface water management plan (Ref: 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 for the impacts of climate change to be monitored, understood and managed.
Action detail	Further details of the action to be determined.
Coordination	East Ayrshire Council and Scottish Water. Scottish Water are carrying out a number of works in this area.

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

What are the opportunities for joint working?

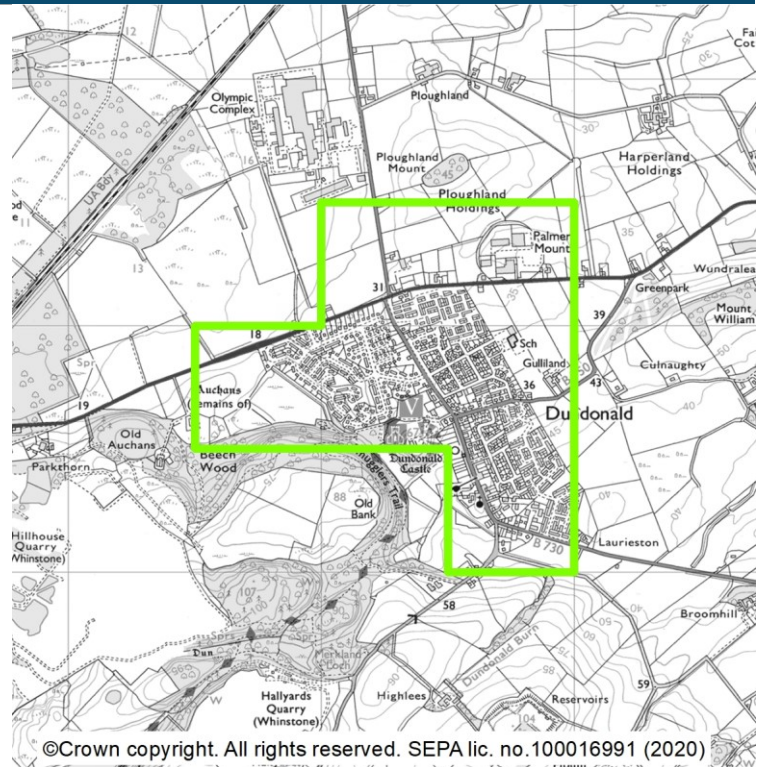
Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

Dundonald (target area 21001)

Summary

The village of Dundonald is located in the west of Scotland. It is 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 the floods occurred in summer 2019. Before this floods there were periodic records of flooding in the Dundonald area.

What are the objectives for the area?

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

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

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

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

Sewer flood risk assessment (Ref: 2100101)	
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	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.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

Actions proposed after June 2028

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

Flood scheme or works design (Ref: 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.
Action 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.
Coordination	Action delivery lead is South Ayrshire Council in coordination with Scottish Water.

Community engagement (Ref: 2100103)	
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	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.
Coordination	Action delivery lead is South Ayrshire Council and coordination will be determined once the actions have been finalised.

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

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

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

List of target areas

Irvine Coastal
Troon

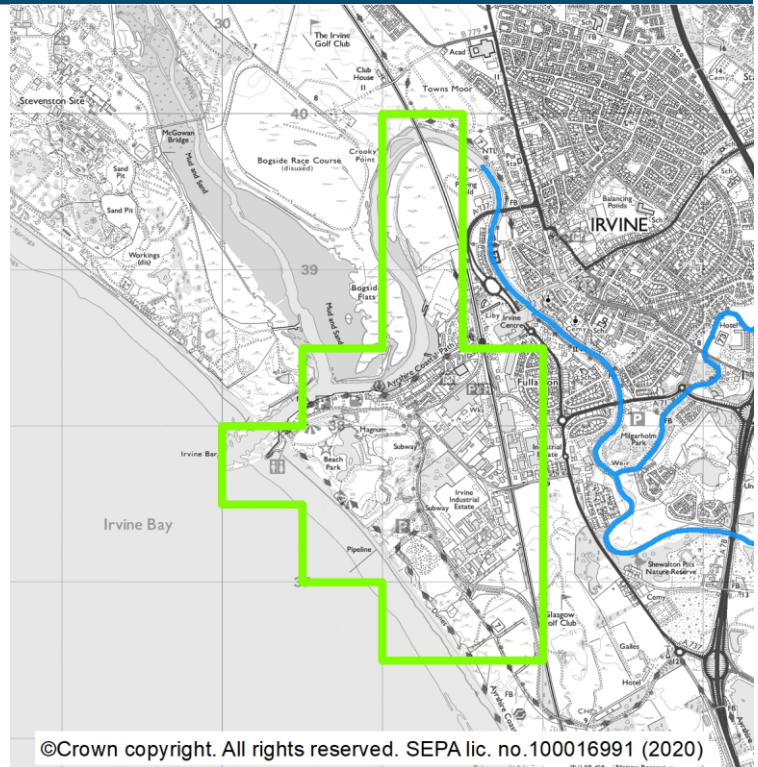
(target area 22)
(target area 123)

Irvine Coastal (target area 22)

Summary

Irvine coastal covers the coastal area of the town of Irvine. It is located in 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?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

Flood study (Ref: 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.
Action detail	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.
Coordination	Action delivery lead is North Ayrshire Council and coordination will be determined once the actions have been finalised.

Sewer flood risk assessment (Ref: 2202)	
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	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.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

Flood warning maintenance (Ref: 2203)	
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Ayr, Annick and Irvine flood warning schemes.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

Actions proposed after June 2028

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

Shoreline Management Plan (Coastal Adaptive Plan) (Ref: 2204)	
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.
Action detail	Further details of the action to be determined.
Coordination	Action delivery lead is North Ayrshire Council and coordination will be determined once the actions have been finalised.

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

What are the opportunities for joint working?

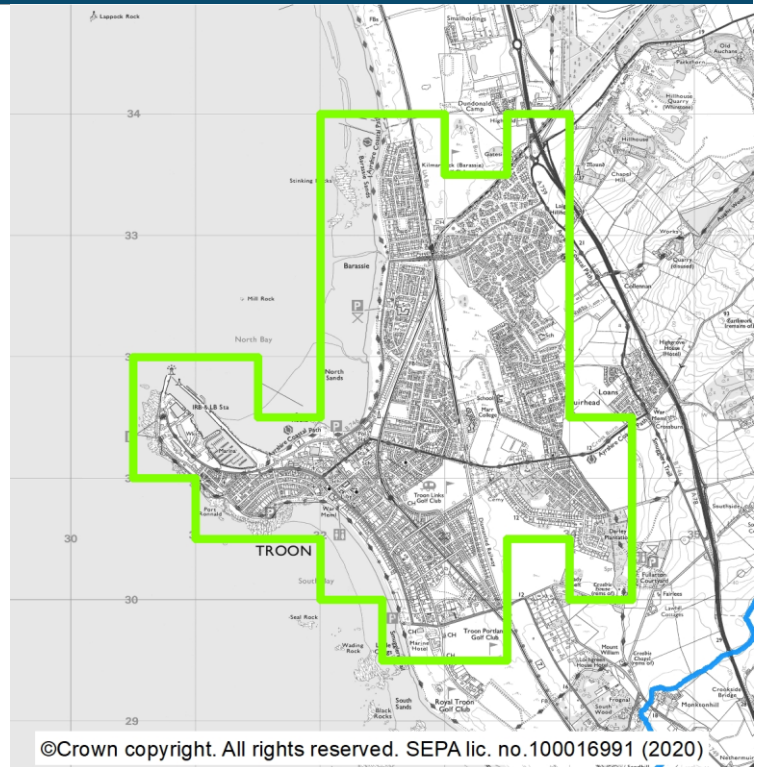
Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

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?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

Flood study (Ref: 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.
Action detail	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.
Coordination	Action delivery lead is South Ayrshire Council in coordination with South Ayrshire Council.

Flood study (existing flood defences) (Ref: 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.
Action detail	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
Coordination	Action delivery lead is South Ayrshire Council in coordination with SEPA and South Ayrshire Council.

Sewer flood risk assessment (Ref: 12303)

Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	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.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

Flood defence maintenance (Ref: 12304)

Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Action detail	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
Coordination	Action delivery lead is South Ayrshire Council and coordination will be determined once the actions have been finalised.

Flood warning maintenance (Ref: 12305)

Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Firth of Clyde coastal flood warning scheme.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

Strategic mapping improvements (Ref: 12306)

Action	SEPA will continue to update flood maps based on new information.
Action detail	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.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

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

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

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 in the main towns. Recent flooding has occurred, which was due to both river and surface water.

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

List of target areas

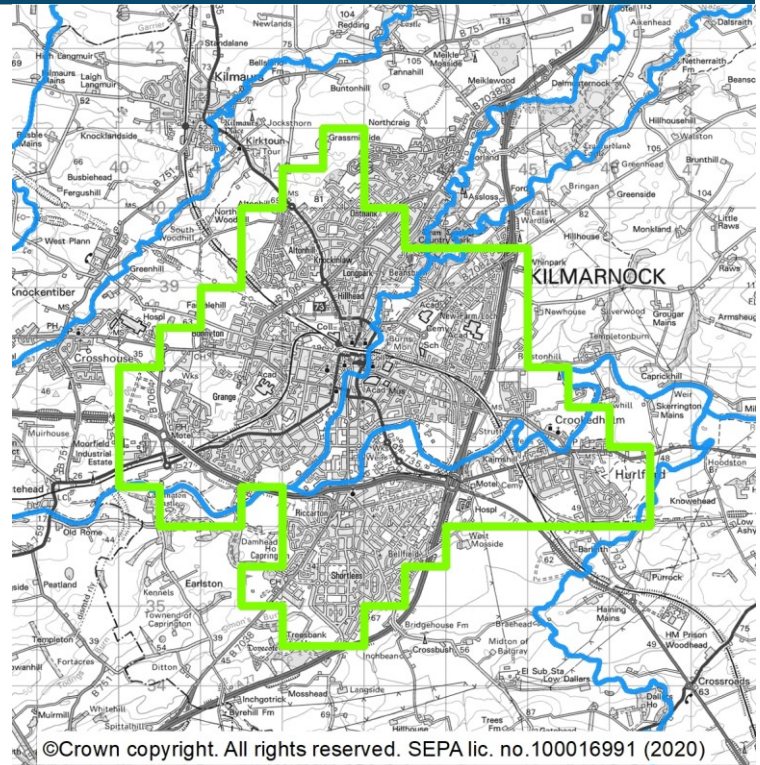
Kilmarnock	(target area 20)
Crosshouse	(target area 75)
Newmilns	(target area 120)
Kilmaurs	(target area 147)
Galston	(target area 153)
Darvel	(target area 154)

Kilmarnock (target area 20)

Summary

The town of Kilmarnock is located on the banks of the Craufurdland 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?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

Flood scheme or works design (Ref: 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.
Action detail	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.
Coordination	Action delivery lead is East Ayrshire Council in coordination with SEPA.

Community engagement (Ref: 2002)	
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	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.
Coordination	Action delivery lead is East Ayrshire Council and coordination will be determined once the actions have been finalised.

Flood defence maintenance (Ref: 2003)

Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Action detail	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.
Coordination	Action delivery lead is East Ayrshire Council and coordination will be determined once the actions have been finalised.

Sewer flood risk assessment (Ref: 2004)

Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	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.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

Flood study (options appraisal) (Ref: 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.
Action detail	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.
Coordination	Action delivery lead is East Ayrshire Council in coordination with Scottish Water.

Flood warning maintenance (Ref: 2006)

Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Ayr, Annick and Irvine flood warning schemes.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

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

What are the opportunities for joint working?

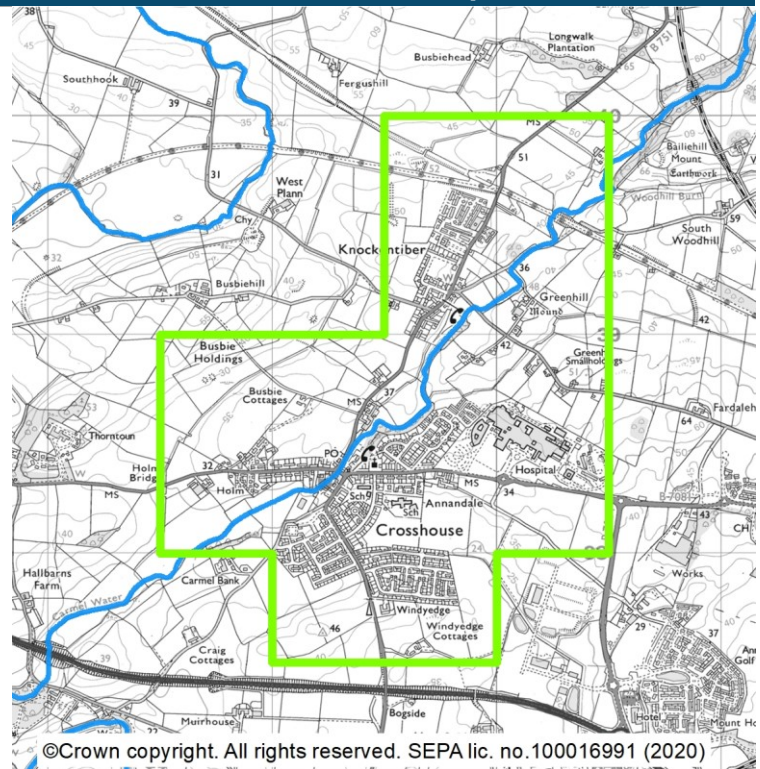
Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

Crosshouse (target area 75)

Summary

Crosshouse is a village located approximately 7km east of Irvine. The area is within the East Ayrshire local authority 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

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

Data collection (Ref: 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.
Action detail	
Coordination	Action delivery lead is East Ayrshire Council and coordination will be determined once the actions have been finalised.

Sewer flood risk assessment (Ref: 7502)	
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	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.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

Actions proposed after June 2028

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

Flood study (Ref: 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.
Action detail	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.
Coordination	Action delivery lead is East Ayrshire Council and coordination will be determined once the actions have been finalised.

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

What are the opportunities for joint working?

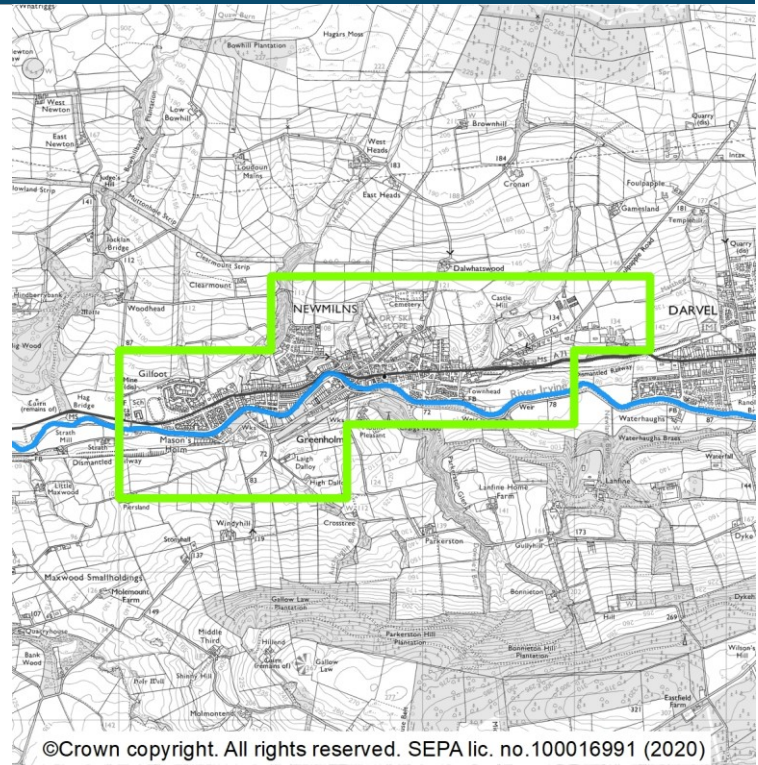
Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

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

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

Flood scheme or works design (Ref: 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.
Action detail	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.
Coordination	Action delivery lead is East Ayrshire Council in coordination with SEPA.

Community engagement (Ref: 12002)	
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	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.
Coordination	Action delivery lead is East Ayrshire Council and coordination will be determined once the actions have been finalised.

Flood warning scoping (Ref: 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.
Action detail	Scoping for a river flood warning scheme will be carried out in Newmilns.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

Sewer flood risk assessment (Ref: 12004)

Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	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.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

Actions proposed after June 2028

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

Surface water management plan (Ref: 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.
Action detail	Further details of the action to be determined.
Coordination	Action delivery lead is East Ayrshire Council in coordination with Scottish Water.

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

What are the opportunities for joint working?

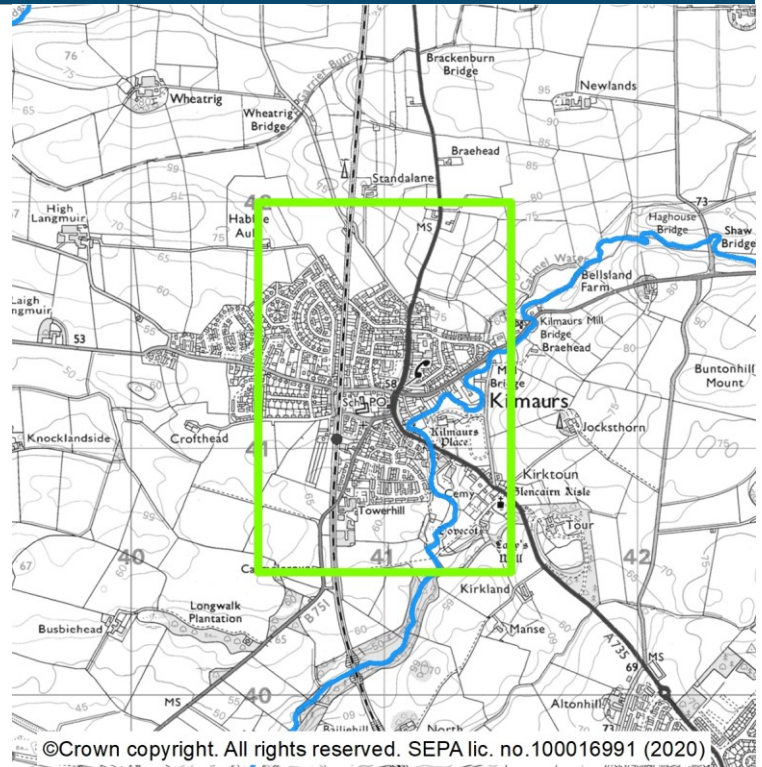
Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

Kilmaurs (target area 147)

Summary

The area covers the village of Kilmaurs which is located outside of Kilmarnock. It is in the East Ayrshire local authority 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?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

Data collection (Ref: 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.
Action detail	Data collection and monitoring will be carried out to inform the basis of future studies.
Coordination	Action delivery lead is East Ayrshire Council and coordination will be determined once the actions have been finalised.

Sewer flood risk assessment (Ref: 14702)	
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	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.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

Actions proposed after June 2028

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

Flood study (Ref: 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.
Action detail	Further details of the action to be determined.
Coordination	Action delivery lead is East Ayrshire Council and coordination will be determined once the actions have been finalised.

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

What are the opportunities for joint working?

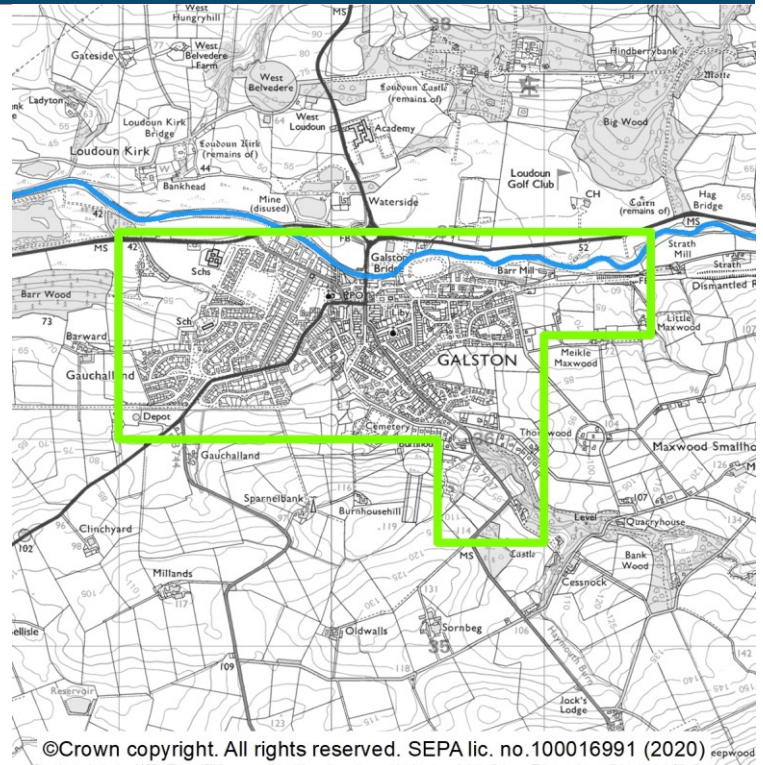
Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

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?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

Flood scheme or works design (Ref: 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.
Action detail	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.
Coordination	Action delivery lead is East Ayrshire Council in coordination with SEPA.

Flood defence maintenance (Ref: 15302)	
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Action detail	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.
Coordination	Action delivery lead is East Ayrshire Council and coordination will be determined once the actions have been finalised.

Sewer flood risk assessment (Ref: 15303)

Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	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.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

Community engagement (Ref: 15305)

Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	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.
Coordination	Action delivery lead is East Ayrshire Council and coordination will be determined once the actions have been finalised.

Actions proposed after June 2028

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

Surface water management plan (Ref: 15304)

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.
Action detail	Further details of the action to be determined.
Coordination	Action delivery lead is East Ayrshire Council in coordination with Scottish Water.

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

What are the opportunities for joint working?

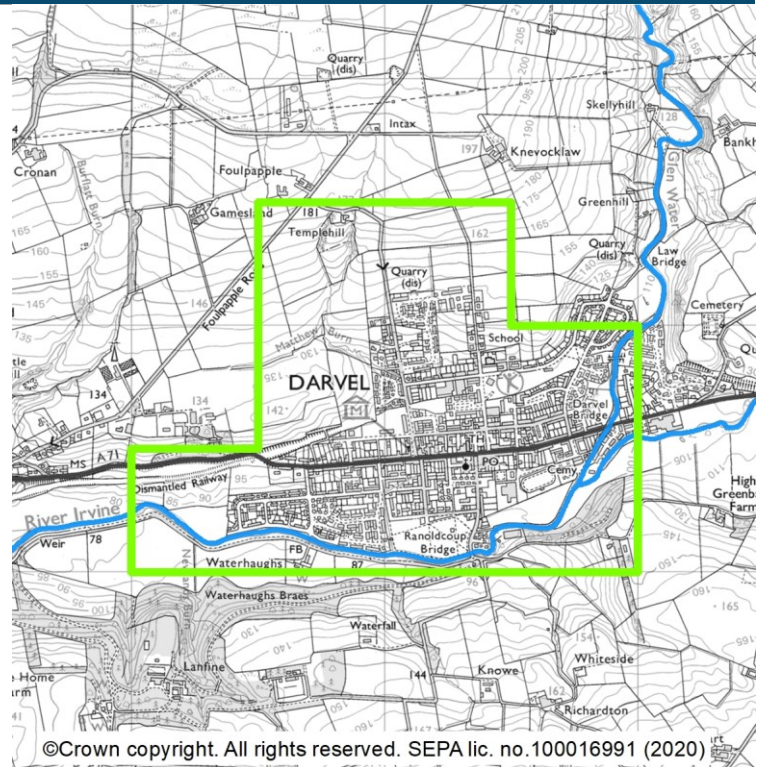
Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

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?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

Flood scheme or works design (Ref: 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.
Action detail	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.
Coordination	Action delivery lead is East Ayrshire Council in coordination with SEPA.

Community engagement (Ref: 15402)	
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	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.
Coordination	Action delivery lead is East Ayrshire Council and coordination will be determined once the actions have been finalised.

Sewer flood risk assessment (Ref: 15403)	
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	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.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

Actions proposed after June 2028

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

Surface water management plan (Ref: 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.
Action detail	Further details of the action to be determined.
Coordination	Action delivery lead is East Ayrshire Council in coordination with Scottish Water.

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

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

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

List of target areas

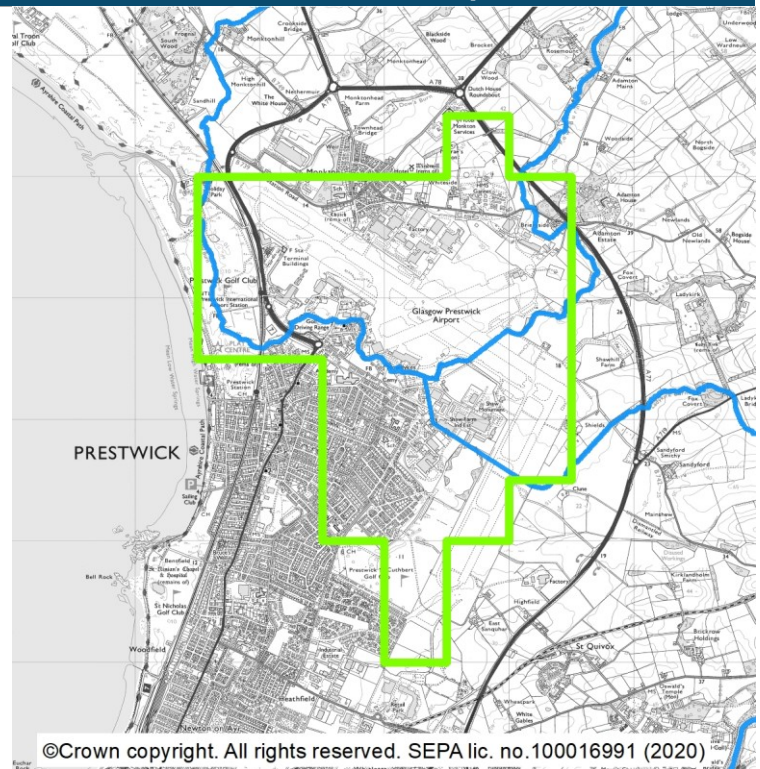
Prestwick North (target area 28)

Prestwick north (target area 28)

Summary

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

Location map



What is the current understanding of flood risk?

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

What are the objectives for the area?

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

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

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

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

Flood scheme or works design (Ref: 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.
Action detail	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, based on the preferred option from the appraisal process.
Coordination	Action delivery lead is Scottish Water in coordination with South Ayrshire Council.

Community engagement (Ref: 2802)	
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	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.
Coordination	Action delivery lead is South Ayrshire Council and coordination will be determined once the actions have been finalised.

Flood study (Ref: 2803)	
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.
Action detail	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.
Coordination	Action delivery lead is South Ayrshire Council and coordination will be determined once the actions have been finalised.

Sewer flood risk assessment (Ref: 2804)

Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	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.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

Flood study (existing flood defences) (Ref: 2805)

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.
Action detail	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.
Coordination	Action delivery lead is South Ayrshire Council in coordination with SEPA.

Flood defence maintenance (Ref: 2806)

Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Action detail	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
Coordination	Action delivery lead is South Ayrshire Council and coordination will be determined once the actions have been finalised.

Flood warning maintenance (Ref: 2807)

Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Firth of Clyde coastal flood warning scheme.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

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

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

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 flooding. Several floods have been recorded in this area with recent flooding being caused by coastal flooding.

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

List of target areas

Prestwick South (target area 27)

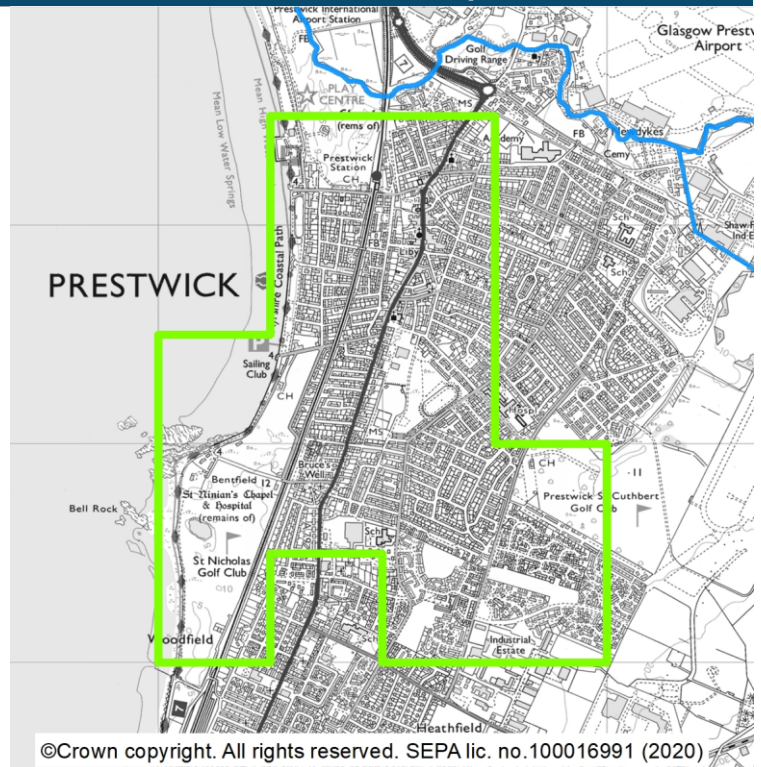
Ayr (target area 71)

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?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

Flood scheme or works design (Ref: 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.
Action detail	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, based on the preferred option from the appraisal process.
Coordination	Action delivery lead is Scottish Water in coordination with and South Ayrshire Council.

Community engagement (Ref: 2702)	
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	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.
Coordination	Action delivery lead is South Ayrshire Council and coordination will be determined once the actions have been finalised.

Sewer flood risk assessment (Ref: 2703)	
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	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.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

Flood study (existing flood defences) (Ref: 2704)

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.
Action detail	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.
Coordination	Action delivery lead is South Ayrshire Council in coordination with SEPA.

Flood defence maintenance (Ref: 2705)

Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Action detail	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
Coordination	Action delivery lead is South Ayrshire Council and coordination will be determined once the actions have been finalised.

Flood warning maintenance (Ref: 2706)

Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Firth of Clyde coastal flood warning scheme.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

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

What are the opportunities for joint working?

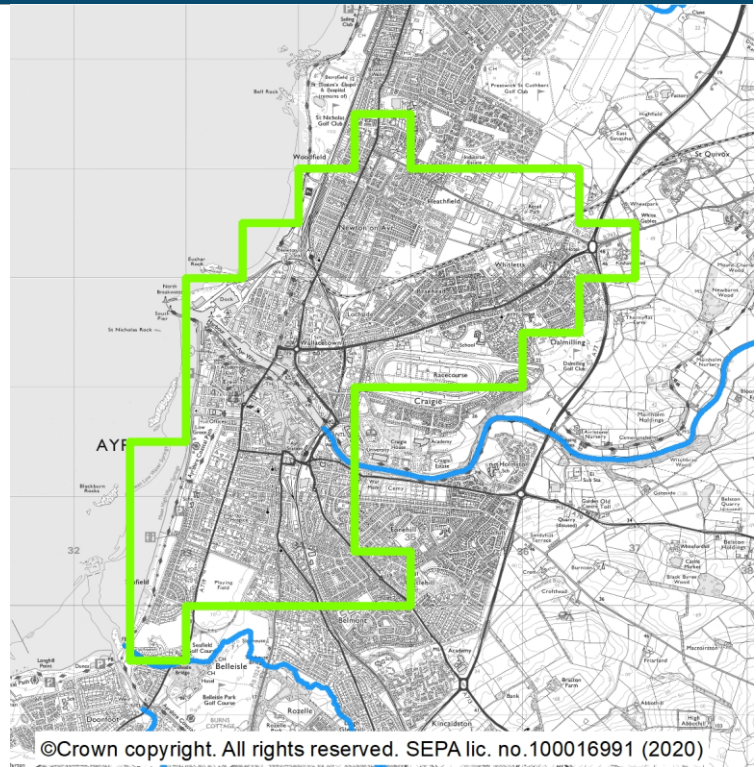
Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

Ayr (target area 71)

Summary

Ayr covers the north-west area of Ayr on the coast at the mouth of the River Ayr. It is in 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?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

Flood scheme or works design (Ref: 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.
Action detail	South Ayrshire Council to develop a detailed design for surface water management, based on the preferred option from the appraisal process.
Coordination	Action delivery lead is South Ayrshire Council in coordination with Scottish Water.

Community engagement (Ref: 7102)	
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	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.
Coordination	Action delivery lead is South Ayrshire Council and coordination will be determined once the actions have been finalised.

Sewer flood risk assessment (Ref: 7103)	
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	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.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

Flood defence maintenance (Ref: 7104)

Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Action detail	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
Coordination	Action delivery lead is South Ayrshire Council and coordination will be determined once the actions have been finalised.

Strategic mapping improvements (Ref: 7107)

Action	SEPA will continue to update flood maps based on new information.
Action detail	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.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

Flood warning maintenance (Ref: 7108)

Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Firth of Clyde coastal flood warning scheme.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

Actions proposed after June 2028

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

Flood study (Ref: 7105)

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.
Action detail	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.
Coordination	Action delivery lead is South Ayrshire Council and coordination will be determined once the actions have been finalised.

Flood study (existing flood defences) (Ref: 7106)

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.
Action detail	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.
Coordination	Action delivery lead is South Ayrshire Council in coordination with SEPA.

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

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

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

List of target areas

Ayr East

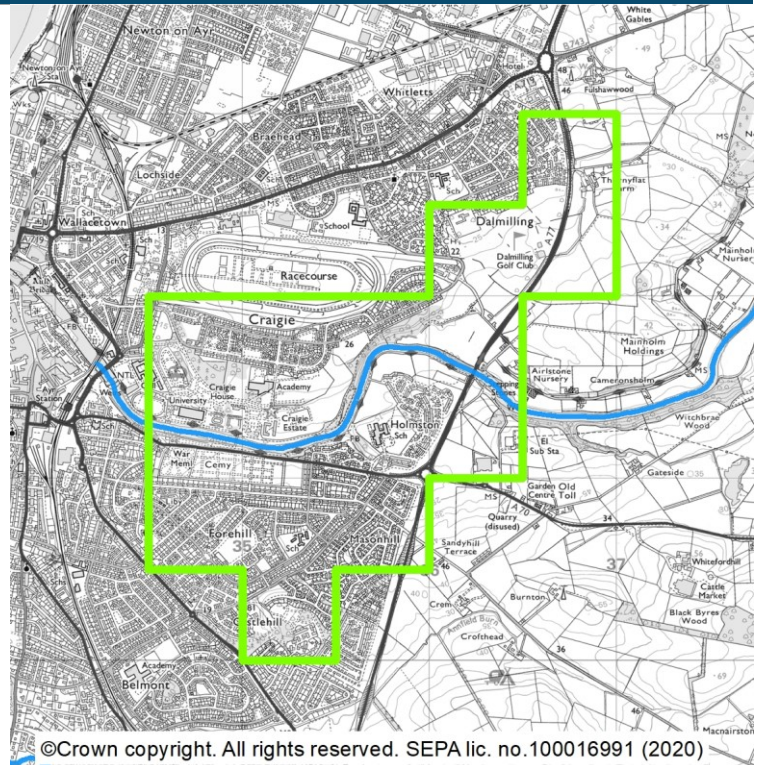
(target area 72)

Ayr East (target area 72)

Summary

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

Location map



What is the current understanding of flood risk?

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

What are the objectives for the area?

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

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

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

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

Flood scheme or works design (Ref: 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.
Action detail	South Ayrshire Council to develop a detailed design for surface water management, based on the preferred option from the appraisal process.
Coordination	Action delivery lead is South Ayrshire Council in coordination with Scottish Water.

Community engagement (Ref: 7202)	
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	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.
Coordination	Action delivery lead is South Ayrshire Council and coordination will be determined once the actions have been finalised.

Sewer flood risk assessment (Ref: 7203)	
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	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.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

Actions proposed after June 2028

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

Flood study (Ref: 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.
Action detail	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.
Coordination	Action delivery lead is South Ayrshire Council and coordination will be determined once the actions have been finalised.

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

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

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

List of target areas

Ayr Doon

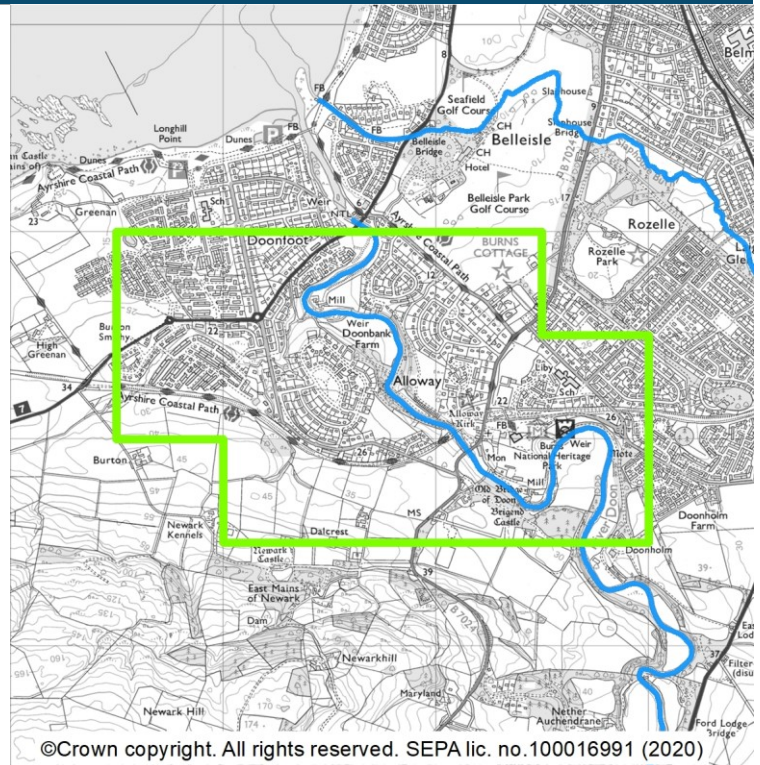
(target area 74)

Ayr Doon (target area 74)

Summary

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

Location map



What is the current understanding of flood risk?

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

What are the objectives for the area?

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

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

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

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

Flood scheme or works design (Ref: 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.
Action detail	South Ayrshire Council to develop a detailed design for surface water management, based on the preferred option from the appraisal process.
Coordination	Action delivery lead is South Ayrshire Council in coordination with Scottish Water.

Community engagement (Ref: 7402)	
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	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.
Coordination	Action delivery lead is South Ayrshire Council and coordination will be determined once the actions have been finalised.

Flood study (options appraisal) (Ref: 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.
Action detail	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.
Coordination	Action delivery lead is South Ayrshire Council and coordination will be determined once the actions have been finalised.

Sewer flood risk assessment (Ref: 7404)

Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	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.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

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

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

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

List of target areas

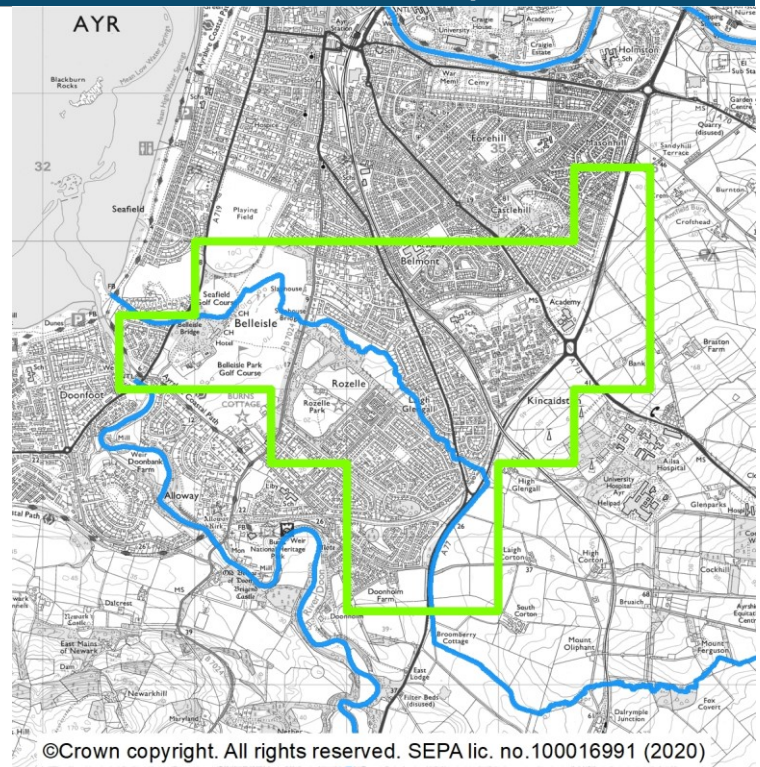
Ayr South East (target area 73)

Ayr South East (target area 73)

Summary

Ayr South covers an area in the south east of the town of Ayr and is located on the banks of Slaphouse Burn. It is in 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?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

Flood scheme or works design (Ref: 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.
Action detail	South Ayrshire Council to develop a detailed design for surface water management, based on the preferred option from the appraisal process.
Coordination	Action delivery lead is South Ayrshire Council in coordination with Scottish Water.

Community engagement (Ref: 7302)	
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	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.
Coordination	Action delivery lead is South Ayrshire Council and coordination will be determined once the actions have been finalised.

Flood study (Ref: 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.
Action detail	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.
Coordination	Action delivery lead is South Ayrshire Council and coordination will be determined once the actions have been finalised.

Sewer flood risk assessment (Ref: 7304)

Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	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.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

Flood warning maintenance (Ref: 7305)

Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Firth of Clyde coastal flood warning scheme.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

Strategic mapping improvements (Ref: 7306)

Action	SEPA will continue to update flood maps based on new information.
Action detail	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.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

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

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

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

List of target areas

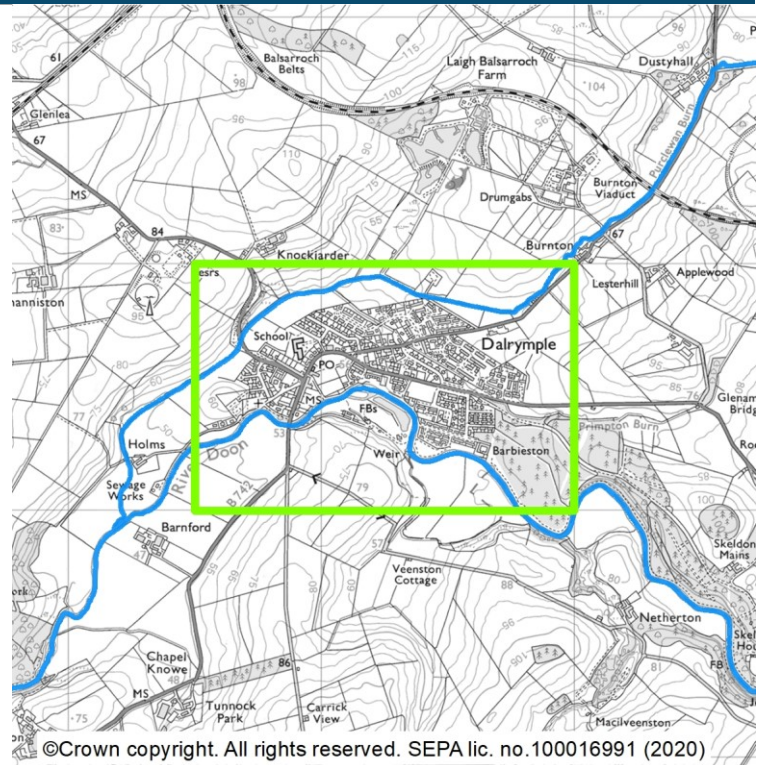
Dalrymple	(target area 77)
Dalmellington	(target area 96)
Patna	(target area 164)

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 local authority 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?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

Flood study (options appraisal) (Ref: 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.
Action detail	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.
Coordination	Action delivery lead is East Ayrshire Council in coordination with South Ayrshire Council.

Flood defence maintenance (Ref: 7702)	
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Action detail	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.
Coordination	Action delivery lead is East Ayrshire Council and coordination will be determined once the actions have been finalised.

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

What are the opportunities for joint working?

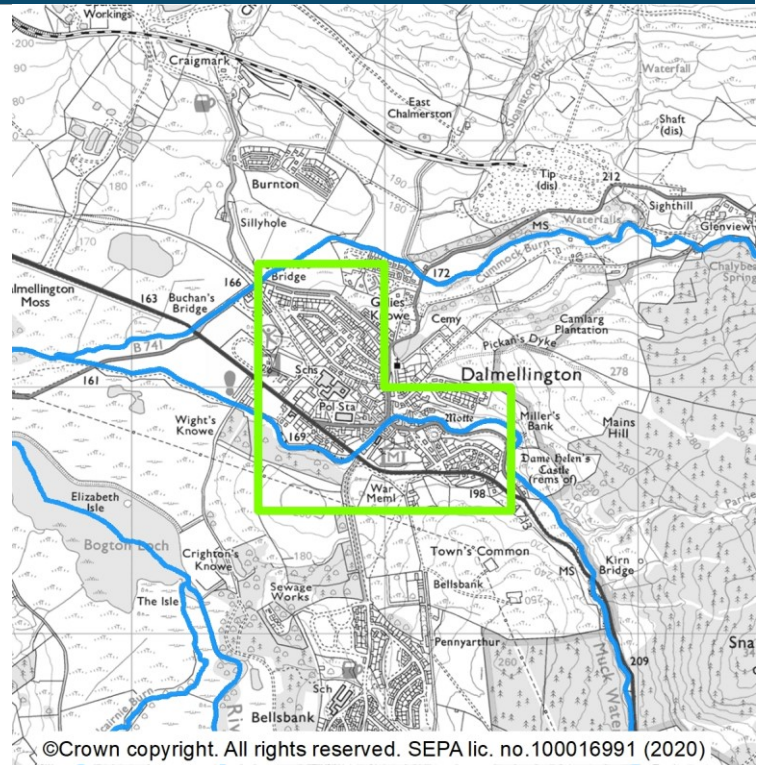
Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

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 local authority area. The main source of flooding in Dalmellington is river flooding, however there is also a risk from surface water flooding. There are approximately 130 people and 100 homes and businesses currently at risk from flooding. This is likely to increase to 180 people and 140 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

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

What are the objectives for the area?

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

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

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

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

Flood study (options appraisal) (Ref: 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.
Action detail	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.
Coordination	Action delivery lead is East Ayrshire Council in coordination with South Ayrshire Council.

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

What are the opportunities for joint working?

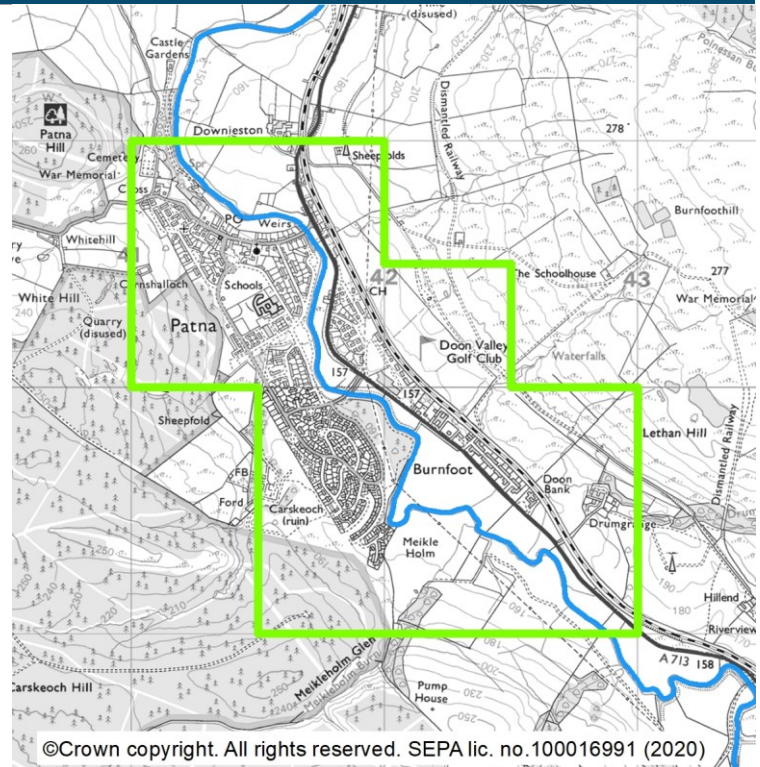
Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

Patna (target area 164)

Summary

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

Location map



What is the current understanding of flood risk?

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

What are the objectives for the area?

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

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

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

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

Flood study (options appraisal) (Ref: 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.
Action detail	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.
Coordination	Action delivery lead is East Ayrshire Council in coordination with North Ayrshire Council.

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

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

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

List of target areas

Drongan

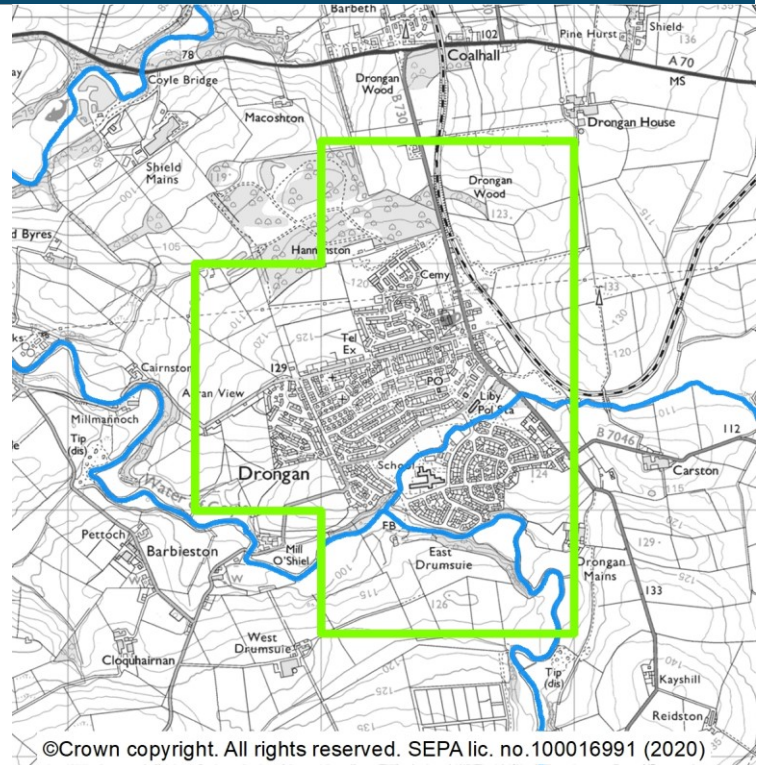
(target area 18)

Drongan (target area 18)

Summary

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

Location map



What is the current understanding of flood risk?

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

What are the objectives for the area?

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

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

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

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

Flood study (Ref: 1801)	
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.
Action detail	Following the completion of Doon Valley Flood Study, if future flood risk is confirmed in this target area, scoping of the next srteps should be completed.
Coordination	Action delivery lead is East Ayrshire Council and coordination will be determined once the actions have been finalised.

Data collection (Ref: 1802)	
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.
Action detail	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.
Coordination	Action delivery lead is East Ayrshire Council and coordination will be determined once the actions have been finalised.

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

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

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

List of target areas

Straiton

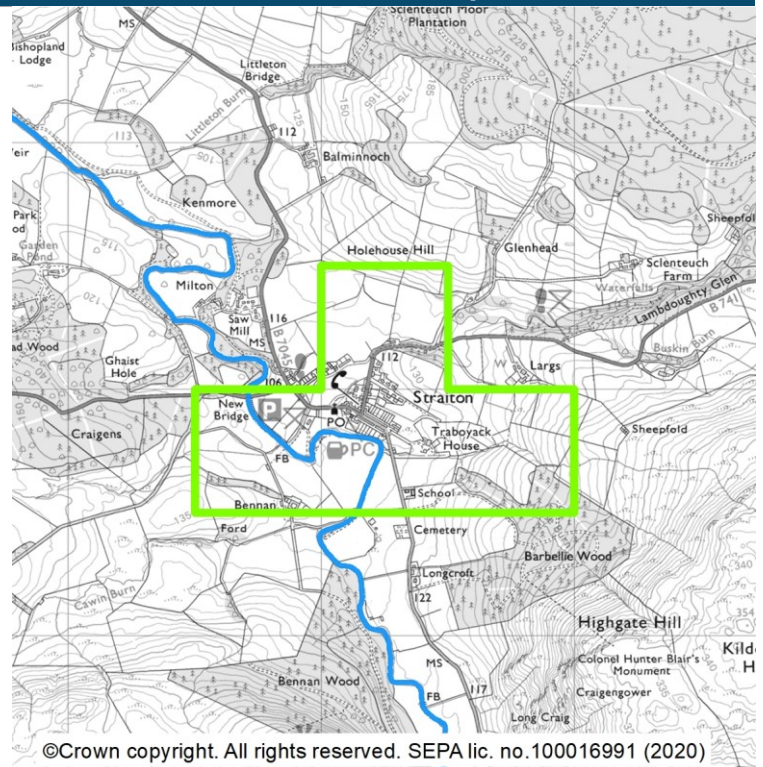
(target area 162)

Straiton (target area 162)

Summary

Straiton is located along the banks of the Water of Girvan. It 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 is by the 2080s with regards to climate change.

Location map



What is the current understanding of flood risk?

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

What are the objectives for the area?

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

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

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

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

Data collection (Ref: 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.
Action detail	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.
Coordination	Action delivery lead is South Ayrshire Council and coordination will be determined once the actions have been finalised.

Actions proposed after June 2028

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

Flood study (Ref: 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.
Action detail	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.
Coordination	Action delivery lead is South Ayrshire Council and coordination will be determined once the actions have been finalised.

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

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

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

List of target areas

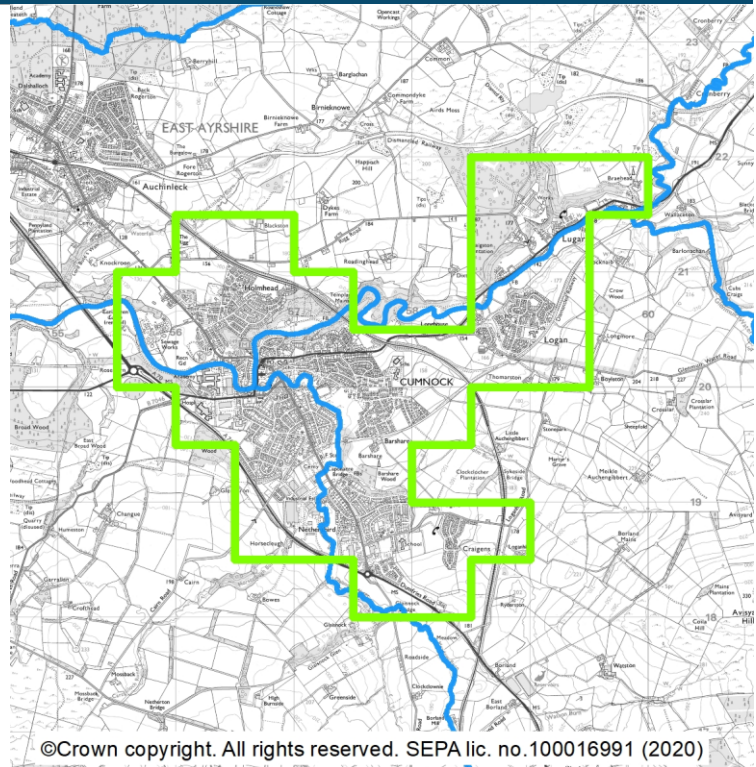
Cumnock	(target area 19)
Auchinleck	(target area 68)

Cumnock (target area 19)

Summary

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

Location map



What is the current understanding of flood risk?

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

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

Flood study (options appraisal) (Ref: 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.
Action detail	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.
Coordination	Action delivery lead is East Ayrshire Council and coordination will be determined once the actions have been finalised.

Actions proposed after June 2028

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

Property flood resilience scheme (Ref: 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.
Action detail	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.
Coordination	Action delivery lead is East Ayrshire Council and coordination will be determined once the actions have been finalised.

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

What are the opportunities for joint working?

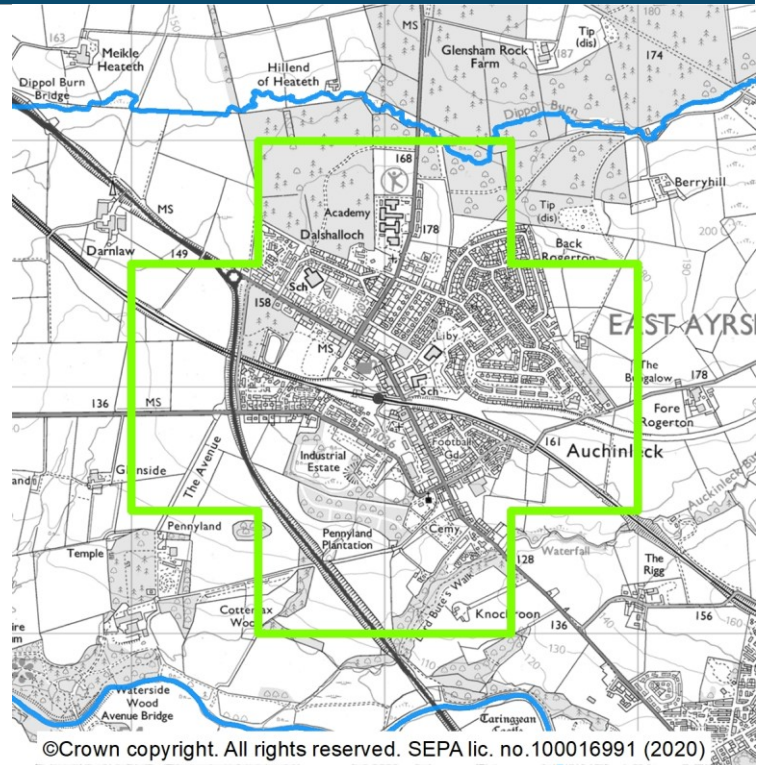
Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

Auchinleck (target area 68)

Summary

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

Location map



What is the current understanding of flood risk?

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

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed after June 2028

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

Surface water management plan (Ref: 6801)	
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.
Action detail	Further details of the action to be determined.
Coordination	Action delivery lead is East Ayrshire Council in coordination with Scottish Water.

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

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

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

List of target areas

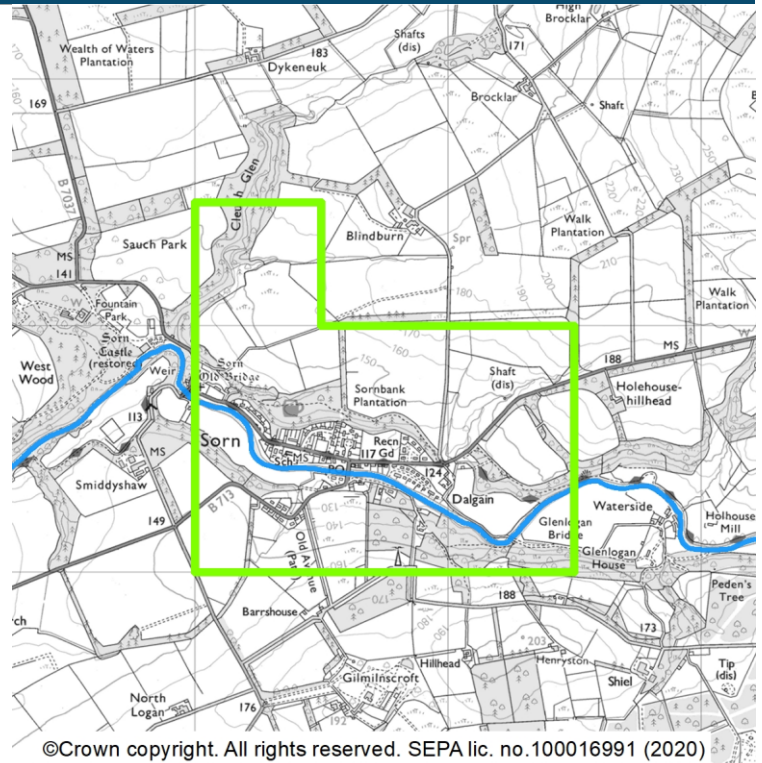
Sorn	(target area 16)
Catrine	(target area 17)

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 local authority area. The main source of flooding in Sorn is river flooding, however there is also a risk from surface water flooding. There are approximately 180 people at risk from flooding and approximately 110 homes and businesses, which is a significant proportion of the community. These figures are expected to remain the same by the 2080s, irrespective of climate change.

Location map



What is the current understanding of flood risk?

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

What are the objectives for the area?

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

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

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

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

Flood study (options appraisal) (Ref: 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.
Action detail	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.
Coordination	Action delivery lead is East Ayrshire Council and coordination will be determined once the actions have been finalised.

Flood warning maintenance (Ref: 1602)	
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Ayr, Annick and Irvine flood warning schemes.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

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

What are the opportunities for joint working?

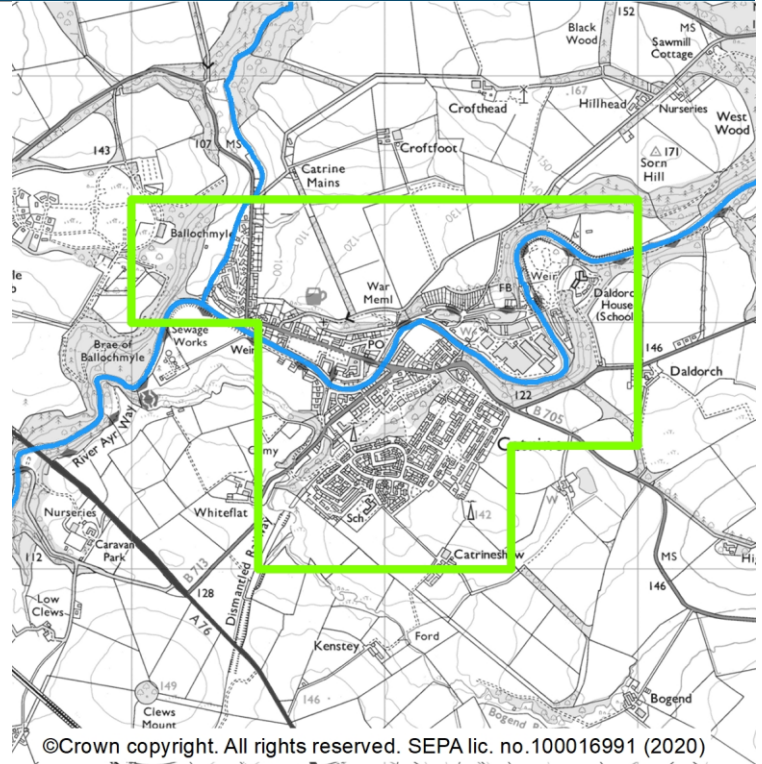
Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

Catrine (target area 17)

Summary

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

Location map



What is the current understanding of flood risk?

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

What are the objectives for the area?

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

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

Objective ref	Objective type	Objective description
171	Avoid flood risk	Avoid inappropriate development that increases flood risk in Catrine
172	Improve data and understanding	Improve data and understanding of flooding in Catrine
173	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Catrine

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

Data collection (Ref: 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.
Action detail	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.
Coordination	Action delivery lead is East Ayrshire Council and coordination will be determined once the actions have been finalised.

Flood study (Ref: 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.
Action detail	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.
Coordination	Action delivery lead is East Ayrshire Council and coordination will be determined once the actions have been finalised.

Flood warning maintenance (Ref: 1703)	
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Ayr, Annick and Irvine flood warning schemes.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

Actions proposed after June 2028

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

Property flood resilience scheme (Ref: 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.
Action detail	Based on the outcomes of the flood study for Catrine, East Ayrshire Council is to review the benefit of this property resilience program.
Coordination	Action delivery lead is East Ayrshire Council and coordination will be determined once the actions have been finalised.

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

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

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

List of target areas

Girvan

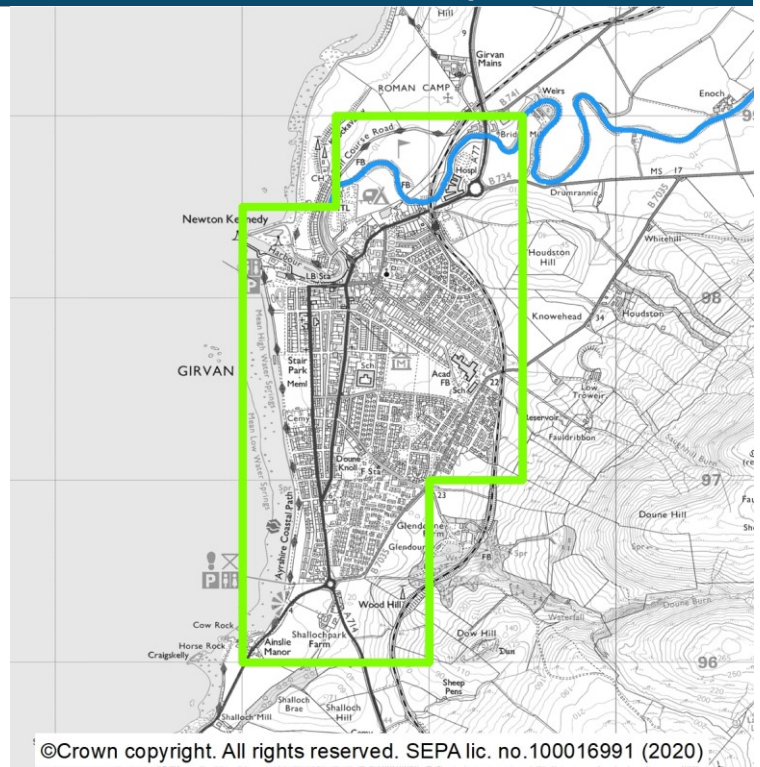
(target area 78)

Girvan (target area 78)

Summary

Girvan is a coastal town located at the mouth of the Water of Girvan. It is in 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?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

Flood scheme or works design (Ref: 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.
Action detail	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.
Coordination	Action delivery lead is South Ayrshire Council and coordination will be determined once the actions have been finalised.

Flood defence maintenance (Ref: 7802)	
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Action detail	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
Coordination	Action delivery lead is South Ayrshire Council and coordination will be determined once the actions have been finalised.

Flood warning maintenance (Ref: 7803)	
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Firth of Clyde coastal flood warning scheme.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

Strategic mapping improvements (Ref: 7804)

Action	SEPA will continue to update flood maps based on new information.
Action detail	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.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

Actions proposed after June 2028

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

Flood study (Ref: 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.
Action detail	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.
Coordination	Action delivery lead is South Ayrshire Council and coordination will be determined once the actions have been finalised.

Flood study (existing flood defences) (Ref: 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.
Action detail	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.
Coordination	Action delivery lead is South Ayrshire Council in coordination with SEPA.

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

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

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

List of target areas

Barrhill

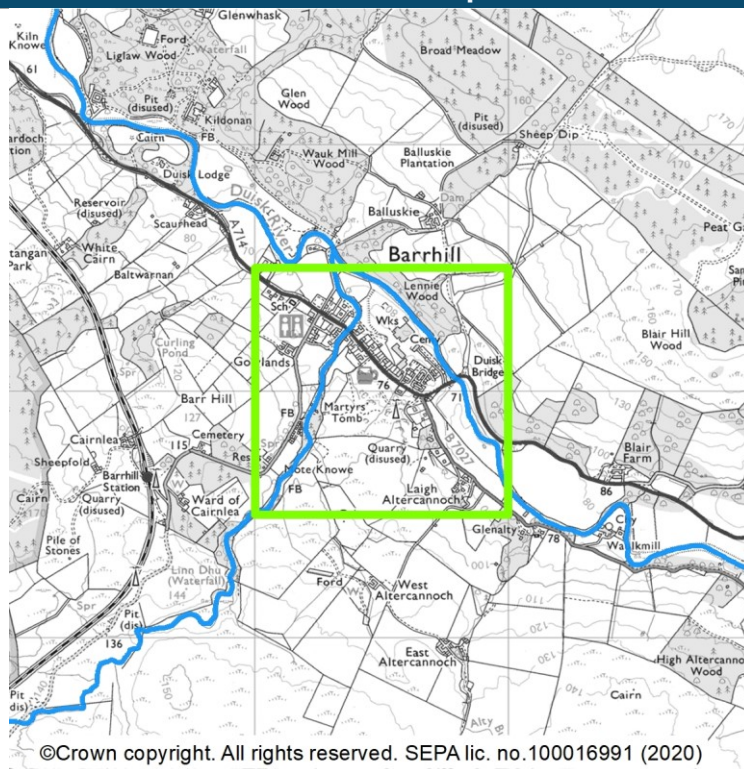
(target area 95)

Barrhill (target area 95)

Summary

Barrhill is a small village located west of Galloway Forest Park. It is in 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?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

Data collection (Ref: 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.
Action detail	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.
Coordination	Action delivery lead is South Ayrshire Council and coordination will be determined once the actions have been finalised.

Actions proposed after June 2028

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

Flood study (Ref: 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.
Action detail	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.
Coordination	Action delivery lead is South Ayrshire Council and coordination will be determined once the actions have been finalised.

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

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

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

List of target areas

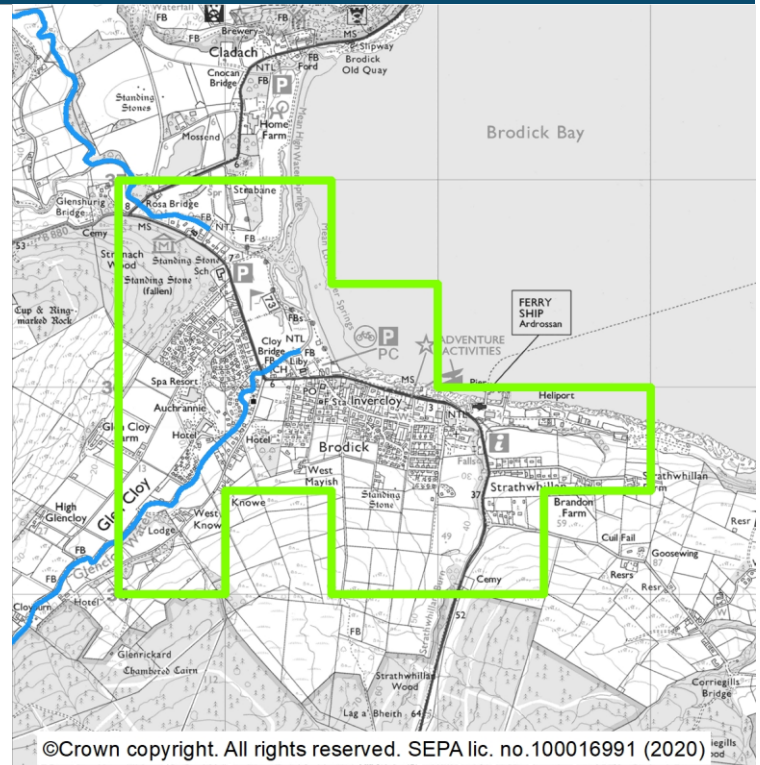
Brodick	(target area 23)
Lamlash	(target area 24)
Whiting Bay	(target area 25)

Brodick (target area 23)

Summary

Brodick is located on the Isle of Arran, on the banks of Strathwillan 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?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

Flood scheme or works design (Ref: 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.
Action detail	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 consist 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.
Coordination	Action delivery lead is North Ayrshire Council in coordination with SEPA.

Community engagement (Ref: 2302)	
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	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.
Coordination	Action delivery lead is North Ayrshire Council and coordination will be determined once the actions have been finalised.

Flood study (Ref: 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.
Action detail	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.
Coordination	Action delivery lead is North Ayrshire Council in coordination with SEPA.

Strategic mapping improvements (Ref: 2305)

Action	SEPA will continue to update flood maps based on new information.
Action detail	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.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

Actions proposed after June 2028

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

Shoreline Management Plan (Coastal Adaptive Plan) (Ref: 2304)

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.
Action detail	Further details of the action to be determined.
Coordination	Action delivery lead is North Ayrshire Council and coordination will be determined once the actions have been finalised.

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

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

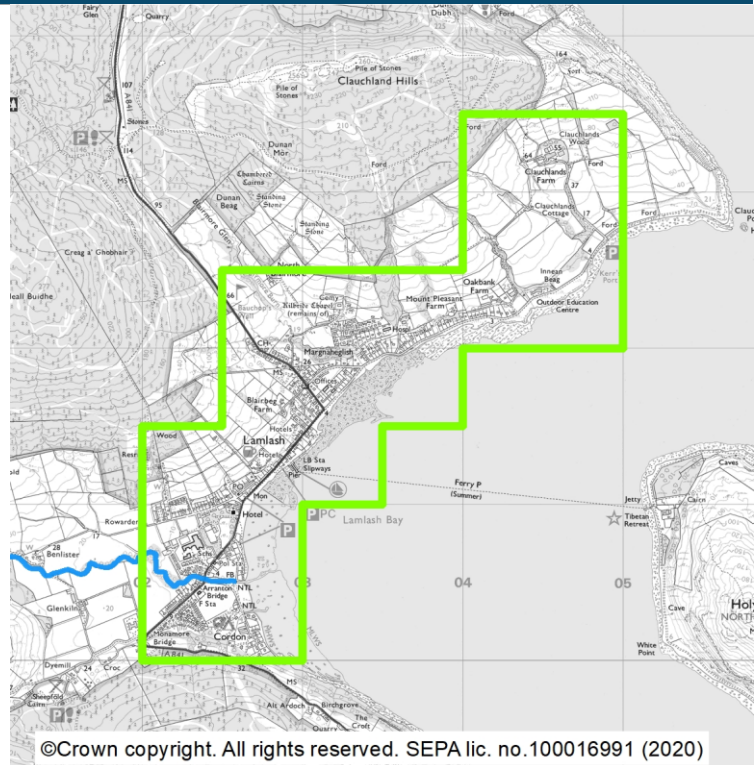
There are opportunities to work with local landowners/ estate managers from the upper catchments to jointly develop and implement Natural Flood Management mitigation measures.

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?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

Flood scheme or works design (Ref: 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.
Action detail	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 combine embankments, flood walls and demountable barriers in order to provide protection up to the 200 year flood events. 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.
Coordination	Action delivery lead is North Ayrshire Council in coordination with the Scottish Government and SEPA.

Community engagement (Ref: 2402)	
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	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.
Coordination	Action delivery lead is North Ayrshire Council in coordination with the Scottish Government.

Flood study (Ref: 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.
Action detail	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.
Coordination	Action delivery lead is North Ayrshire Council and coordination will be determined once the actions have been finalised.

Flood defence maintenance (Ref: 2404)

Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Action detail	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.
Coordination	Action delivery lead is North Ayrshire Council and coordination will be determined once the actions have been finalised.

Flood warning maintenance (Ref: 2405)

Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Firth of Clyde coastal flood warning scheme.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

Strategic mapping improvements (Ref: 2406)

Action	SEPA will continue to update flood maps based on new information.
Action detail	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.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

Actions proposed after June 2028

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

Shoreline Management Plan (Coastal Adaptive Plan) (Ref: 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.
Action detail	Further details of the action to be determined.
Coordination	Action delivery lead is North Ayrshire Council and coordination will be determined once the actions have been finalised.

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

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

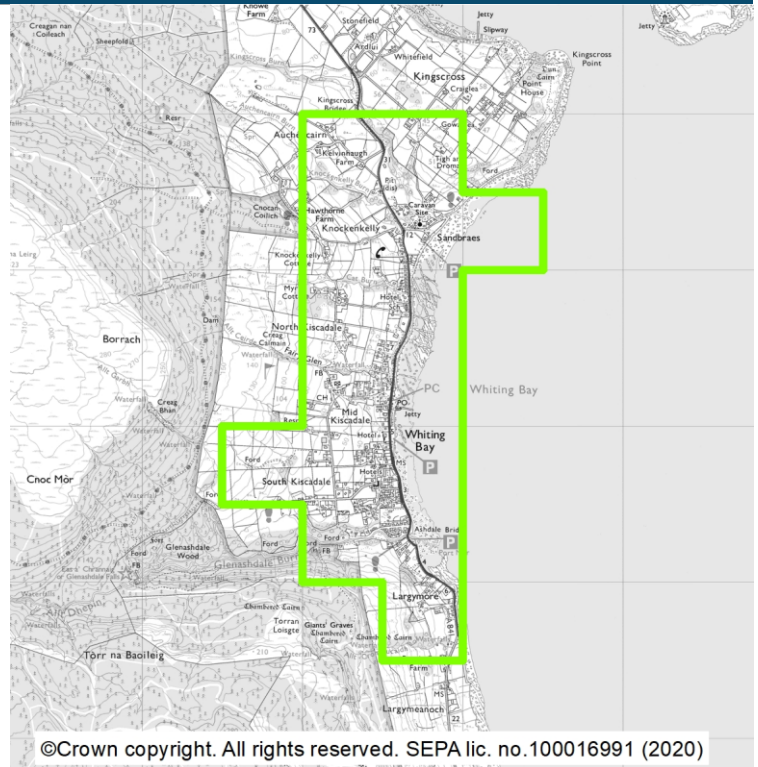
There are opportunities to work with local landowners/ estate managers from the upper catchments to jointly develop and implement Natural Flood Management mitigation measures.

Whiting Bay (target area 25)

Summary

The village of Whiting Bay is located on the Isle of Arran, at the mouth of Glenashdale Burn. It 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?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

Flood study (Ref: 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.
Action detail	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.
Coordination	Action delivery lead is North Ayrshire Council and coordination will be determined once the actions have been finalised.

Flood defence maintenance (Ref: 2502)	
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Action detail	North Ayrshire Council is to continue to inspect and maintain flood protection structures.
Coordination	Action delivery lead is North Ayrshire Council and coordination will be determined once the actions have been finalised.

Flood warning maintenance (Ref: 2503)	
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Firth of Clyde coastal flood warning scheme.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

Strategic mapping improvements (Ref: 2504)

Action	SEPA will continue to update flood maps based on new information.
Action detail	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.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

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

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

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

List of target areas

Millport

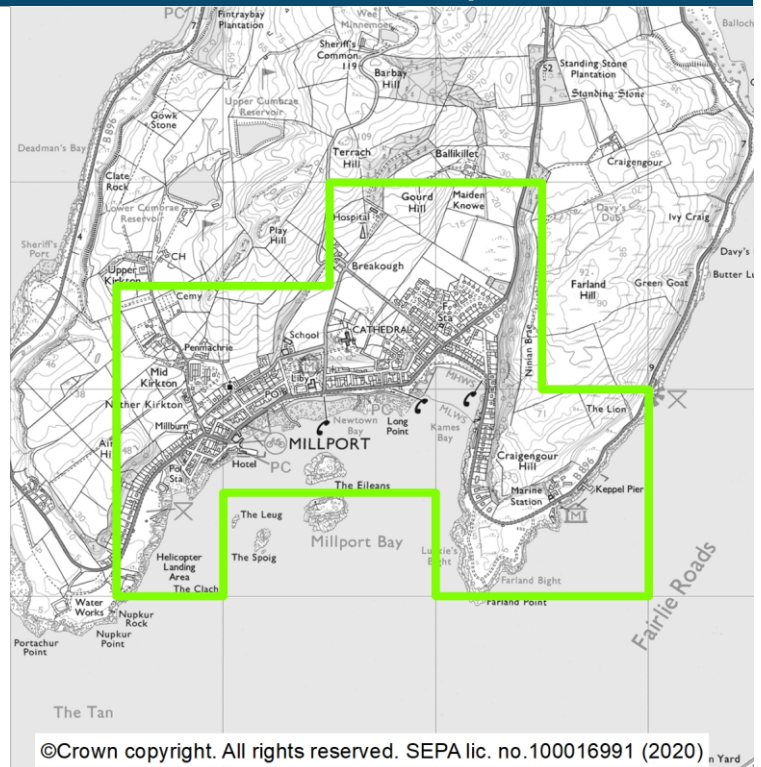
(target area 119)

Millport (target area 119)

Summary

Millport is located on Great Cumbrae Island and faces mainly to the south and onto Millport Bay. The area is located in 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?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

Flood scheme or works design (Ref: 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.
Action detail	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 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 and Environmental Screening , and the Scheme Notification is are now completed, and detailed design development will follow.
Coordination	Action delivery lead is North Ayrshire Council in coordination with SEPA.

Flood scheme or works implementation (Ref: 11902)	
Action	The flood scheme/works is to be built following agreement of the design, costs and timescales.
Action detail	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.
Coordination	Action delivery lead is North Ayrshire Council and coordination will be determined once the actions have been finalised.

Community engagement (Ref: 11903)

Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	Community statutory consultation prior to the Mill Burn Flood Protection Scheme notification has been completed (2020).
Coordination	Action delivery lead is North Ayrshire Council and coordination will be determined once the actions have been finalised.

Flood scheme or works design (Ref: 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.
Action detail	On the 10th November 2020 the Cabinet reached the final decision and confirmed the Millport Coastal Flood Protection Scheme without modification, agreed the indicative project timescale and approved the commencement of the final design of the scheme. Future climate change is considered in the detailed design, though the scheme is designed to mitigate flooding to a standard of protection of a 1 in 200 year flood (0.5% annual exceedance probability). 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.
Coordination	Action delivery lead is North Ayrshire Council in coordination with the Scottish Government, SEPA and Marine Scotland.

Flood scheme or works implementation (Ref: 11905)

Action	The flood scheme/works is to be built following agreement of the design, costs and timescales.
Action detail	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.
Coordination	Action delivery lead is North Ayrshire Council in coordination with the Scottish Government and Marine Scotland.

Community engagement (Ref: 11906)

Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	The community engagement for Millport Coastal Flood Protection Scheme is ongoing since 2016.
Coordination	Action delivery lead is North Ayrshire Council in coordination with the Scottish Government and Marine Scotland.

Flood defence maintenance (Ref: 11907)

Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Action detail	North Ayrshire Council is to continue to inspect and maintain flood protection structures.
Coordination	Action delivery lead is North Ayrshire Council and coordination will be determined once the actions have been finalised.

Flood warning maintenance (Ref: 11908)

Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Firth of Clyde coastal flood warning scheme.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

Strategic mapping improvements (Ref: 11909)

Action	SEPA will continue to update flood maps based on new information.
Action detail	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.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

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

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

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 have been no recorded floods in this area.

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

List of target areas

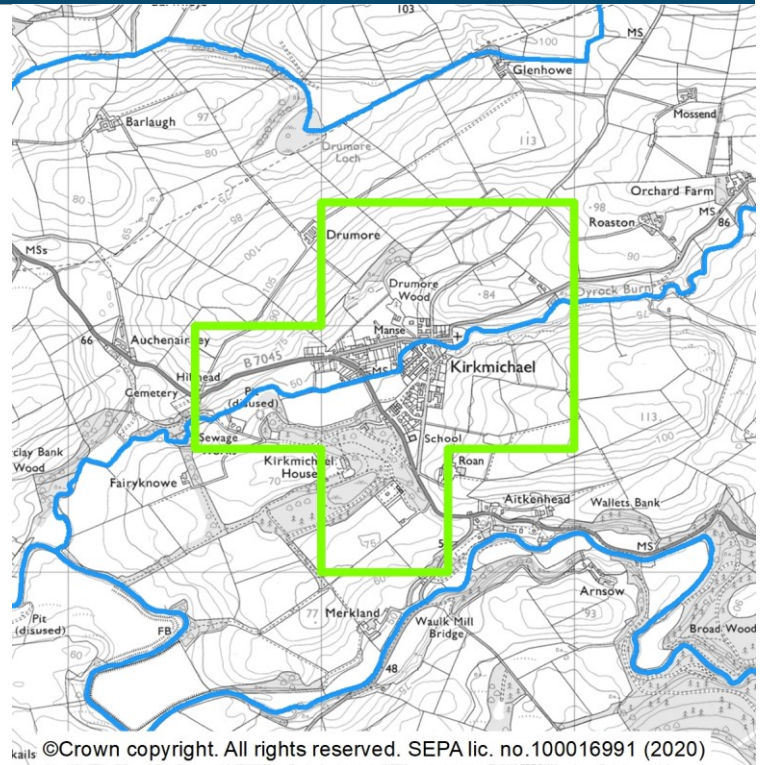
Kirkmichael (target area 14)

Kirkmichael (target area 14)

Summary

The village of Kirkmichael is located on the banks of Dyrock Burn. The area is located within the South Ayrshire Council area. The main source of flooding in Kirkmichael is river flooding, however there is also a small risk of surface water flooding. There are around 140 people and 90 homes and businesses at risk of flooding. This is likely to increase to 150 people by the 2080s due to climate change and the number of homes and businesses will remain the same.

Location map



What is the current understanding of flood risk?

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

What are the objectives for the area?

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

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

Objective ref	Objective type	Objective description
141	Avoid flood risk	Avoid inappropriate development that increases flood risk in Kirkmichael
142	Improve data and understanding	Improve data and understanding of flooding in Kirkmichael

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

Data collection (Ref: 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.
Action detail	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.
Coordination	Action delivery lead is South Ayrshire Council and coordination will be determined once the actions have been finalised.

Actions proposed after June 2028

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

Flood study (Ref: 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.
Action detail	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.
Coordination	Action delivery lead is South Ayrshire Council and coordination will be determined once the actions have been finalised.

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

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

Flood Risk Management Glossary

July 2021

Term	Definition
Accretion	Accumulation of sediment.
Actions	Activities undertaken to reduce the impact of flooding. Actions describe where and how flood risk will be managed. These actions have been set by SEPA and agreed with flood risk management authorities following consultation. Selection of actions to deliver the agreed objectives has been based on a detailed assessment and comparison of economic, social and environmental criteria.
Annual Average Damages (AAD)	Depending on its size or severity each flood will cause a different amount of damage to a given area. Annual Average Damages are the theoretical average economic damages caused by flooding when considered over a very long period of time. It does not mean that damage will occur every year: in many years there will be no damages, in some years minor damages and in a few years major damages may occur. High likelihood events, which occur more regularly, contribute proportionally more to AADs than rarer events. Within the Flood Risk Management Strategies AADs incorporate economic damages to the following receptors: residential properties, non-residential properties, vehicles, emergency services, agriculture and roads. They have been calculated based on the principles set out in the Flood Hazard Research Centre Multi-Coloured Handbook (2010).
Appraisal	Appraisal is the process of defining objectives, examining options and weighing up costs, benefits, risks and uncertainties before a decision is made. The FRM Strategy appraisal method is designed to set objectives and identify the most sustainable combination of actions to tackle flooding from rivers, the sea and surface water.
Appraisal baseline	Defines the existing level of flood risk under the current flood risk management regime.
Awareness raising	Public awareness, participation and community support are essential components of sustainable flood risk management. SEPA and the responsible authorities have a duty to raise public awareness of flood risk. This is undertaken both individually and collaboratively by a range of organisations. Improved awareness of flood risk and actions that prepare individuals, homes and businesses for flooding can reduce overall impact.
Bathing waters	Bathing waters are classed as protected areas under Annex IV of the Water Framework Directive (WFD). There are 84 designated bathing waters in Scotland.

Term	Definition
Benefit cost ratio (BCR)	A benefit cost ratio summarises the overall value for money of an action or project. It is expressed as the ratio of benefits to costs (both expressed as present value monetary values). A ratio of greater than 1:1 indicates that the economic benefits associated with an action are greater than the economic costs of implementation; therefore this is taken as the threshold of economic viability. It should be acknowledged that it is not always possible to accurately estimate economic values for all elements of benefit, and BCR is just one a number of techniques used in appraisal.
Blue infrastructure	Blue infrastructure is often complementary to 'green infrastructure' and includes sustainable drainage systems, swales (shallow, broad and vegetated channels designed to store and/or convey runoff and remove pollutants), wetlands, rivers, canals (and their banks) and all watercourses.
Catchment	All the land drained by a river and its tributaries.
Category 1 and 2 responders (Cat 1 / 2)	Category 1 and 2 Responders are defined as part of the Civil Contingencies Act 2004 which seeks to minimise disruption in the event of an emergency. Category 1 Responders are 'core' responders: local authorities, police, fire and rescue services, ambulance service, NHS health boards, SEPA and the Maritime and Coastguard Agency. Category 2 Responders are key co-operating responders in support of Category 1 Responders. These include gas and electricity companies, rail and air transport operators, harbour authorities, telecommunications providers, Scottish Water, the Health and Safety Executive and NHS National Services Scotland.
Channel improvement	Where work has been carried out on the river's channel allowing an increase in the volume of water it can carry.
Characterisation	Provides a description of the natural characteristics of catchments, coastlines and urban areas in terms of hydrology, geomorphology, topography and land use. It also includes the characterisation of existing levels of flood risk and existing flood risk management activity.
Coastal flooding	Flooding that results from high sea levels or a combination of high sea levels and stormy conditions. The term coastal flooding is used under the Flood Risk Management (Scotland) Act 2009, but in some areas it is also referred to as tidal flooding and covers areas such as estuaries and river channels that are influenced by tidal flows.
Combined sewer	Combined sewers transport sewage from homes and industry as well as carrying surface water runoff from gutters, drains and some highways. Heavy or prolonged rainfall can rapidly increase the flow in a combined sewer until the amount of water exceeds sewer capacity.
Combined sewer (overflow) (CSO)	Combined sewer overflows are purposely designed structures to ensure any excess water from sewerage systems is discharged in a controlled way and at a specific managed location.

Term	Definition
Community facility	Within the FRM Strategies this term includes: Emergency Services (Police, Fire, Ambulance, Coastguard, and Mountain Rescue) Educational Buildings (crèche, nursery, primary, secondary, further, higher and special education premises) Healthcare facilities: hospitals, health centres and residential care homes.
Community flood action groups	Community flood action groups are community based resilience groups which, on behalf of local residents and business, help to prepare for and minimise the effects of flooding. They reflect the interests of their local communities and may differ in composition and remit. There are over 60 groups already established in Scotland. The Scottish Flood Forum provides support for both new and existing groups.
Confluence	Where two or more rivers meet.
Conveyance	Conveyance is a measure of the carrying capacity of a watercourse. Increasing conveyance enables flow to pass more rapidly and reducing conveyance slows flow down. Both actions can be effective in managing flood risk depending on local conditions.
Cross Border Advisory Group (CBAG)	The Cross Border Advisory Group is a statutory group made up of representatives from the Environment Agency, SEPA, Scottish Water and the four lead local flood authorities located within the Solway Tweed River Basin District.
Cultural heritage site	Historic Environment Scotland maintains lists of buildings of special architectural or historic interest; these buildings are referred to as 'listed buildings'. The highest level of designation is a World Heritage Site. Other designations included in this assessment are scheduled monuments, gardens and designed landscapes, and battlefields.
Culvert	A pipe, channel or tunnel used for the conveyance of a watercourse or surface drainage water under a road, railway, canal or other obstacle.
Damages	<p>Flood damages are categorised as direct or indirect i.e. as a result of the flood water itself, or subsequent knock on effects. Damage to buildings and contents caused by flood water are an example of direct damages, whilst loss of industrial production, travel disruption or stress and anxiety are indirect. Some damages can be quantified in monetary terms, and others can only be described.</p> <p>The potential damages avoided by implementation of a flood risk management action are commonly referred to as the benefits of that action. When comparing the effectiveness of different actions, it is useful to consider estimated damages and damages avoided across the lifespan of the action. Within the FRM Strategies, a 100 year appraisal period has been used as standard. This allows costs, damages and benefits across this time frame to be compared in present value terms.</p> <p>See also 'Annual Average Damages'</p>

Demountable defences	A temporary flood barrier is one that is only installed when the need arises, that is, when flooding is forecast. A demountable flood defence is a particular type of temporary defence that requires built-in parts and therefore can only be deployed in one specific location.
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Term	Definition
Deposition	A natural process leading to an accumulation of sediment on a river bed, floodplain or coastline.
Economic Impact	An assessment of the economic value of the positive and negative effects of flooding and/or the actions taken to manage floods.
Embankment	Flood embankments are engineered earthfill structures designed to contain high river levels or protect against coastal flooding. They are commonly grass-covered, but may need additional protection against erosion by swiftly flowing water, waves or overtopping.
Emergency plans / response	Emergency response plans are applicable for all types of flooding. They set out the steps to be taken during flooding in order to maximise safety and minimise impacts where possible. Under the Civil Contingencies Act, Category 1 Responders have a duty to maintain emergency plans. Emergency plans may also be prepared by individuals, businesses, organisations or communities.
Environmental Impact	A change in the environment as a result of an action or activity. Impacts can be positive or negative and may vary in significance, scale and duration.
Environmental Impact Assessment (EIA)	Environmental Impact Assessment (EIA) is a process which identifies the potential environmental impacts, both negative and positive, of a proposal.
Environmental sites / environmental designated areas/ environmentally designated sites	Areas formally designated for environmental importance, such as Sites of Special Scientific Interest (SSSI) Special Protection Area (SPA) or Special Areas of Conservation (SAC).
Episodic erosion	Erosion induced by a single event, such as a storm.
Erosion	A natural process leading to the removal of sediment from a river bed, bank, floodplain or coastline.
Estuarine surge attenuation	A reduction in the wave energy caused by storm surge. Breakwaters (barriers built out into the sea to protect a coast or harbour from the force of waves) or habitats such as saltmarsh can slow down and reduce the inland impact of storm surges (the rising of the sea due to wind and atmospheric pressure changes associated with storms), thereby reducing coastal flood risk.
Estuary	A coastal body of water usually found where a river meets the sea; the part of the river that is affected by tides.
Fault (fault line)	A break or fracture in the earth's crust as a result of the displacement of one side with respect to the other. In Scotland the Great Glen Fault is a major geological fault line cutting diagonally across the Highlands from Fort William to Inverness.

Flash flood	A flood that occurs a short period of time after high intensity rainfall or a sudden snow melt. A sudden increase in the level and velocity of the water body is often characteristic of these events, leaving a short time for warning or actions.
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Term	Definition
Flashy watercourse	A 'flashy' river or watercourse has a short lag time (the delay between peak rainfall intensity and peak river discharge), high peak discharge, and quickly returns to average flow. Rivers with these characteristics can be prone to flooding and leave a short time for warning or actions.
Flood	In the terms of the FRM Act, 'flood' means a temporary covering by water, from any source, of land not normally covered by water. This does not include a flood solely from a sewerage system, as a result of normal weather or infrastructure drainage. A flood can cause significant adverse impacts on people, property and the environment.
Flood bund	A constructed retaining wall, embankment or dyke designed to protect against flooding to a specified standard of protection.
Flood defence	Infrastructure, such as flood walls and embankments, intended to protect an area against flooding, to a specified standard of protection.
Flood extent	The area that has been affected by flooding, or is at risk of flooding from one or more sources for a particular likelihood.
Flood forecasting	SEPA operates a network of over 250 rainfall, river and coastal monitoring stations throughout Scotland that generate data 24 hours a day. This hydrological information is combined with meteorological information from the Met Office. A team of experts then predict the likelihood and timing of river, coastal and surface water flooding. This joint initiative between SEPA and the Met Office forms the Scottish Flood Forecasting Service.
Flood frequency	The probability that a particular size/severity of flood will occur in a given year (see likelihood).
Flood gate	An adjustable, sometimes temporary, barrier used as a flood defence to control the flow of water within a water system or during a flood. Flood gates can also be part of operational flood defences or protect individual buildings or sites.
Flood guard	Flood guards cover a variety of types of door and window barriers that can be fitted to individual properties and operated by the owners / occupiers prior to a flood event. They act as a physical barrier to water entering the property and can provide protection against frequent and relatively shallow flooding.
Flood hazard	In terms of the FRM Act, hazard refers to the characteristics (extent, depth, velocity) of a flood.
Flood hazard map	Flood hazard maps are required by the FRM Act to show information that describes the nature of a flood in terms of the source, extent, water level or depth and, where appropriate, velocity of water. Flood hazard and risk maps are referred to collectively as flood maps and are available on the SEPA website.

Flood Prevention Scheme / Flood Protection Scheme (FPS)	A flood protection scheme, as defined by the FRM Act, is a scheme by a local authority for the management of flood risk within the authority area. This includes defence measures (flood prevention schemes) formerly promoted under the Flood Prevention (Scotland) Act 1961.
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Term	Definition
Flood Prevention (Scotland) Act 1961	The Flood Prevention (Scotland) Act 1961 gave local authorities discretionary powers to make and build flood prevention schemes. It was superseded by the Flood Risk Management (Scotland) Act 2009.
Flood protection study	Flood protection studies aim to refine understanding of the hazard and risk associated with flooding in a particular area, catchment or coastline. They will involve detailed assessment of flood hazard and / or risk and may develop options for managing flood risk.
Flood protection works	Flood protection works can include the same flood defence measures that would make up a formal Flood Protection Scheme but without the legal process, protections and requirements that would come by delivering the works as a scheme.
Flood risk	A measure of the combination of the likelihood of flooding occurring and the associated impacts on people, the economy and the environment.
Flood Risk Assessment	Flood Risk Assessments are detailed studies of an area where flood risk may be present. These are often used to inform planning decisions, may help to develop flood schemes and have also contributed to the National Flood Risk Assessment.
Flood Risk Management (Scotland) Act 2009 (FRM Act)	The flood risk management legislation for Scotland. It transposes the EC Floods Directive into Scots Law and aims to reduce the adverse consequences of flooding on communities, the environment, cultural heritage and economic activity.
Flood risk management cycle	Under the FRM Act flood risk management planning is undertaken in six year cycles. The first planning cycle is 2015 – 2021. The first delivery cycle is lagged by approximately 6 months and is from 2016/2022.
Flood Risk Management Local Advisory Groups	FRM Local Advisory Groups are stakeholder groups convened to advise SEPA and lead local authorities in the preparation of Flood Risk Management Plans. SEPA and lead local authorities must have regard to the advice they provide.
Flood Risk Management Plan (FRM Plans)	A term used in the FRM Act. FRM Plans set out the actions that will be taken to reduce flood risk in a Local Plan District. They comprise Flood Risk Management Strategies, developed by SEPA, and Local Flood Risk Management Plans produced by lead local authorities.
Flood Risk Management Strategy (FRM Strategy)	Sets out a long-term vision for the overall reduction of flood risk. They contain a summary of flood risk in each Local Plan District, together with information on catchment characteristics and a summary of objectives and actions for Potentially Vulnerable Areas.

Flood risk map	Complements the flood hazard maps published on the SEPA website providing detail on the impacts of flooding on people, the economy and the environment. Flood hazard and risk maps are referred to collectively as flood maps and are available on the SEPA website.
Flood wall	A flood defence feature used to defend an area from flood water to a specified standard of protection.
Flood Warning Area (FWA)	A Flood Warning area is where SEPA operates a formal Flood Monitoring Scheme to issue targeted Flood Warning messages for properties located in the area.

Term	Definition
Flood warning scheme	A flood warning scheme is the network of monitoring on a coastal stretch or river, which provides SEPA with the ability to issue Flood Warnings.
Floods directive	European Directive 2007/60/EC on the Assessment and Management of Flood Risks builds on and is closely related to the Water Framework Directive (see river basin management planning). It was transposed into Scots Law by the Flood Risk Management (Scotland) Act 2009. The Directive requires Member States to assess if all watercourses and coastlines are at risk from flooding, to map the flood extent, assets and humans at risk in these areas and to take adequate and coordinated measures to reduce this flood risk.
Floodplain	Area of land that borders a watercourse, an estuary or the sea, over which water flows in time of flood, or would flow but for the presence of flood defences and other structures where they exist.
Floodplain storage	Floodplains naturally store water during high flows. Storage can be increased through natural or man-made features to increase flood depth or slow flows in order to reduce flooding elsewhere.
Fluvial flooding	Flooding from a river or other watercourse.
Gabion	A metal cage filled with rocks often used in river bank protection.
Green infrastructure	The European Commission defines green infrastructure as “the use of ecosystems, green spaces and water in strategic land use planning to deliver environmental and quality of life benefits. It includes parks, open spaces, playing fields, woodlands, wetlands, road verges, allotments and private gardens. Green infrastructure can contribute to climate change mitigation and adaptation, natural disaster risk mitigation, protection against flooding and erosion as well as biodiversity conservation.” See also ‘blue infrastructure’.
Groundwater flooding	This type of flooding is caused by water rising up from underlying rocks or flowing from springs. In Scotland groundwater is generally a contributing factor to flooding rather than the primary source.
Integrated catchment study (ICS)	In urban areas, the causes of flooding are complex because of the interactions between rivers, surface water drainage and combined sewer systems and tidal waters. Scottish Water works with SEPA and local authorities to assess these interactions through detailed studies.

Land use planning (LUP)	The process undertaken by public authorities to identify, evaluate and decide on different options for the use of land, including consideration of long term economic, social and environmental objectives and the implications for different communities and interest groups.
Lead local authority	A local authority responsible for leading the production, consultation, publication and review of a Local Flood Risk Management Plan.

Term	Definition
Likelihood of flooding	The chance of flooding occurring. High likelihood: A flood event is likely in the defined area on average once in every ten years (1:10). Or a 10% chance of happening in any one year. Medium likelihood: A flood event is likely in the defined area on average once in every two hundred years (1:200). Or a 0.5% chance of happening in any one year. Low likelihood: A flood event is likely in the defined area on average once in every thousand years (1:1000). Or a 0.1% chance of happening in any one year.
Local Flood Risk Management Plans (Local FRM Plan)	Local Flood Risk Management Plans, produced by lead local authorities, will take forward the objectives and actions set out in Flood Risk Management Strategies. They will provide detail on the funding, timeline of delivery, arrangements and co-ordination of actions at the local level during each six year FRM planning cycle.
Local Nature Reserve (LNR)	A Local Nature Reserve is a protected area of land designated by a local authority because of its local special natural interest and / or educational value. Local authorities select and designate local nature reserves using their powers under the National Parks and Access to the Countryside Act 1949.
Local Plan District	Geographical areas for the purposes of flood risk management planning. There are 14 of Local Plan Districts in Scotland.
Local Plan District Partnerships	Each LPD has established a local partnership comprised of local authorities, SEPA and Scottish Water and others as appropriate. These partnerships are distinct from the FRM Local Advisory Groups and they retain clear responsibility for delivery of the FRM actions set out in the Local Flood Risk Management Plans. It is the local partnership that makes decisions and supports the delivery of these plans.
Maintenance	Sections 18 and 59 of the Flood Risk Management (Scotland) Act 2009 put duties of watercourse inspection, clearance and repair on local authorities. In addition, local authorities may also be responsible for maintenance of existing flood protection schemes or defences.
Montane habitat	This habitat encompasses a range of natural or near-natural vegetation occurring in the montane zone, lying above or beyond the natural tree-line.

National Flood Management Advisory Group (NFMAG)	The National Flood Management Advisory Group provides advice and support to SEPA and, where required, Scottish Water, local authorities and other responsible authorities on the production of FRM Strategies and Local FRM Plans.
National Flood Risk Assessment (NFRA)	A national analysis of flood risk from all sources of flooding which also considers climate change impacts. First published in December 2011 this provides the information required to undertake a strategic approach to flood management that identifies areas at flood risk that require further appraisal. The NFRA will be reviewed and updated for the second cycle of FRM Planning by December 2018.

Term	Definition
Natural flood management (NFM)	A set of flood management techniques that aim to work with natural processes (or nature) to manage flood risk.
Non-residential properties	Properties that are not used for people to live in, such as shops or other public, commercial or industrial buildings
Objectives	Objectives provide a common goal and shared ambition for managing floods. These objectives have been set by SEPA and agreed with flood risk management authorities following consultation. They were identified through an assessment of the underlying evidence of the causes and impacts of flooding.
One in 200 year flood	See 'likelihood of flooding' and 'return period'.
Planning policies	Current national planning policies, Scottish Planning Policy and accompanying Planning Advice notes restrict development within the floodplain and limit exposure of new receptors to flood risk. In addition to national policies, local planning policies may place further requirements within their area of operation to restrict inappropriate development and prevent unacceptable risk.
Potentially Vulnerable Areas (PVA)	Catchments identified as being at risk of flooding and where the impact of flooding is sufficient to justify further assessment and appraisal. There were 243 PVAs identified by SEPA in the 2011 National Flood Risk Assessment and were the focus of the first FRM planning cycle. There are 233 PVAs identified for the 2018 National Flood Risk Assessment.
Property level protection	Property level protection includes flood gates, sandbags and other temporary barriers that can be used to prevent water from entering individual properties during a flood.
Property level protection scheme	Some responsible authorities may have a formal scheme to provide, install and maintain property level protection for properties.
Ramsar sites	Ramsar sites are wetlands of international importance designated under the Ramsar Convention.
Receptor	Refers to the entity that may be impacted by flooding (a person, property, infrastructure or habitat). The vulnerability of a receptor can be reduced by increasing its resilience to flooding.

Residual risk	The risk which remains after risk management and mitigation. This may include risk due to very severe (above design standard) storms or risks from unforeseen hazards.
Resilience	The ability of an individual, community or system to recover from flooding.
Responsible authority	Designated under the FRM (Scotland) Act 2009 and associated legislation as local authorities, Scottish Water and, from 21 December 2013, the National Park Authorities and Forestry Commission Scotland. Responsible authorities, along with SEPA and Scottish Ministers, have specific duties in relation to their flood risk related functions.
Return period	A measure of the rarity of a flood event. It is the statistical average length of time separating flood events of a similar size. (see likelihood)

Term	Definition
Revetment	Sloping structures placed on banks or at the foot of cliffs in such a way as to deflect the energy of incoming water.
Riparian	The riparian area is the interface between land and a river or stream. For the purposes of FRM this commonly refers to the riparian owner, which denotes ownership of the land area beside a river or stream.
River basin management planning (RBMP)	The Water Environment and Water Services (Scotland) Act 2003 transposed the European Water Framework Directive into Scots law. The Act created the River Basin Management Planning process to achieve environmental improvements to protect and improve our water environment. It also provided the framework for regulations to control the negative impacts of all activities likely to have an impact on the water environment.
Runoff reduction	Actions within a catchment or sub-catchment to reduce the amount of runoff during rainfall events. This can include intercepting rainfall, storing water, diverting flows or encouraging infiltration.
Scottish Advisory and Implementation Forum for Flooding (SAIFF)	The stakeholder forum on flooding set up by the Scottish Government to ensure legislative and policy aims are met and to provide a platform for sharing expertise and developing common aspirations and approaches to reducing the impact of flooding on Scotland's communities, environment, cultural heritage and economy.
Sediment balance	Within a river where erosion and deposition processes are equal over the medium to long-term resulting in channel dimensions (width, depth, slope) that are relatively stable.
Sediment management	Sediment management covers a wide range of activities that includes anything from the small scale removal of dry gravels to the dredging of whole river channels and the reintroduction of removed sediment into the water environment. Historically, sediment management has been carried out for several reasons, including reducing flood risk, reducing bank erosion, for use as aggregate and to improve land drainage.

Self help	Self help actions can be undertaken by any individuals, businesses, organisations or communities at risk of flooding. They are applicable to all sources, frequency and scales of flooding. They focus on awareness raising and understanding of flood risk.
Sewer flooding (and other artificial drainage system flooding)	Flooding as a result of the sewer or other artificial drainage system (e.g. road drainage) capacity being exceeded by rainfall runoff or when the drainage system cannot discharge water at the outfall due to high water levels (river and sea levels) in receiving waters.
Site protection plans	Site protection plans are developed to identify whether normal operation of a facility can be maintained during a flood. This may be due to existing protection or resilience of the facility or the network.
Shoreline management Plan (SMP)	A Shoreline Management Plan is a large scale assessment of the coastal flood and erosion risks to people and the developed, historic and natural environment. It sets out a long-term framework for the management of these risks in a sustainable manner.
Site of Special Scientific Interest (SSSI)	Sites of Special Scientific Interest are protected by law under the Nature Conservation (Scotland) Act 2004 to conserve their plants, animals and habitats, rocks and landforms

Term	Definition
Source of flooding	The type of flooding. This can be coastal, river, surface water or groundwater.
Special Area of Conservation (SAC)	Special Areas of Conservation are strictly protected sites designated under the European Habitats Directive. The Directive requires the establishment of a European network of protected areas which are internationally important for threatened habitats and species
Special Protection Areas (SPA)	Special Protection Areas are strictly protected sites classified in accordance with the European Birds Directive. They are classified for rare and vulnerable birds (as listed in the Directive), and for regularly occurring migratory species
Standard of protection (SoP)	All flood protection structures are designed to be effective up to a specified flood likelihood (Standard of Protection). For events beyond this standard, flooding will occur. The chosen Standard of Protection will determine the required defence height and / or capacity.
Storage area	A feature that can be used to store floodwater, this can be natural in the form of low lying land or manmade such as a reservoir or modified landform.
Strategic Environmental Assessment (SEA)	A process for the early identification and assessment of the likely significant environmental effects, positive and negative, of activities. Often considered before actions are approved or adopted.
Strategic Flood Risk Assessment (SFRA)	A Strategic Flood Risk Assessment is designed for the purposes of specifically informing the Development Plan Process. A SFRA involves the collection, analysis and presentation of all existing and readily available flood risk information (from any source) for the area of interest. It constitutes a strategic overview of flood risk.

Strategic mapping and modelling	Strategic mapping and modelling actions have been identified in locations where SEPA is planning to undertake additional modelling or analysis of catchments and coastlines, working collaboratively with local authorities where appropriate, to improve the national understanding of flood risk.
Surcharge	Watercourses and culverts can carry a limited amount of water. When they can no longer cope, they overflow, or 'surcharge'.
Surface water flooding	Flooding that occurs when rainwater does not drain away through the normal drainage systems or soak into the ground, but lies on or flows over the ground instead
Surface Water Management Plan (SWMP)	A plan that takes an integrated approach to drainage accounting for all aspects of urban drainage systems and produces long term and sustainable actions. The aim is to ensure that during a flood the flows created can be managed in a way that will cause minimum harm to people, buildings, the environment and business.
Surface water plan / study	The management of flooding from surface water sewers, drains, small watercourses and ditches that occurs, primarily in urban areas, during heavy rainfall. FRM Strategy actions in this category include: Surface Water Management Plans, Integrated Catchment Studies and assessment of flood risk from sewerage systems (FRM Act Section 16) by Scottish Water. These have been selected as appropriate for each Potentially Vulnerable Area.
Term	Definition
Sustainable flood risk management	The sustainable flood risk management approach aims to meet human needs, whilst preserving the environment so that these needs can be met not only in the present, but also for future generations. The delivery of sustainable development is generally recognised to reconcile three pillars of sustainability – environmental, social and economic.
Sustainable drainage systems (SuDS)	A set of techniques designed to slow the flow of water. They can contribute to reducing flood risk by absorbing some of the initial rainfall and then releasing it gradually, thereby reducing the flood peak and helping to mitigate downstream problems. SuDS encourage us to take account of quality, quantity and amenity / biodiversity.
Target area	Target areas are based on communities at risk of flooding. These are situated within Potentially Vulnerable Areas and should benefit from actions to reduce flood risk. To benefit the community, actions may apply to outside the target area. National flood risk management efforts and funding should be targeted to benefit these target areas.
UK Climate Change Projections (UKCP09)	The leading source of climate change information for the UK. It can help users to assess their climate risks and plan how to adapt to a changing climate. The high emissions scenario refers to the SRES A1F1 emission scenario. See Annex 1 of the UKCP09 Climate change projections report for details.
Utility assets	Within the FRM Strategies this refers to electricity sub stations, mineral and fuel extraction sites, telephone assets, television and radio assets.

Voe	A dialect term, common in place names and used to refer to a small bay or creek in Orkney or Shetland.
Vulnerability	A measure of how likely someone or something is to suffer long-term damage as a result of flooding. It is a combination of the likelihood of suffering harm or damage during a flood (susceptibility) and the ability to recover following a flood (resilience).
Wave energy dissipation	Process by which a wave loses its energy.
Wave overtopping	Wave overtopping occurs when water passes over a flood wall or other structure as a result of wave action. Wave overtopping may lead to flooding particularly in exposed coastal locations.