



# Flood Risk Management Plan

## Clyde and Loch Lomond Local Plan District

Publication date: 22 December 2021

**Terms and conditions Ownership:**

All intellectual property rights for Flood Risk Management Plan is owned by SEPA or its licensors. The Flood Risk Management Plan cannot be used for or related to any commercial, business or other income generating purpose or activity, nor by value added resellers. You must not copy, assign, transfer, distribute, modify, create derived products or reverse engineer the Flood Risk Management Plan in any way except where previously agreed with SEPA. Your use of the Flood Risk Management Plan must not be detrimental to SEPA, its activities or the environment.

**Warranties and Indemnities:**

All reasonable effort has been made to ensure that the Flood Risk Management Plan is accurate for their intended purpose, no warranty is given by SEPA in this regard. Whilst all reasonable effort has been made to ensure that the Flood Risk Management Plan is up to date, complete and accurate at the time of publication, no guarantee is given in this regard and ultimate responsibility lies with you to validate any information given. SEPA will not be responsible if the information contained in the Flood Risk Management Plan is misinterpreted or misused by you.

**Copyright and acknowledgements:**

Full copyright and acknowledgements is available in Annex 3.

**Data Protection:**

You agree not to use the Flood Risk Management Plan in any way that constitutes a breach of the Data Protection Legislation including the General Data Protection Regulation and the Data Protection Act 2018.

**No Partnership or Agency:**

Nothing in these Terms and Conditions are intended to, or shall be deemed to, establish any partnership or joint venture between you and SEPA.

**No Interference:**

Nothing within these Terms and Conditions interferes with the statutory rights or obligations of you or SEPA.

**Jurisdiction:**

These Terms and Conditions are governed by Scots law and in the event of any dispute you agree to submit to the exclusive jurisdiction of the Scottish Courts.

For information on accessing this document in an alternative format or language please either contact SEPA by telephone on 03000 99 66 99 or by email at [equalities@sepa.org.uk](mailto:equalities@sepa.org.uk)

If you are a user of British Sign Language (BSL) the Contact Scotland BSL service gives you access to an online interpreter enabling you to communicate with us using sign language.

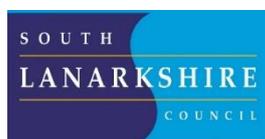
<http://contactscotland-bsl.org/>

Please refer to [frequently asked questions](#) for up-to-date contact details.

If you would like to contact us in writing, please mark any correspondence for the attention of FRM Planning and send to:

Scottish Environment Protection Agency  
Angus Smith Building  
6 Parklands Avenue  
Eurocentral  
Holytown  
North Lanarkshire  
ML1 4WQ

This document has been produced in collaboration with:



## Foreword

As we watch the news on TV or scan video clips on social media, we see much more regular violent weather. Bushfires of unprecedented size, ferocity and frequency happening in fire prone parts of the world and now happening where they were uncommon such as Siberia. Cyclones, tornadoes, heatwaves, droughts and, of course, as most affects Scotland - floods.

Anyone who has been in a flood area knows the intimidating terror it can bring. The foreboding that comes as people confront the potential damage or destruction of homes, businesses and other properties as well as injuries and, in the worst cases, loss of life.

This is all being made worse by the Climate Emergency. The recent COP26 meeting in Glasgow brought the world together to agree actions to do two things:

1. Reduce the emission of the greenhouse gases driving climate change, and
2. Help us adapt to the level of climate change that, despite our best efforts, is occurring.

The publication of this flood risk management plan is one of SEPA's key actions to help Scotland with this second aim.

As a society, we need to take action to manage the risk of flooding and its impacts on our lives, recognising that the risk can't ever be removed entirely. This plan takes our knowledge and understanding of flooding and the impacts of climate change and turns it into a set of actions that are planned, prioritised and co-ordinated to tackle flooding in the communities where it affects us the most.

Across Scotland, we now estimate that there are around 284,000 homes and businesses at risk of flooding. Our latest analysis shows that this could increase by around a further 110,000 homes and businesses if little or no action is taken to tackle climate change. Let's look at just one area of Scotland for an example of the local impact. Within the Clyde and Loch Lomond Local Plan District it is estimated there are around 98,000 homes and businesses at risk from flooding, and this may increase to 130,000 homes and businesses by the 2080s due to climate change. All up, in this part of Scotland, there is a risk of river, surface water and coastal flooding and the expected annual cost of flooding is around £70 million.

**So given the assessment undertaken, this plan:**

- Describes the ambition for managing flooding and the priorities for action that we believe are most important and helps inform the development of local plans. A local flood risk management plan co-ordinated by Glasgow City Council, provides additional detail on the responsibility for delivery, funding and coordination of actions across the Local Plan District. Taken together, these documents describe the commitment of responsible authorities to address flooding.
- Is published by SEPA and has been approved by Scottish Ministers. SEPA is just one organisation in the collective effort to manage flooding and this plan has been produced with the support and collaboration of Glasgow City Council, 9 more local authorities, Loch Lomond and the Trossachs National Park, Scottish Water and others with an interest in flood management. SEPA has taken account of the views received through a public consultation carried out during the development of the plan.
- Is based on the fact that how we plan for and manage our flood risk has far reaching consequences for Scotland's communities. The plans set the national direction of future flood risk management, helping to target investment and coordinate actions across public bodies. They explain what causes flooding in high-risk areas as well as the impacts when flooding does occur. This information is used as a basis for better decision-making across flood risk management organisations.

A lot of people, inside and outside SEPA, have contributed to the development of this plan. It underpins important decisions that will be made to protect people and property in Scotland from flooding and I hope that you find it valuable and useful.



Terry A'Hearn

Chief Executive

# Contents

## Section 1: Flood risk management in Scotland

1.1	What is a flood risk management plan? .....	<a href="#">1</a>
1.2	Managing flooding in Scotland .....	<a href="#">2</a>
1.3	How the flood risk management plans were developed .....	<a href="#">9</a>
1.4	Links with other plans and policies .....	<a href="#">15</a>
1.5	Next steps and monitoring progress .....	<a href="#">17</a>
1.6	Supporting information .....	<a href="#">19</a>

## Section 2: Clyde and Loch Lomond Local Plan District

2.1	Overview of flood risk .....	<a href="#">22</a>
2.2	Actions across the Local Plan District .....	<a href="#">23</a>
2.3	Potentially vulnerable areas .....	<a href="#">31</a>

## Annexes

A1	Costs of actions .....	<a href="#">315</a>
A2	Flood risk management plans consultation summary .....	<a href="#">316</a>
A3	Acknowledgements .....	<a href="#">321</a>

# Section 1: Flood risk management in Scotland

---

## 1.1 What is a flood risk management plan?

Flood risk management plans are Scotland's route map for reducing the effects of flooding on our communities. This is key to Scotland's health, well-being and economic success. They are also important in our response to the climate emergency as flooding is increasing due to climate change.

Flood risk management plans have been designed to ensure effort to reduce flood risk in Scotland is coordinated. Many organisations are responsible for flood risk management and the plans focus the work of these organisations to where the risk of flooding and benefits of action are greatest. The roles and responsibilities of some of the key organisations involved are set out later in this plan.

There is a plan for each of the 14 flood risk management districts in Scotland, which are called Local Plan Districts. These plans set out the long term ambition for flood risk management. They set objectives for tackling flooding in high risk areas and identify the actions needed to work towards those objectives. These are agreed by the responsible authorities and are based on the best available evidence on the causes and consequences of flooding. The actions are described and prioritised in 6 year planning cycles.

These plans complement the separate local flood risk management plans published in 2022. The local flood risk management plans explain in more detail how the actions set out in this plan for 2022 to 2028 will be delivered. They are published by the local authority who is nominated as the lead local authority for the Local Plan District.

The plans replace the first flood risk management plans which were published in 2015. At the time they were called flood risk management strategies. The updated flood risk management plans continue to build on the risk-based, plan-led approach established in the 2015 strategies.

The flood risk management plans are published by SEPA as Scotland's strategic flood risk management authority and are approved by Scottish Ministers. They have been prepared in

collaboration with all 32 local authorities, Scottish Water and other organisations with a responsibility or interest in managing flooding. They have also been shaped in consultation with the public.

The flood risk management plans are required under the Flood Risk Management (Scotland) Act 2009 and will be updated every 6 years.

## **1.2 Managing flooding in Scotland**

Flooding needs to be managed sustainably so that flood risk is reduced without moving the problem elsewhere. It must be done in a way that contributes to the health and wellbeing of communities, supports the protection and regeneration of the environment, improves resilience to climate change and enables a sustainable economy. Actions are needed on all sources of flooding – including from rivers, the sea, surface water and groundwater – to meet the needs of present and future generations while also protecting and enhancing the environment.

Using a 6 year planning cycle enables new data, improved techniques and developing knowledge and understanding to be incorporated regularly into the national approach. Using all the latest information to regularly review our assessment of flood risk forms the foundation of a risk-based, plan-led approach to managing flooding sustainably. We have outlined below the key stages of the flood risk management process.

### **1.2.1 Progress in cycle 1: 2015-2021**

The 2015 flood risk management strategies outlined the long term objectives to tackle flooding in the areas at highest risk.

In 2015 the objectives were split into two categories which were defined as:

- **Reduce overall flood risk:** to reduce the risk of flooding from all sources (river, sea and surface water) as far as reasonable, taking account of economic, environmental and social priorities.
- **Avoid an increase in flood risk:** to avoid increasing flood risk through land use planning and maintenance of existing flood management infrastructure.

The objectives for each area were agreed by the responsible authorities. Then actions were developed to deliver these objectives. Actions to deliver the reduce objectives included developing flood studies and flood protection schemes and providing public flood warnings and alerts. Actions for the avoid objective included maintenance of flood defences and storage areas and producing strong planning policies which prevent development from taking place in flood risk areas.

As the first planning cycle ends, it is important to review the progress made in achieving these objectives. A summary is provided below. A full assessment will be published in 2022 by the lead local authorities and will provide progress on each of the actions.

The summary is based on data from the mid-cycle reports published by lead local authorities in 2019. The status of each action at that time was assessed, and reported as red, amber or green:

- Red: The action is running late or over budget and is unlikely to meet its aims.
- Amber: The action is running late or over budget but is still likely to meet its aims.
- Green: The action is complete or is on track to meet its aims.

Actions with a green or amber status can be expected to succeed in working towards their objectives.

In this summary, the action progress described in the 2019 mid-cycle reports is used to assess progress in delivering the avoid and reduce objectives.

**a) Progress towards meeting the avoid objectives**

90% of the actions set out in the strategies to avoid an increase in flood risk were green at the time of the mid-cycle report. 10% of the actions were amber. By 2021, 100% of the actions are expected to be complete.

**b) Progress towards meeting the reduce objectives**

84% of the actions described in the strategies to reduce flood risk were green at the time of the mid-cycle report, 12% of the actions were amber and 4% were red. With 96% of the actions completed or underway by 2021, the actions developed to meet the reduce objectives will mostly be achieved.

This summary confirms that significant progress has been achieved towards meeting the objectives set out in the 2015 strategies.

Progress made towards delivering the objectives was fully considered when developing the objectives and actions in these updated flood risk management plans.

### **1.2.2 Improving the understanding of flooding**

Since publication of the 2015 flood risk management strategies, SEPA has continued to develop the flood hazard and risk maps. The hazard maps show information on the extent of flooding, and also on depth and velocity where that information is available. The flood risk maps provide detail on the impacts of flooding on people, the economy, cultural heritage and the environment.

Many actions included in the 2015 strategies, such as detailed flood studies improved understanding of flooding. This is an ongoing area of development and new information resulting from actions in these plans will be incorporated into future reviews of the understanding of flooding, to better inform decisions on flood risk management in the future.

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

The flood hazard and risk maps and the assessment of the potential for natural flood management can be viewed on the SEPA website at

<https://www.sepa.org.uk/environment/water/flooding/flood-maps/>

### **1.2.3 National flood risk assessment**

SEPA's flood hazard maps form the basis for the national flood risk assessment (NFRA). The NFRA provides the underpinning evidence for the risk-based approach in the flood risk management plans. SEPA published the second NFRA in 2018 which is available to view at <https://www.sepa.org.uk/data-visualisation/nfra2018/>.

To make best use of the data available and new techniques and information, there were several areas of improvement in the 2018 NFRA, building on the first NFRA published in 2011. The most significant change was in the representation of buildings. The 2011 NFRA represented buildings as single points. In 2018 the whole footprint of the building was used meaning buildings can be identified at flood risk even when only partially within the flood extent. Updated information on building locations, property type and the economic classification of buildings was also used to improve the assessment. These method updates resulted in a 3% increase in the number of homes and a 45% increase in the number of businesses being identified at flood risk in 2018.

Another development for the 2018 NFRA was to take account of how frequently flooding occurs. Different likelihoods of flooding were used to assess the effects on individual receptors. This allowed for the frequency of impacts to be considered as well as the severity of larger floods.

The 2018 NFRA also assessed social vulnerability to flooding and the resulting flood disadvantage. This is important as it becomes clear that climate change will impact vulnerable communities disproportionately and therefore this has been included in the evidence used to plan actions to manage flood risk in Scotland.

Finally, updated methods outlined in The Flood Hazard Research Centre's Multi-Coloured Manual and Multi-Coloured Handbook 2016 were also incorporated. They are the best available techniques for assessing the impacts of flooding and are used to produce information on the annual cost of flooding.

### **1.2.4 Climate change**

The latest science on the effects of climate change predicts that parts of Scotland will experience wetter winters and more extreme weather events. Although summers might generally be drier there will be a greater risk of very intense rainfall. Sea levels are also expected to rise, and all these effects will lead to an increase in the frequency and severity of damaging floods.

In November 2020 SEPA published future flood maps showing the impacts of climate change on flooding in Scotland for the first time. The maps are based on the 2080s high emissions scenario and their development allowed significant advances in how climate change was assessed in the 2018 NFRA. This enabled climate change to be more fully built into the development of the flood risk management plans. The future flood maps are available to view at <https://map.sepa.org.uk/floodmaps>

Currently 284,000 homes, business and services are at risk of flooding from rivers, surface water and the sea. With the effects of climate change, an additional 110,000 homes, businesses and services are expected to become at risk across all sources of flooding in Scotland. Compared with the current level of flood risk, this represents a 90% increase in the number of properties at risk of coastal flooding, 40% increase in the number for river flooding and 25% for surface water flooding.

### **1.2.5 Potentially vulnerable areas (PVAs)**

The 2018 NFRA was used to review the areas where flood risk is considered to be nationally significant. These are the areas with the greatest current or future flood risk. They are based on catchment areas, as it is only within the context of the wider contributing catchment that flooding can be best understood and managed. These nationally significant areas are referred to as Potentially Vulnerable Areas (PVAs) and are where the plans must deliver objectives and actions to manage flood risk.

A detailed manual review process was applied to the identification of PVAs to allow local knowledge from responsible authorities, communities, and any other supporting information to be considered.

SEPA engaged the public through a 3 month consultation on the PVAs, providing the opportunity for others to contribute to the assessment and to provide any additional information. As a result, amendments were made before the final 235 PVAs were agreed.

Around 90% of Scotland's flood risk is contained within PVAs. That means that not every location experiencing flood risk is included within a PVA, as PVAs are used to prioritise where the risk is highest, and benefits of flood risk management will be greatest. This plan includes national actions that apply across whole Local Plan Districts, including areas that are not within a PVA. The identification of the PVAs is reviewed every 6 years.

### **1.2.6 Identifying objectives and selecting actions**

The objectives provide the long term vision for delivering flood risk management in Scotland, and the actions give the practical steps required to achieve those objectives.

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

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

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

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

These national principles sit alongside the more specific target area objectives.

The target area objectives fall into the following four categories in the 2021 plans:

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

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

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

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

### **1.2.7 Catchment opportunities and constraints**

Our natural landscape plays an important role in managing flood risk and consideration of the whole catchment is essential to sustainable flood risk management. This has informed our approach, which is to identify the wider contributing catchments and coastlines for all the areas where actions are targeted. The catchment perspective has also underpinned the selection of all the objectives and actions.

Taking this approach can reveal opportunities for natural flood management, as well as constraints to the options for managing flood risk. The latest available data on land cover, land use, geology, topography, hydrology, coastal processes, development planning and natural flood management was used to identify opportunities and constraints in the wider

contributing catchments of every target area. This information was used to support the decision framework for identifying actions. It will also inform the more detailed analysis of the opportunities in the catchment required for implementation of the actions. This is a core requirement of some of the actions identified, particularly where a detailed flood study or options appraisal is planned.

For coastal areas, a significant development in the information available on opportunities and constraints is the national coastal change assessment. This analysis includes past coastal erosion rates and makes projections for the future. On this basis we can take longer-term decisions for coastal management. More information is available at [www.dynamiccoast.com](http://www.dynamiccoast.com)

## 1.3 How the flood risk management plans were developed

### 1.3.1 Partnership working

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

Strong relationships were developed through the first cycle of developing and delivering flood risk management strategies and local flood risk management plans. Building on that, the local partnerships established have worked throughout Scotland to develop this second set of flood risk management plans. SEPA has provided technical analysis and ensured a consistent national approach is taken, providing the evidence to make informed decisions. Local authorities, Scottish Water, other responsible authorities, and members of the local advisory groups have made significant contributions.

They have provided local knowledge, expertise and their experience from the actions delivered in the first cycle, to inform development of the new plans. The roles and responsibilities of some of the organisations with formal flood risk management responsibilities are set out below. There are a wide range of other stakeholders involved in flood risk management. Some work directly with responsible authorities through the local partnerships and advisory groups. Others, by virtue of their interests and activities, deliver direct action which can benefit flood risk management. Through the lifetime of this plan, we will seek to strengthen existing partnerships and establish new ones to achieve the best outcomes for flood risk management.

### **1.3.2 Roles and responsibilities for flood risk management**

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

#### **a) Your responsibilities**

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

- View our flood maps to check if your area is affected by flooding  
<https://map.sepa.org.uk/floodmaps>
- Sign up to Floodline to receive messages when flooding is forecast in your area  
<https://www.floodlinescotland.org.uk/>
- Know who to contact if flooding happens  
[https://www.sepa.org.uk/media/28952/who\\_to\\_contact\\_2014.pdf](https://www.sepa.org.uk/media/28952/who_to_contact_2014.pdf)

Other useful tools and advice on how to be prepared are available on the [Floodline](#) website.

**b) SEPA**

SEPA is Scotland's national flood forecasting, flood warning and strategic flood risk management authority. SEPA work in partnership with the Met Office to forecast flooding and operate Floodline to warn the public and emergency responders when flooding is likely. SEPA produce Scotland's flood risk management plans, working closely with other organisations responsible for managing flood risk to ensure that a nationally consistent approach to flood risk management is adopted. SEPA also provide flood risk advice on land use planning when requested and raise awareness of flooding at a national level through education initiatives, community engagement and campaigns.

**c) Local authorities and lead local authorities**

Local authorities are responsible for working together to produce Scotland's local flood risk management plans and work in partnership with SEPA, Scottish Water and other responsible authorities to develop these.

It is the responsibility of local authorities to implement action to manage flooding and maintain flood defences. Local authorities also inspect, clear and repair watercourses to reduce flood risk and routinely maintain road gullies on public roads and highways.

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

**d) Scottish Water**

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

Scottish Water helps to protect homes from flooding caused by sewers either overflowing or becoming blocked. This is done in a way that is fair and consistent to customers across the country, with sewer flooding investment prioritised to provide the biggest benefit for

customers and the environment first. Currently investment to reduce the risk of sewer flooding is prioritised towards properties that have experienced internal sewer flooding and are at the highest risk of repeat occurrence of sewer flooding during frequent rainfall events.

**e) National parks**

The National Park Authorities, Loch Lomond & Trossachs National Park and Cairngorms National Park, work with SEPA and other responsible authorities to develop the flood risk management plans and local flood risk management plans. They also fulfil a key role in land use planning, carrying out and permitting activities that can help manage and reduce flood risk.

**f) Other organisations**

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

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

The **Met Office** provides a wide range of forecasts and weather warnings. SEPA and the Met Office work together through the [Scottish Flood Forecasting Service](#), combining SEPA's hydrological expertise with the Met Office's meteorological data to predict the likelihood and timing of river, coastal and surface water flooding.

The **emergency services** provide emergency relief when flooding occurs and can coordinate evacuations. You should call the emergency services on 999 if you are concerned about your safety or the safety of others and act immediately on any advice provided.

The **Scottish Flood Forum** aims to reduce the impacts of flooding by providing immediate support and by establishing a network of community resilience groups in flood risk areas, to equip communities to cope with flooding.

#### 1.3.4 Consultation, engagement and advice

Further to the strong partnership approach to flood risk management planning in Scotland, it is essential to work with the people and communities that experience and live with the threat of flooding. This ensures that our assessment of the risk is accurate. How flooding is managed should support the communities at risk, and effort needs to be targeted to where most can be achieved. Two public consultations have been held during the development of the flood risk management plans. The first by SEPA was on the national flood risk assessment and the identification of PVAs (2018); the second, held jointly with local authorities, was on the understanding of flooding in these priority areas and on the objectives and actions to manage flooding (2021).

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

As this was a joint consultation, the responses were shared with local authorities who further considered all the submissions for the purpose of shaping the local flood risk management plans published in 2022. A summary of the consultation was submitted to Scottish Ministers along with this plan, and a more detailed report on what contributors said and what SEPA did in response will be available on SEPA's website from March 2022.

In addition to the consultation, advice has been sought from relevant organisations at key stages. The plans have benefited from local advisory groups who have provided important community and area-based knowledge. This informed understanding of the causes and consequences of flooding and the appropriate actions for future management. Local advisory groups have been especially helpful in considering flood risk management in the context of wider plans and initiatives. The groups include representatives from a range of sectors, including government agencies like Transport Scotland, National Park Authorities, local authorities, non-government organisations, utility companies and land and asset managers.

Community based groups are key to planning for, responding to, and recovering from flooding. Communities have engaged through the consultation on these plans and will be consulted on more detailed information on the implementation of many of the specific actions. The local information provided on their experience of flooding has shaped the identification of PVAs and informed decision making on the objectives and actions.

In producing the flood risk management plans, SEPA has also taken advice from a National Flood Management Advisory Group. Over 50 member organisations have been invited at key stages to provide comment and input, reflecting the national importance and impact of flooding on our communities, economy, environment and cultural heritage.

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

### **1.3.5 Strategic Environmental Assessment and Habitats Regulation Appraisal**

SEPA undertook a strategic environmental assessment to assess the significant environmental effects of the flood risk management plans. This assessment was published in an environmental report, and SEPA consulted with the public on the findings.

A statement will be published detailing how SEPA have taken account of the environmental assessment and the consultation responses, and how any significant environmental effects from the flood risk management plans will be monitored. SEPA also undertook a Habitats Regulations Appraisal to ensure that the flood risk management plans will not adversely affect the integrity of Special Areas of Conservation, Special Protection Areas and Ramsar Sites. SEPA consulted NatureScot on the appraisal method and took their views into account. Mitigation measures have been applied where required.

## **1.4 Links with other plans and policies**

### **1.4.1 River basin management planning**

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

### **1.4.2 Land use and spatial planning**

Land use planning decisions are one of the most powerful tools available to manage flood risk, and the alignment of flood risk management and land use planning policy is pivotal to achieving sustainable flood risk management. Decisions relating to flood risk management can have significant implications for the location of development and, likewise, decisions relating to the location of development can impact on flood risk. Flood risk management plans must take account of local development plans relating to the district, and the need for development plans to take account of flood risk management plans is included in the Town

and Country Planning (Development Planning) (Scotland) Regulations 2008 (as amended 2011). SEPA is a key agency in the land use planning process with a duty to cooperate with planning authorities in the preparation of development plans and a statutory role to provide flood advice for appropriate development management applications. The advice we give seeks to promote flood avoidance. In addition, land use planning objectives and actions have been agreed with responsible authorities, which will ensure flood risk is adequately considered in local planning decisions.

### **1.4.3 Emergency planning and response**

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

### **1.4.4 Scottish Water investment plans**

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

## 1.5 Next steps and monitoring progress

Flood risk management planning has progressed significantly in recent years. Scotland now has the most advanced, nationally consistent and locally informed understanding of the causes and consequences of flooding that it has ever had. Key partnerships have been developed and the plan-led approach has been strongly established through the first set of strategies and local flood risk management plans. SEPA and the other responsible authorities are committed to continuing to work together, improving the understanding and response to flooding and managing flood risk for the good of Scotland through this and subsequent planning cycles. Lead local authorities will publish the local flood risk management plans in 2022 with greater detail on the scope of the actions identified in this plan and how they will be funded, coordinated and delivered between 2022 and 2028.

Progress will be monitored throughout the years covered by this plan through ongoing joint working arrangements under the Local Plan District partnerships. Lead local authorities will provide an interim report on the progress of delivering all actions in the local flood risk management plans not earlier than 2 years and not later than 3 years from its publication. A final report will also be prepared at the end of the second planning cycle. A third set of flood risk management plans and local flood risk management plans will be published in 2027/2028.

### 1.5.1 Funding review for future flood risk management actions

SEPA has carried out a national prioritisation exercise based on the best available understanding of flood risk and the capacity of lead organisations to deliver actions. Funding for flood risk management actions typically come either directly from the lead organisations or as happened in 2016, through an allocation of capital grant from the Scottish Government. However, funding can be procured from other sources.

The distribution of Scottish Government grant funding for actions in the plan for the period 2022-2028 is currently being considered by a flood risk management working group<sup>1</sup>. This group will put forward options and recommendations to Scottish Ministers and COSLA, through the Settlement and Distribution Group, for consideration. A decision will not be made in time for the publication of this plan. As such it should be noted that it may not be possible for all actions identified in the flood risk management plans to be grant funded. Inclusion of an action in this plan does not formally commit a Council to implement it, if reasons arise which make any actions undeliverable, including inability to secure adequate funding.

A decision on grant funding is expected in time for the publication of the local flood risk management plans. As a result, there may be changes to the detail of actions, or the ability to deliver actions in the identified timescales, compared with this plan. This plan remains the best understanding of the objectives and actions required over the long term to manage flood risk in the identified high risk areas of Scotland. The delivery of the plan, particularly the ambitions on how quickly actions can be delivered, may have to be adapted to reflect wider developments in public funding, the ability of responsible authorities to access funding from other sources, pandemic recovery, and other national priorities.

### **1.5.2 Licensing acknowledgements**

Full data licensing acknowledgements can be found in **Annex 3** of this plan.

---

<sup>1</sup> Membership of the group includes representatives from Scottish Government, the Convention of Scottish Local Authorities (COSLA), local authorities, Society of Chief Officers of Transportation in Scotland (SCOTS) flood risk management group and SEPA.

## 1.6 Supporting information

### 1.6.1 Sources of flooding described in this plan

This flood risk management plan targets the risk of flooding from rivers, the coast, surface water and groundwater. The risk of flooding from rivers is usually due to heavy or prolonged rainfall causing a river to rise above the top of the bank. Water spreads out and floods nearby areas. Coastal flooding is where the risk is from the sea. Sea levels can be higher than usual due to normal tidal cycles or stormy weather systems. Over the longer term, sea levels and coastal flood risk will increase due to climate change. Surface water flooding happens when rainwater does not drain away through the normal drainage systems or soak into the ground. Instead, it collects or flows over the ground. There can be interactions between these sources of flooding.

Groundwater is usually a contributing factor to flooding rather than the primary source. It is caused by water rising up from underlying rocks or flowing from springs. Actions to directly target groundwater are quite limited in this plan. However, susceptibility to the contributing effects of groundwater on flooding was considered everywhere in the national flood risk assessment which underpins this plan. Maps of areas where groundwater can contribute to flood risk are available to view on our website: <https://map.sepa.org.uk/floodmap/map.htm>

### 1.6.2 The following aspects of flooding have not been incorporated into this plan:

Reservoir breaches have been assessed under separate legislation (Reservoirs (Scotland) Act 2011) and so flood risk from reservoir breach is not considered in this plan. There are fundamental differences in probability of flooding and associated management actions for reservoirs. Further information and maps can be found on SEPA's website:

[www.sepa.org.uk/regulations/water/reservoirs/](http://www.sepa.org.uk/regulations/water/reservoirs/)

The Flood Risk Management (Scotland) Act 2009 does not require SEPA or responsible authorities to assess or manage coastal erosion. However, SEPA has included consideration of coastal erosion in the flood risk management plans by identifying areas that are likely to be susceptible to erosion and where erosion can exacerbate flood risk.

As part of considering where actions might deliver multiple benefits, SEPA have looked to see where the focus of coastal flood risk management studies coincides with areas at risk of coastal erosion as identified by the Dynamic Coast project. Subsequent detailed flood studies and scheme design will need to consider coastal erosion in these areas. This includes ensuring that actions to manage flood risk do not contribute to increased coastal erosion and where appropriate, help to manage risks from coastal erosion now and in the future.

The information on coastal flooding used to set objectives and identify actions is based in most areas on SEPA modelling using simplified coastal processes and flooding mechanisms. As a result, coastal flood risk may be underestimated in some areas and overestimated in others. Where more detailed local models were available from flood studies or from flood warning schemes, these have been incorporated into the development of the flood risk management plans, as have other sources of local information such as records of past flooding. SEPA is currently working on updates to the national coastal flood mapping to better represent the effects of waves. Actions in the plans reflect the best information currently available.

### 1.6.3 Commonly used terms

Below are explanatory notes for commonly used terms in this plan. A glossary of terms is also available at the end of this document.

**Reference to flood risk.** To develop this plan, flood risk has been assessed over a range of likelihoods. For consistency in reporting information, unless otherwise stated, all references to properties or other receptors being ‘at risk of flooding’ refer to a medium likelihood flood (up to a 0.5% chance of flooding in any given year). By exception, references will be made to high or low risk flooding, which should be taken to mean a 10% chance/likelihood or 0.1% chance/likelihood of flooding in any given year respectively.

Chance / likelihood of flooding		
Likelihood	Return Period	Annual chance
High	1 in 10 year	10%
Medium	1 in 200 year	0.5%
Low	1 in 1000 year	0.1%

An **annual cost of flooding** is given as an assessment of the economic impact of flooding within an area. Depending on its size or severity each flood will cause a different amount of damage to a given area. Annual average damages are the theoretical average economic damages caused by flooding when considered over many years. It does not mean that value of damage will occur every year: in many years there will be no damages and in some years the damages will be minor. In most places, there will be a very small number of years when much bigger floods occur, and that is when the highest damage costs will occur. To assess the annual cost, this is averaged over many years. In some areas, smaller floods which happen frequently contribute more to the annual cost than much larger events which are rarer. Within the plans, the annual cost of flooding has been calculated based on the methods set out in the Flood Hazard Research Centre's Multi-Coloured Handbook (2016).

**History of flooding.** Where the plans refer to a history of past flooding, flood events up to 2019/20 have been taken into account.

## Section 2: Clyde and Loch Lomond Local Plan District (LPD 11)

### Flood risk management plan 2022-2028

---

The Clyde & Loch Lomond Local Plan District covers an area of around 4,800km<sup>2</sup> and has a population of approximately 1.9 million. It extends from Loch Lomond in the north to the Lowther Hills in the south and includes part of Loch Lomond and the Trossachs National Park. The coastline is around 500km long, from Ardlamont Point to Largs, encompassing the Firth of Clyde including the Isle of Bute. It includes the urban areas of Glasgow City, Dumbarton, East Kilbride, Motherwell, Paisley, Hamilton, Bishopbriggs and Greenock.

The area contains the River Clyde and its many tributaries and is heavily urbanised. However outside of the urbanised areas the main land covers are agricultural grazing lands, coniferous and broadleaved woodland. There are many lochs and reservoirs in the area including Loch Lomond, Loch Eck, Loch Arklet and Daer Reservoir.

There is river, surface water and coastal flood risk in the Local Plan District, with the main risk coming from surface water flooding. There have been several large floods, notably from intense rainfall and river flooding in December 2015 as a result of Storm Desmond and Storm Frank. In November 2018 Storm Diana caused coastal and river flooding, affecting many areas. More recently, Storm Ciara followed swiftly by Storm Dennis in February 2020 caused coastal, river and surface water flooding across the Local Plan District.

Currently it is estimated there are around 170,000 people and 98,000 homes and businesses at risk from flooding. This may increase to 220,000 people and 130,000 homes and businesses by the 2080s due to climate change. The expected annual cost of flooding is around £70 million. Note however that flooding from wave overtopping is not fully represented in the assessment of flood risk and the impact of coastal flooding may be underestimated.

SEPA lead development of the flood risk management plans for Scotland and delivery of flood warning services. Local flood risk management planning is led by Glasgow City Council, who is the lead authority. Other responsible authorities include 9 more local authorities, Scottish Water, Loch Lomond and the Trossachs National Park.

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.

## 2.2 Actions across the Local Plan District

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

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

	<b>Data to support climate resilience</b>
<b>Action</b>	<p>As Scotland’s hydrometric authority, SEPA operates a network of stations to measure river level, flow, rainfall, sea level, loch and groundwater level. The data goes into a long term data archive and is critical to underpin all flood risk management activities including flood warning, flood mapping, design of flood protection and sustainable development as well as supporting a range of regulatory and recreational uses.</p> <p>SEPA will continue to maintain and develop its hydrometric network, contribute to UK and international data archives, and improve and update the datasets used for flood frequency analysis.</p> <p>SEPA will support research and development of data, methods and guidance to improve the evidence on which decisions can be made, and to enable the impact of climate change to be included in all flood risk management activities.</p>

	<b>Emergency plans</b>
<b>Action</b>	<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.</p> <p>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>

<b>Flood forecasting</b>	
<b>Action</b>	<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>

<b>Flood warning development framework</b>	
<b>Action</b>	<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>

<b>Future flood risk management planning</b>	
<b>Action</b>	<p>The years covered by the lifetime of this plan are crucial. Radical progress is needed in how we reduce our impact on the climate and respond to the effects of climate change. How we plan to manage flooding to our communities is on the front line of the challenges of</p>

	<p>this decade. The 2027 flood risk management plans will be more ambitious than ever before.</p> <p>We will plan for a better future by publishing our flooding services strategy in 2022 with a clear and measurable delivery plan. We will put greener, fairer communities at the heart of our ambitions.</p> <p>SEPA has set its own target to be a regenerative organisation by 2030 and the next set of plans will further this ambition.</p> <p>During this plan cycle, SEPA will work to develop new partnerships with a wider range of stakeholders, including businesses and commercial sectors. We will investigate alternative sources of finance to tackle flooding and drive forward practical options for adaptation.</p>
--	--

Guidance development	
<b>Action</b>	<p>The Scottish Government and SEPA will develop and update guidance to inform flood risk management projects. This guidance will be produced in 2022 and will look at how best to adapt to the long-term impacts of climate change and the most appropriate methods of assessing the benefits of flood risk management actions.</p> <p>Technical guidance to support flood risk management partners will be reviewed and updated by SEPA where required.</p> <p>Scottish Forestry, in collaboration with its UK counterparts, will produce guidance on designing and managing forests to reduce flood risk.</p> <p>Guidance will be developed to help local authorities understand the requirements for mapping relevant bodies of water and sustainable urban drainage systems in their areas.</p>

<b>Hazard mapping updates</b>	
<b>Action</b>	<p>An understanding of flooding is essential to develop a plan led risk-based approach to flood risk management. SEPA will continue to update their national hazard mapping, which shows the likelihood of flooding in Scotland from different flooding sources:</p> <p><a href="https://www.sepa.org.uk/environment/water/flooding/flood-maps/">https://www.sepa.org.uk/environment/water/flooding/flood-maps/</a>.</p> <p>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>

<b>Land use planning</b>	
<b>Action</b>	<p>Local authorities, SEPA and Scottish Water all have a responsibility under the Flood Risk Management (Scotland) Act 2009 to support sustainable flood risk management through the land use planning process. National planning policies set out the Scottish Ministers' priorities for the development and use of land. Under this approach, new development in areas with medium to high likelihood of flooding should generally be avoided. Current national planning policies aim to restrict development within the floodplain and limit exposure of new receptors to flood risk, promote flood reduction via natural and structural flood management measures and restoration of natural features, and avoid increased surface water flooding through sustainable drainage and the minimisation of impermeable surfaces.</p> <p>Locally determined planning policies may place further requirements within their area of operation to restrict inappropriate development and prevent unacceptable risk.</p>

<b>Maintenance</b>	
<b>Action</b>	<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.</p>

	<p>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	
<b>Action</b>	<p>SEPA will continue to support activities that improve our understanding of how to effectively target and deliver natural flood management. As part of this, SEPA will review and update the opportunities mapping for natural flood management. This will include linking blue-green infrastructure with the surrounding natural catchment and coastline. Natural flood management seeks to store or slow down flood waters through measures such as the planting of woodlands, wetland creation, river restoration, or the creation of intertidal habitats. In addition to flooding benefits, natural flood management measures can also provide many additional benefits to biodiversity, water quality, recreation, and carbon storage.</p>

National flood risk assessment	
<b>Action</b>	<p>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 21st century. SEPA will use the most suitable data to develop the national flood risk assessment (NFRA) 2024. This assessment will be used to identify future potentially vulnerable areas.</p>

<b>National surface water mapping</b>	
<b>Action</b>	The national flood risk assessment 2018 identified that surface water flooding has the potential to impact more properties in Scotland than any other source of flooding. Over the next 6 year cycle SEPA will look to vastly improve its national understanding of surface flood risk by undertaking a wholesale update of the national surface water maps to reflect developments in data and understanding, including the impact of climate change.

<b>Reservoirs</b>	
<b>Action</b>	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.

<b>Scottish Flood Defence Asset Database</b>	
<b>Action</b>	The Scottish Flood Defence Asset Database provides information on existing flood protection schemes. National data on flood protection infrastructure is needed to understand flood risk and to develop adaptation planning for Scotland. SEPA will continue to host SFDAD and look for opportunities to support the development of our understanding of how and when Scotland's flood defence assets should be adapted to continue to maintain protection from flooding in the future.

<b>Self help</b>	
<b>Action</b>	Everyone is responsible for protecting themselves and their property from flooding. People can take steps to reduce damage and disruption to their homes and businesses should flooding happen. This includes preparing a flood plan and flood kit, installing property flood resilience measures, signing up to Floodline, engaging with

their local flood group, and ensuring that properties and businesses are insured against flood damage. The following places offer help with taking steps to protect yourself:

<https://www.floodre.co.uk/>

<https://www.biba.org.uk/current-issues/flood-insurance/>

<https://floodlinescotland.org.uk/>

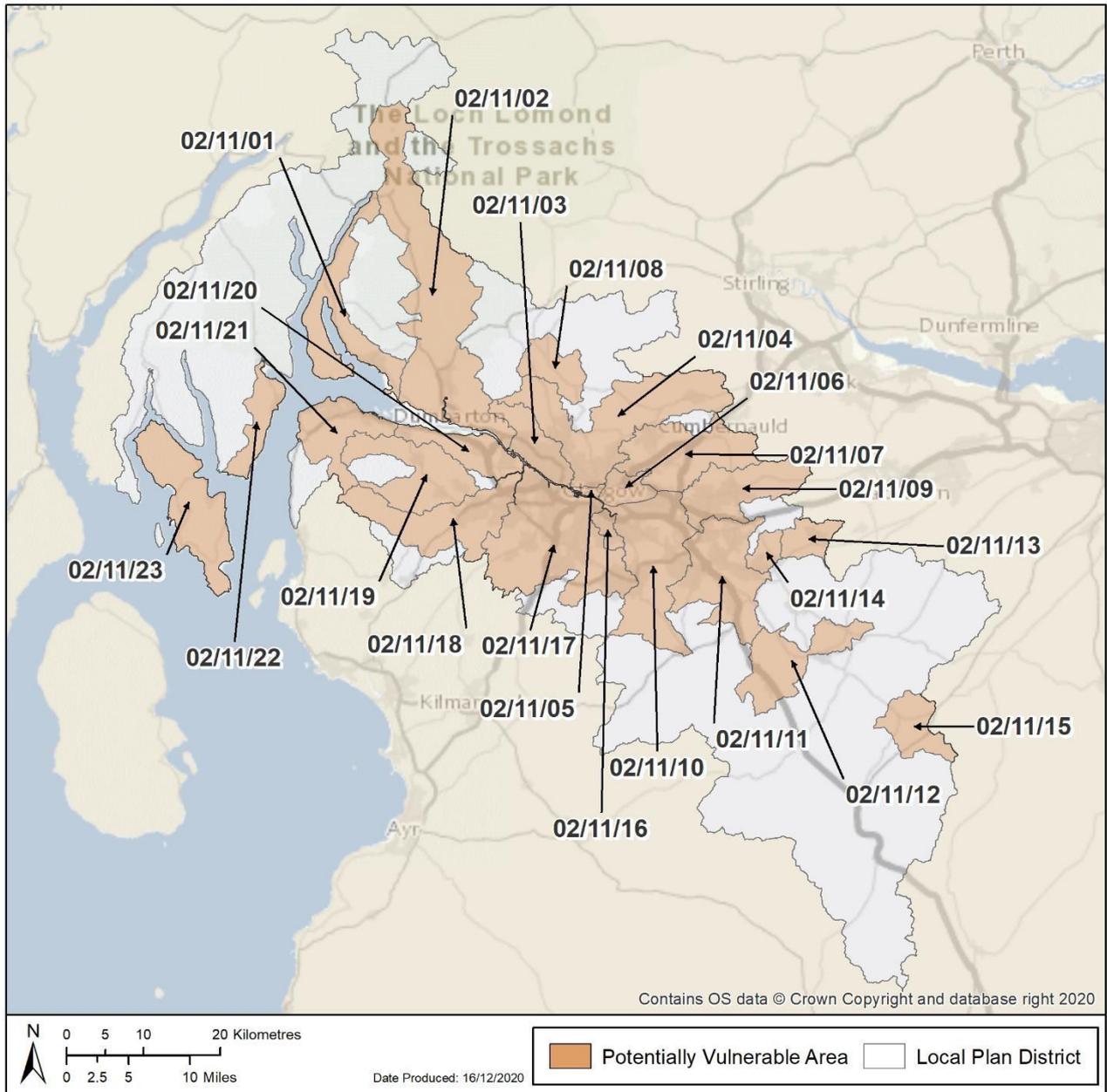
<https://scottishfloodforum.org/>

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.

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

## 2.3 Potentially vulnerable areas

Potentially vulnerable areas (PVA) were designated in 2018 based on the potential current or future risk from all sources of flooding. This designation was informed by the national flood risk assessment (available to view at: <https://www.sepa.org.uk/data-visualisation/nfra2018/>). As part of continued analysis of flood risk, the national flood risk assessment and potentially vulnerable areas (PVA) will be reviewed every 6 years to take on board any new information. There are 23 potentially vulnerable areas (PVA) in this Local Plan District. Following sections provide more information on these areas.



**Figure 1. Potentially vulnerable areas in Clyde and Loch Lomond Local Plan District**

## LPD 11 Clyde and Loch Lomond – List of PVAs

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

PVA Ref	PVA Name	Local authority area	Page number
02/11/01	<a href="#">Helensburgh to Loch Long</a>	Argyll & Bute	35
02/11/02	<a href="#">Loch Lomond and Vale of Leven</a>	Argyll & Bute, West Dunbartonshire	43
02/11/03	<a href="#">Yoker catchment - Clydebank to Partick</a>	Glasgow City, West Dunbartonshire	59
02/11/04	<a href="#">River Kelvin</a>	East Dunbartonshire, Glasgow City, North Lanarkshire	72
02/11/05	<a href="#">Glasgow City Centre</a>	Glasgow City	103
02/11/06	<a href="#">Glasgow City North</a>	Glasgow City	110
02/11/07	<a href="#">Luggie Water catchment</a>	East Dunbartonshire, North Lanarkshire	122
02/11/08	<a href="#">Strathblane</a>	Stirling	134
02/11/09	<a href="#">Coatbridge and Airdrie</a>	North Lanarkshire	137
02/11/10	<a href="#">East of Glasgow to Strathaven</a>	Glasgow City, South Lanarkshire	147
02/11/11	<a href="#">Clyde catchment - Motherwell to Larkhall</a>	North Lanarkshire, South Lanarkshire	173
02/11/12	<a href="#">Clyde catchment - Lanark to Lesmahagow</a>	South Lanarkshire	190
02/11/13	<a href="#">Shotts</a>	North Lanarkshire	197
02/11/14	<a href="#">North of Wishaw</a>	North Lanarkshire	200
02/11/15	<a href="#">Symington and Coulter</a>	South Lanarkshire	203
02/11/16	<a href="#">Rutherglen</a>	Glasgow City, South Lanarkshire	208
02/11/17	<a href="#">White Cart Water catchment</a>	East Renfrewshire, Glasgow City, Renfrewshire, South Lanarkshire	219
02/11/18	<a href="#">Black Cart Water catchment - Lochwinnoch to Johnstone</a>	Renfrewshire	256

<b>PVA Ref</b>	<b>PVA name</b>	<b>Local authority area</b>	<b>Page number</b>
02/11/19	<a href="#">Gryfe catchment</a>	Inverclyde, Renfrewshire	270
02/11/20	<a href="#">Clyde South and Bishopton</a>	Inverclyde, Renfrewshire	280
02/11/21	<a href="#">Greenock and Gourock</a>	Inverclyde	290
02/11/22	<a href="#">Dunoon</a>	Argyll & Bute	302
02/11/23	<a href="#">Isle of Bute</a>	Argyll & Bute	309

## 02/11/01 (Helensburgh to Loch Long)

This area is designated as a potentially vulnerable area due to flood risk to Garelochhead, Helensburgh and Kilcreggan. There is flooding from coastal, river and surface water. Recent flooding occurred in December 2019 due to coastal and surface water flooding.

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

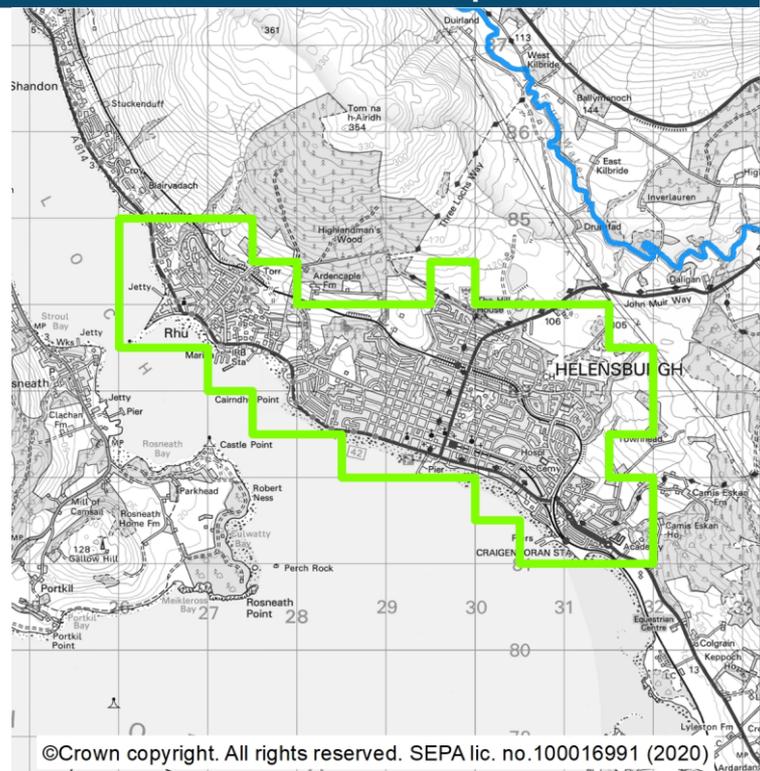
### List of target areas

Helensburgh	(target area 26)
Kilcreggan	(target area 67)
Garelochhead	(target area 111)

### Summary

Helensburgh and Rhu are located on the east shore of Gare Loch and are found within the Argyll and Bute Council area. The main source of flooding in Helensburgh is coastal flooding, however there is also a risk from surface water flooding. The methodology for the national surface water flood maps is known to underestimate the risk in Helensburgh. There are approximately 270 people and 170 homes and businesses currently at risk of flooding. This is likely to increase to 740 people and 480 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 development of the Helensburgh Coastal Flood Protection Study (2019) which covered the areas of Helensburgh, Craigen and Rhu. The understanding of surface water flooding is improved by a sewer flood risk assessment. There is a long history of periodic coastal flooding in Helensburgh, including notable flooding in January 2014 as a result of high tides, a storm surge and persistent rainfall. There are also records of surface water flooding including flooding in November 2006.

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:

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
261	Avoid flood risk	Avoid inappropriate development that increases flood risk in Helensburgh
262	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Helensburgh
263	Reduce flood risk	Reduce the risk of coastal flooding in Helensburgh
264	Reduce flood risk	Reduce the risk of flooding from surface water and small watercourses in Helensburgh

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

<b>Property flood resilience scheme (Ref: 2601)</b>	
<b>Action</b>	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.
<b>Description</b>	As part of the Helensburgh Flood Protection Scheme property flood resilience and resistance measures will be implemented.
<b>Shoreline management plan (coastal adaptive plan) (Ref: 2602)</b>	
<b>Action</b>	An assessment of coastal flood and erosion risk is to be carried out. 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.
<b>Description</b>	Progress the development of the shoreline management plan for the Argyll and Bute coastline.
<b>Strategic mapping improvements (Ref: 2603)</b>	
<b>Action</b>	SEPA will continue to update flood maps based on new information.
<b>Description</b>	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.
<b>Sewer flood risk assessment (Ref: 2604)</b>	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Helensburgh 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.

### Surface water management plan (Ref: 2605)

<b>Action</b>	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.
<b>Description</b>	Develop and implement a surface water management plan to reduce the risk of flooding from surface water and small watercourses in Helensburgh. The impacts of climate change on flood risk should be assessed. The results of the sewer flood risk assessment should be considered. Opportunities to disconnect surface water from the sewerage system should be identified. The surface water management plan should be reviewed and updated regularly.

### Flood warning maintenance (Ref: 2606)

<b>Action</b>	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
<b>Description</b>	SEPA should maintain the Firth of Clyde coastal flood warning scheme.

### 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: 2607)

<b>Action</b>	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.
<b>Description</b>	<p>Develop the detailed design of the flood protection scheme in Helensburgh based on the preferred option from the flood study. The preferred option consists of an initial cycle of property flood resistance and resilience measures followed by construction of new revetments, as well as set-back walls.</p> <p>The responsible authority proposes this action as the best viable option for managing flood risk in this community. The delivery of this action is subject to capital funding being made available.</p>

### Community engagement (Ref: 2608)

<b>Action</b>	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
<b>Description</b>	The responsible authorities to continue to engage with the community, with particular focus on the detailed design of the flood protection scheme.

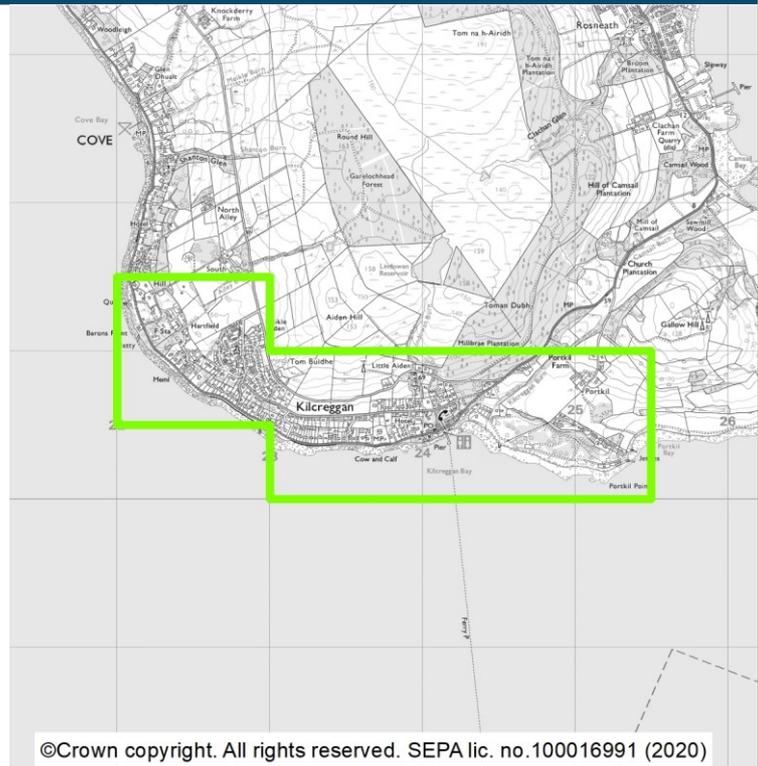
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, 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.

## Kilcreggan (target area 67)

### Summary

Kilcreggan is located on the Rosneath Peninsula and is within the Argyll and Bute Council area. The main source of flooding in Kilcreggan is surface water flooding. The methodology for the national surface water flood maps is known to underestimate the risk in Kilcreggan. It estimates that there are approximately 10 people and 9 homes and businesses currently at risk of flooding. This is likely to increase to 20 people and 10 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 development of the Kilcreggan Surface Water Management Plan (2019) and a sewer flood risk assessment. There are periodic records of surface water flooding in Kilcreggan which includes recent flooding in December 2019.

### 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
671	Avoid flood risk	Avoid inappropriate development that increases flood risk in Kilcreggan
672	Prepare for flooding	Prepare for current flood risk an future flooding as a result of climate change in Kilcreggan
673	Reduce flood risk	Reduce the risk of surface water flooding Kilcreggan

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Flood scheme or works implementation (Ref: 6701)	
<b>Action</b>	The flood scheme/works is to be built following agreement of the design, costs and timescales.
<b>Description</b>	Progress the flood works based on the detailed design. The works involve refurbishment of an existing surface water channel and a new pipe network which discharges to a watercourse.  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.

Surface water management plan (Ref: 6702)	
<b>Action</b>	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system have been identified. Next steps in managing such water ponding or over-whelmed drainage systems have been identified and should be implemented. The plan is to be reviewed and updated as needed.
<b>Description</b>	Implement the surface water management plan. The plan should be reviewed and updated regularly.

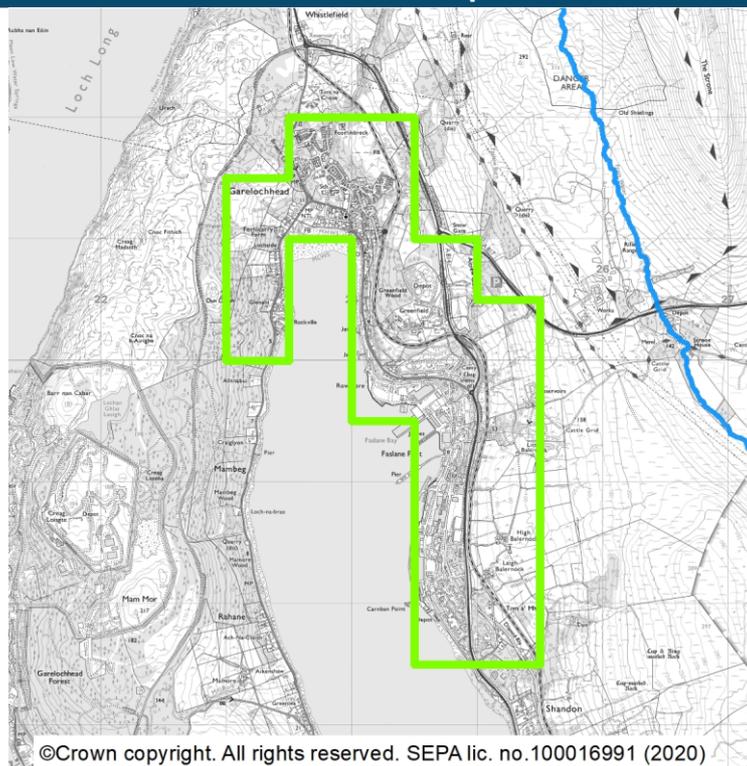
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, 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.

## Garelochhead (target area 111)

### Summary

Garelochhead is located along the northern and eastern shores of Gare Loch in the Argyll and Bute Council area. The main source of flooding in Garelochhead is coastal flooding. There are approximately 110 people and 90 homes and businesses currently at risk of flooding. This is likely to increase to 130 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, and this national assessment has highlighted the risk of flooding in this target area. There is a long history of coastal flooding recorded in Garelochhead. Notable flooding was recorded in January 2014 and November 2020 when the tidal section of the McAulay Burn flooded.

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.

to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
1111	Avoid flood risk	Avoid inappropriate development that increases flood risk in Garelochhead
1112	Improve data and understanding	Improve data and understanding of the risk of coastal flooding in Garelochhead
1113	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Garelochhead

## What actions are proposed for this area?

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

### Actions proposed to start between 2022 and 2028

Flood study (Ref: 11101)	
<b>Action</b>	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. 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.
<b>Description</b>	A flood study should be carried out to improve understanding of coastal flood risk in Garelochhead. The interactivity between coastal and other sources of 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. Data collection may also be included.
Shoreline management plan (coastal adaptive plan) (Ref: 11102)	
<b>Action</b>	An assessment of coastal flood and erosion risk is to be carried out. 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.
<b>Description</b>	Progress the development of the shoreline management plan for the Argyll and Bute coastline.
Strategic mapping improvements (Ref: 11103)	
<b>Action</b>	SEPA will continue to update flood maps based on new information.
<b>Description</b>	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.

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

## 02/11/02 (Loch Lomond and Vale of Leven)

This area is designated as a potentially vulnerable area due to flood risk to a number of communities. Some of these include Balloch, Bowling, Cardross, Dumbarton, Old Kilpatrick and communities within the Vale of Leven. There is flooding from river, coastal and surface water. There is a flood protection scheme on the Knowle Burn in Dumbarton. There is a long history of flooding, with recent floods being caused by coastal, river and surface water.

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

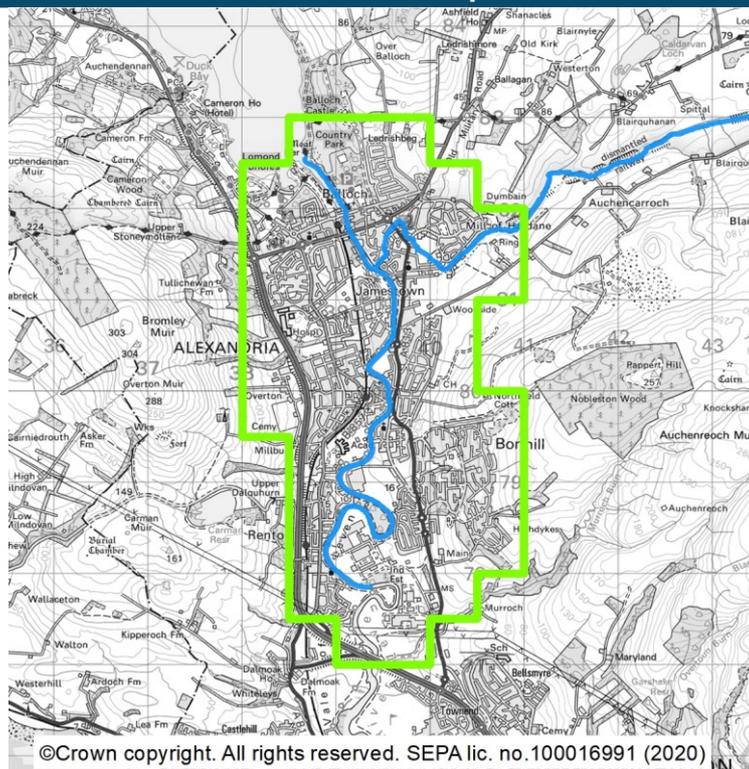
### List of target areas

Vale of Leven	(target area 2)
Bowling	(target area 7)
Old Kilpatrick	(target area 53)
Dumbarton	(target area 61)
Cardross	(target area 105)

### Summary

The Vale of Leven is an area from the southern extent of Loch Lomond to north of Dumbarton and includes Balloch, Alexandria and Renton. The area is located within the West Dunbartonshire Council area. The main sources of flooding are river and surface water flooding, however there is also a risk of coastal flooding. There are approximately 3,300 people at risk from flooding and approximately 2,000 homes and businesses. This is likely to increase to 4,200 people and 2,500 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 river and coastal flood risk by the Loch Lomond and Vale of Leven Flood Risk Management Study (2019), improved for river and surface water flood risk by an ongoing natural flood management study and for surface water flood risk by a 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
21	Avoid flood risk	Avoid inappropriate development that increases flood risk in the Vale of Leven
22	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in the Vale of Leven
23	Reduce flood risk	Reduce the risk of flooding in the Vale of Leven

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

<b>Flood scheme or works design (Ref: 201)</b>	
<b>Action</b>	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.
<b>Description</b>	West Dunbartonshire Council to develop the Vale of Leven Flood Protection Scheme based on the preferred options from the flood study. The preferred options consist of direct defences, relocation, improving conveyance and property level protection and resilience. 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.  In accordance with the flood risk management plan, as part of the scheme or works, the responsible authority should aim to ensure the action will not have an adverse effect on the integrity of the Endrick Water Special Area of Conservation and the Inner Clyde Special Protection Area and Ramsar site.
<b>Community engagement (Ref: 202)</b>	
<b>Action</b>	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
<b>Description</b>	Detailed design for the Vale of Leven Flood Protection Scheme 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.
<b>Sewer flood risk assessment (Ref: 203)</b>	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Ardoch 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.

**Surface water management plan (Ref: 204)****Action**

Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.

**Description**

West Dunbartonshire Council to develop a surface water management plan working with Scottish Water as appropriate, to gain an understanding of the hotspots of flooding and potential interaction with coastal and river flooding. The impacts of climate change on flood risk should be assessed. The plan should be reviewed and updated regularly.

**Flood warning maintenance (Ref: 205)****Action**

The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.

**Description**

SEPA should maintain the Loch Lomond and River Leven flood warning scheme.

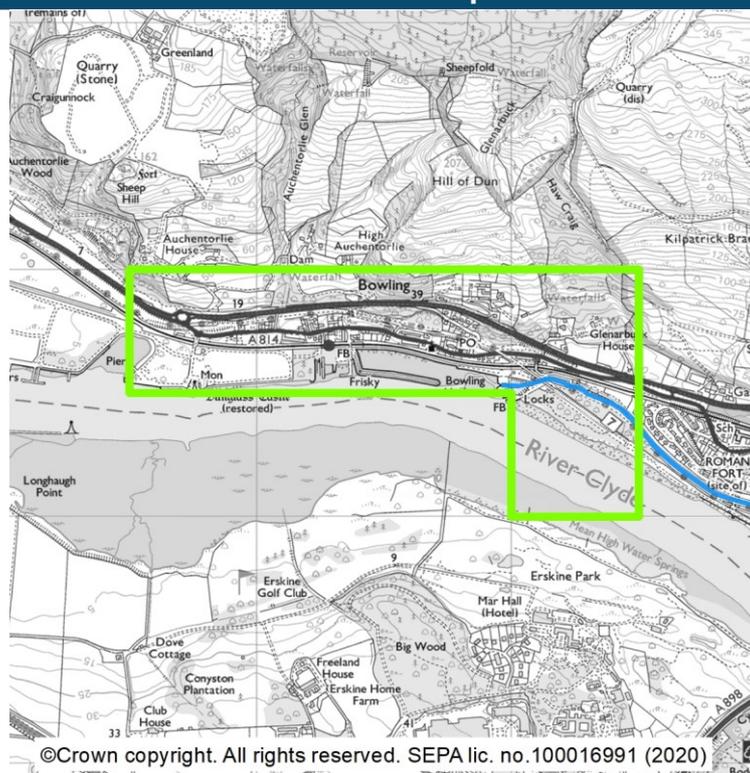
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, 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.

## Bowling (target area 7)

### Summary

Bowling lies on the banks of the River Clyde and is located within the West Dunbartonshire Council area. The main source of flooding in the area is surface water flooding, however there is also a risk from coastal flooding. There are approximately 220 people at risk from flooding and approximately 110 homes and businesses, which is a significant proportion of the community. This is likely to increase to 280 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. Bowling 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
71	Avoid flood risk	Avoid inappropriate development that increases flood risk in Bowling
72	Improve data and understanding	Improve data and understanding of coastal and surface water flooding in Bowling

## What actions are proposed for this area?

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

### Actions proposed to start between 2022 and 2028

Data collection (Ref: 701)	
Action	Equipment that measures rainfall, river levels, erosion, ground levels or wave height may be installed and maintained to improve our understanding of flood risk. This can be done over short term or to measure longer term impacts.
Description	Data collection and monitoring may be required to improve the confidence in flood sources, mechanisms and risk.
Strategic mapping improvements (Ref: 702)	
Action	SEPA will continue to update flood maps based on new information.
Description	SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.

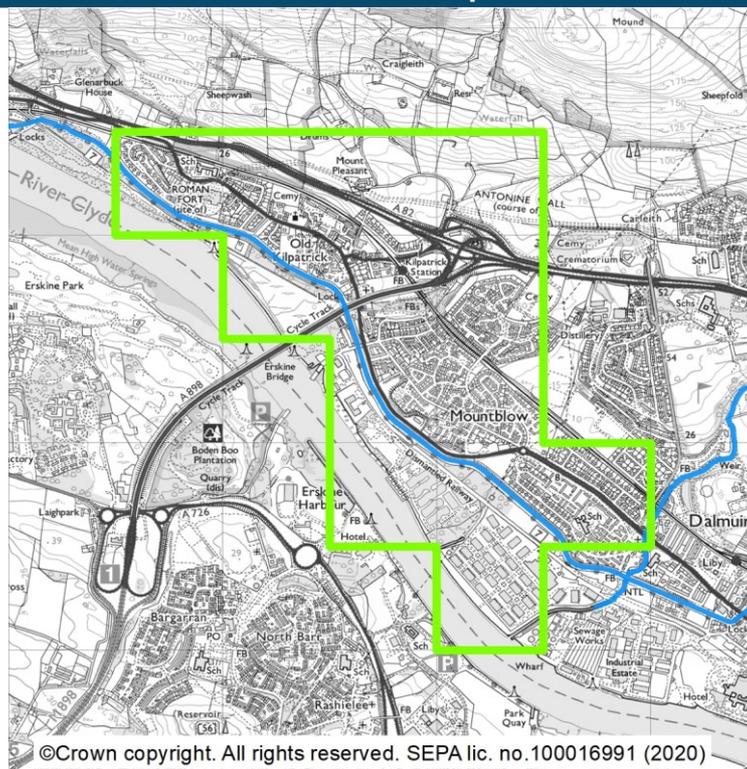
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, 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.

## Old Kilpatrick (target area 53)

### Summary

Old Kilpatrick is located north-west of Glasgow on the River Clyde. The area is within West Dunbartonshire Council area. The main source of flooding in Old Kilpatrick is surface water flooding, however there is also a risk of coastal flooding. There are approximately 990 people at risk from flooding and approximately 530 homes and businesses. This is estimated to increase to 1,200 people and 640 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 flood risk by a sewer flood risk assessment. 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
531	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
532	Improve data and understanding	Improve data and understanding of coastal flooding in this target area
533	Prepare for flooding	Prepare for future flooding and future flood risk as a result of climate change in this target area
534	Reduce flood risk	Reduce the risk of surface water flooding in this target area

## What actions are proposed for this area?

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

### Actions proposed to start between 2022 and 2028

Data collection (Ref: 5301)	
Action	Equipment that measures rainfall, river levels, erosion, ground levels or wave height may be installed and maintained to improve our understanding of flood risk. This can be done over short term or to measure longer term impacts.
Description	West Dunbartonshire Council to start data collection to improve understanding of coastal flood risk. A review may be required to assess the need for tidal gauges. Post flood event surveys may be required to collect data on flooding mechanisms, risk and damage caused.

Strategic mapping improvements (Ref: 5302)	
Action	SEPA will continue to update flood maps based on new information.
Description	SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.

Sewer flood risk assessment (Ref: 5303)	
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Description	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Dalmuir 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.

### 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: 5304)	
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Description	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.

**Surface water management plan (Ref: 5305)**

<b>Action</b>	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.
<b>Description</b>	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.

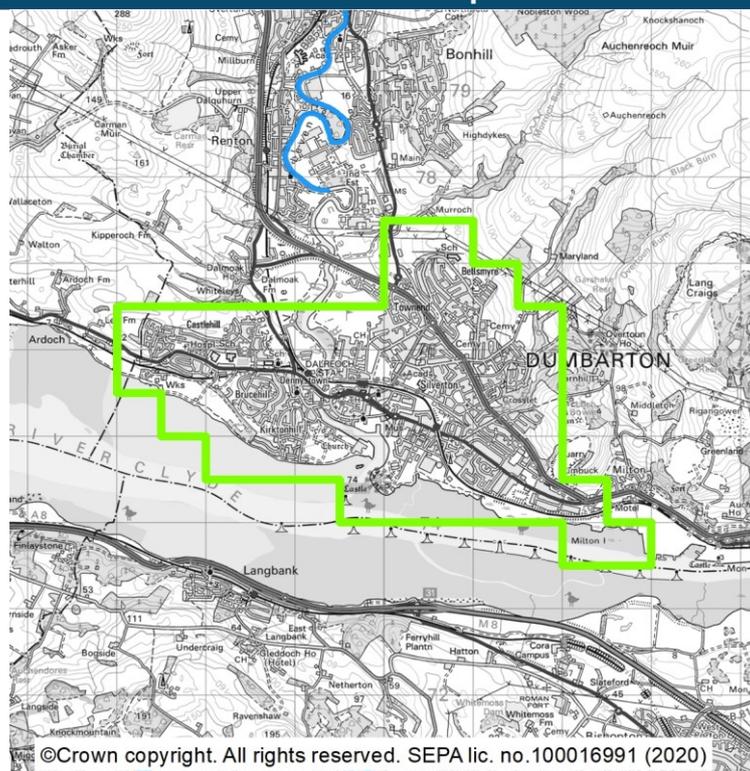
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places,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

## Dumbarton (target area 61)

### Summary

Dumbarton is located on the north bank of the River Clyde and is within West Dunbartonshire local authority area. The main source of flooding in Dumbarton is river and coastal flooding however, there is also risk from surface water flooding. There are approximately 5,200 people at risk from flooding and approximately 3,100 homes and businesses. This is estimated to increase to 6,200 people and 3,600 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 river and coastal flood risk by the Loch Lomond and Vale of Leven Flood Risk Management Study (2019) and improved for surface water flood risk by a sewer flood risk assessment. Understanding is also improved for river and coastal flooding by the flood warning schemes. 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
611	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of Knowle Burn Flood Protection Scheme 2007
612	Avoid flood risk	Avoid inappropriate development that increases flood risk in Dumbarton
613	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Dumbarton
614	Reduce flood risk	Reduce the risk of flooding in Dumbarton

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Flood scheme or works design (Ref: 6101)	
Action	The selected preferred approach for managing flood risk is to be designed following the completion of the flood study, including consideration of the long-term impacts of climate change. These can include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	<p>West Dunbartonshire Council to develop the Dumbarton (Vale of Leven) Flood Protection Scheme based on the preferred option from The Loch Lomond and Vale of Leven Flood Risk Management Study (2019). The preferred option in Dumbarton consists of direct defences and property level protection and resilience. Relocation is also to be considered.</p> <p>The responsible authority proposes this action as the best viable option for managing flood risk in this community. The delivery of this action is subject to capital funding being made available.</p> <p>In accordance with the flood risk management plan, as part of the scheme or works, the responsible authority should aim to ensure the action will not have an adverse effect on the integrity of the Endrick Water Special Area of Conservation and the Inner Clyde Special Protection Area and Ramsar Site.</p>

Community engagement (Ref: 6102)	
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	Detailed design for the Dumbarton (Vale of Leven) Flood Protection Scheme 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.

### Flood scheme or works design (Ref: 6103)

<b>Action</b>	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.
<b>Description</b>	West Dunbartonshire Council to continue developing the Gruggies Burn Flood Protection Scheme. An adaptation plan should be developed as part of the detailed design. The preferred option is to maximise upstream flood storage and construct defences from Hunter's Burn to Castle Street, and downstream of Castlegreen Street to address coastal flooding. Property level protection within the scheme will also be considered.

### Flood scheme or works implementation (Ref: 6104)

<b>Action</b>	The flood scheme/works is to be built following agreement of the design, costs and timescales.
<b>Description</b>	West Dunbartonshire Council have procured a contractor to appraise the optional designs for the Gruggies Burn Flood Protection Scheme.

### Community engagement (Ref: 6105)

<b>Action</b>	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
<b>Description</b>	Detailed design for the Gruggies Burn Flood Protection Scheme 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.

### Flood study (existing flood defences) (Ref: 6106)

<b>Action</b>	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.
<b>Description</b>	West Dunbartonshire Council to develop an adaptation plan for the Knowles Burn Flood Protection Scheme (2007), following on the outputs from the Vale of Leven flood study on the present performance of the Knowles Burn Flood Protection Scheme (2007).

### Sewer flood risk assessment (Ref: 6107)

<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Ardoch 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.

**Surface water management plan (Ref: 6108)**

<b>Action</b>	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.
<b>Description</b>	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. West Dunbartonshire Council to develop a surface water management plan working with Scottish Water as appropriate, to gain an understanding of the hotspots of flooding and potential interaction with coastal and river flooding. The impacts of climate change on flood risk should be assessed. The plan should be reviewed and updated regularly.

**Flood defence maintenance (Ref: 6109)**

<b>Action</b>	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
<b>Description</b>	Maintenance of the Knowles Burn Flood Protection Scheme (2007)

**Flood warning maintenance (Ref: 6110)**

<b>Action</b>	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
<b>Description</b>	SEPA should maintain the Firth of Clyde coastal flood warning scheme.

**Strategic mapping improvements (Ref: 6111)**

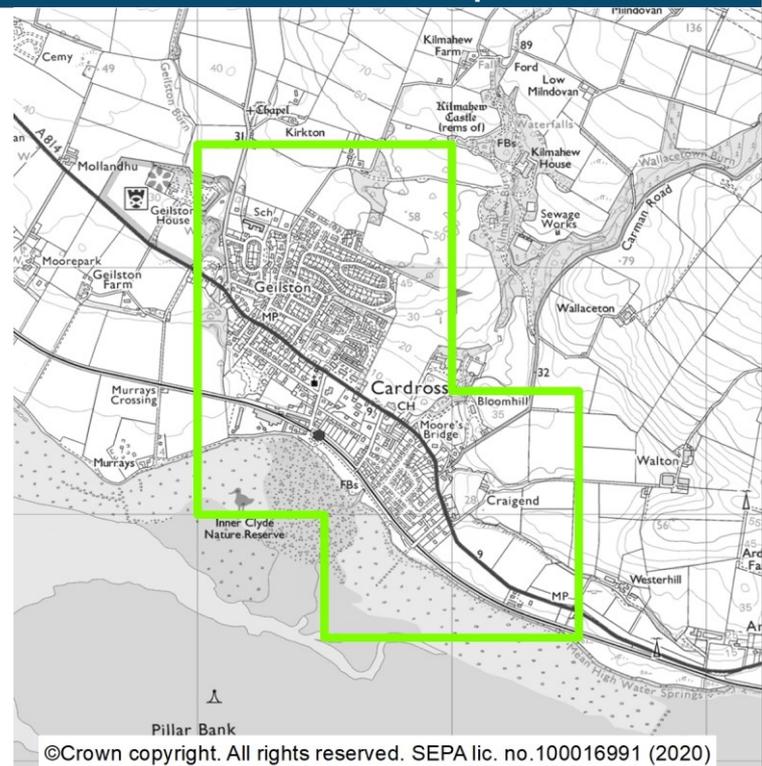
<b>Action</b>	SEPA will continue to update flood maps based on new information.
<b>Description</b>	SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.

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.

### Summary

The village of Cardross lies on the north side of the Firth of Clyde within the Argyll and Bute Council area. The main source of flooding is surface water, however there are also risk of river and coastal flooding. There are approximately 330 people and 180 homes and businesses at risk from flooding. This is likely to increase to 420 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, and this national assessment has highlighted the risk of flooding in this target area. There are frequent records of surface water flooding in Cardross with flooding of the A814 and around Cedarwood Court particularly frequent. There are also records of coastal and river flooding.

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.

to deliver multiple outcomes.

Objective ref	Objective type	Objective Description
1051	Avoid flood risk	Avoid inappropriate development that increases flood risk in Cardross
1052	Improve data and understanding	Improve data and understanding of the risk of coastal, river and surface water flooding in Cardross
1053	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Cardross

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Flood study (Ref: 10501)	
<b>Action</b>	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. 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.
<b>Description</b>	A flood study should be carried out to improve understanding of coastal, river and surface water flood risk in Cardross. The interactivity between sources of 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. Data collection may also be included. Argyll and Bute Council to consider installing rain and river monitors on Kilmahew Burn.
Shoreline management plan (coastal adaptive plan) (Ref: 10502)	
<b>Action</b>	An assessment of coastal flood and erosion risk is to be carried out. 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.
<b>Description</b>	Progress the development of the shoreline management plan for the Argyll and Bute coastline.
Strategic mapping improvements (Ref: 10503)	
<b>Action</b>	SEPA will continue to update flood maps based on new information.
<b>Description</b>	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.
Sewer flood risk assessment (Ref: 10504)	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Ardoch 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.

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

## 02/11/03 (Yoker catchment - Clydebank to Partick)

This area is designated as a potentially vulnerable area due to the flood risk to a number of communities. Some of these include Clydebank, Glasgow west end, Yoker and Drumchapel districts of Glasgow. There is flooding from river, coastal and surface water. Recent floods have been caused by surface water flooding.

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

### List of target areas

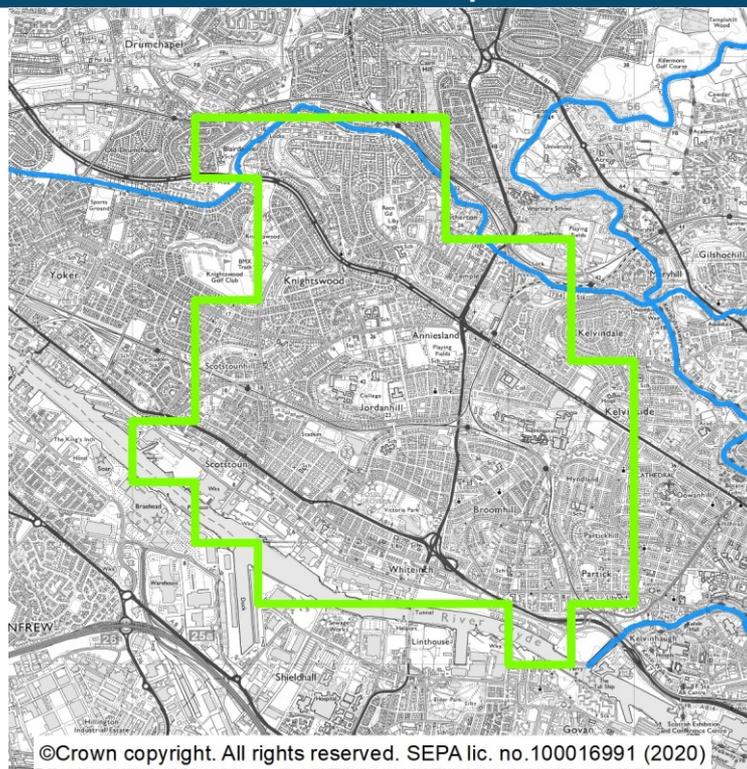
Glasgow west end	(target area 50)
Yoker	(target area 51)
Drumchapel	(target area 52)
Clydebank	(target area 54)
Duntocher and Hardgate	(target area 62)

## Glasgow west end (target area 50)

### Summary

Glasgow West End is primarily within the Glasgow City Council area. The main source of flooding in Glasgow West End is coastal flooding (tidal Clyde), however there are also risks from river and surface water. There are approximately 9,800 people at risk of flooding and approximately 5,100 homes and businesses. This is likely to increase to 12,000 people and 6,100 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. The national level assessment is improved for coastal flooding by the tidal Clyde model update (2020) and surface water flooding by the surface water management plan (High Knightswood area) and sewer flood risk assessment. There are recent records of surface water flooding in this target area, notably in August 2021 when intense rainfall resulted in surface water flooding.

## 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
501	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
502	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of surface water management measures
503	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
504	Reduce flood risk	Reduce the risk of flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Flood scheme or works implementation (Ref: 5001)	
Action	The flood scheme/works is to be built following agreement of the design, costs and timescales.
Description	Review surface water management measures identified for High Knightswood and develop a programme to take forward key recommendations where funding permits.

Flood study (Ref: 5002)	
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Description	Glasgow City Council and South Lanarkshire Council to develop an updated full flood model of the River Clyde following the outputs from the tidal Clyde and River Clyde models. The tidal Clyde model update outputs will be used to develop a programme to take forward key recommendations where funding permits.

Sewer flood risk assessment (Ref: 5003)	
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Description	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Dalmuir 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.

Surface water management plan (Ref: 5004)	
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	Glasgow City Council to develop a surface water management plan in Scotstoun, Jordanhill and Whiteinch areas. The outputs of this plan will be used to develop a programme to take forward key recommendations where funding permits.

**Flood warning maintenance (Ref: 5005)****Action**

The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.

**Description**

SEPA should maintain the Firth of Clyde coastal flood warning scheme.

**Strategic mapping improvements (Ref: 5006)****Action**

SEPA will continue to update flood maps based on new information.

**Description**

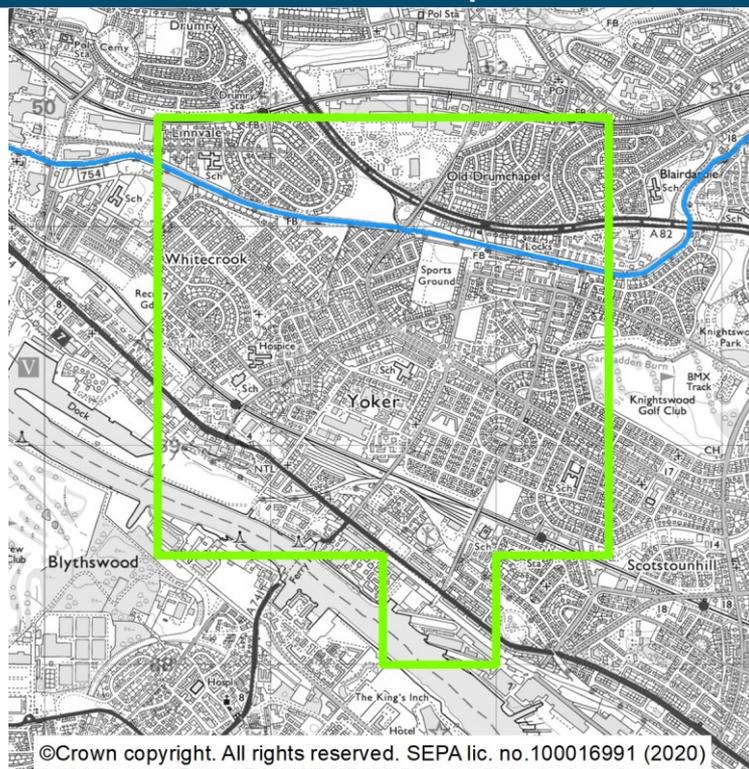
SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.

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.

### Summary

Yoker covers a district of Glasgow 7km west of the city centre. The area is located within the Glasgow City and West Dunbartonshire Council areas. The main sources of flooding in Yoker are river and surface water flooding, however there is also a risk from coastal flooding. There are approximately 5,300 people and 2,700 homes and businesses currently at risk of flooding. This is likely to increase to 6,500 people and 3,300 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 by the Yoker natural flood management study (2017) and for surface water by the surface water management plan (Yokerman area) and sewer flood risk assessment. There is also improved understanding for coastal flooding by the tidal Clyde model update (2020). There are recent records of surface water flooding in this target area, notably in August 2021 when intense rainfall resulted in surface water flooding.

### 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
511	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
512	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of the Yoker Burn Flood Protection Scheme and other flood defences in this target area
513	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
514	Reduce flood risk	Reduce the risk of flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

<b>Flood scheme or works design (Ref: 5101)</b>	
<b>Action</b>	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.
<b>Description</b>	<p>Detail design for the surface water management plan/natural flood management preferred option from the study to be developed. Preferred option includes instream structures, offline storage ponds, riparian catchment woodland creation, overland sediment traps, non-floodplain wetlands, and floodplain restoration with floodplain planting. The outputs of the surface water catchment plan on the performance of the Yoker Burn Flood Protection Scheme should be included in the adaptation plan for this area.</p> <p>The responsible authority proposes this action as the best viable option for managing flood risk in this community. The delivery of this action is subject to capital funding being made available.</p>
<b>Community engagement (Ref: 5102)</b>	
<b>Action</b>	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
<b>Description</b>	Detailed design for surface water management options 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.
<b>Flood study (Ref: 5103)</b>	
<b>Action</b>	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.
<b>Description</b>	Glasgow City Council and South Lanarkshire Council to develop an updated full flood model of the River Clyde following the outputs from the tidal Clyde and River Clyde models. The tidal Clyde model update outputs will be used to develop a programme to take forward key recommendations where funding permits.

**Sewer flood risk assessment (Ref: 5104)**

<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Dalmuir 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.

**Flood defence maintenance (Ref: 5105)**

<b>Action</b>	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
<b>Description</b>	Maintenance to the Yoker Burn Flood Protection Scheme should continue and updates to the maintenance regime be made based on the findings of the flood study.

**Flood warning maintenance (Ref: 5106)**

<b>Action</b>	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
<b>Description</b>	SEPA should maintain the Firth of Clyde coastal flood warning scheme.

**Strategic mapping improvements (Ref: 5107)**

<b>Action</b>	SEPA will continue to update flood maps based on new information.
<b>Description</b>	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.

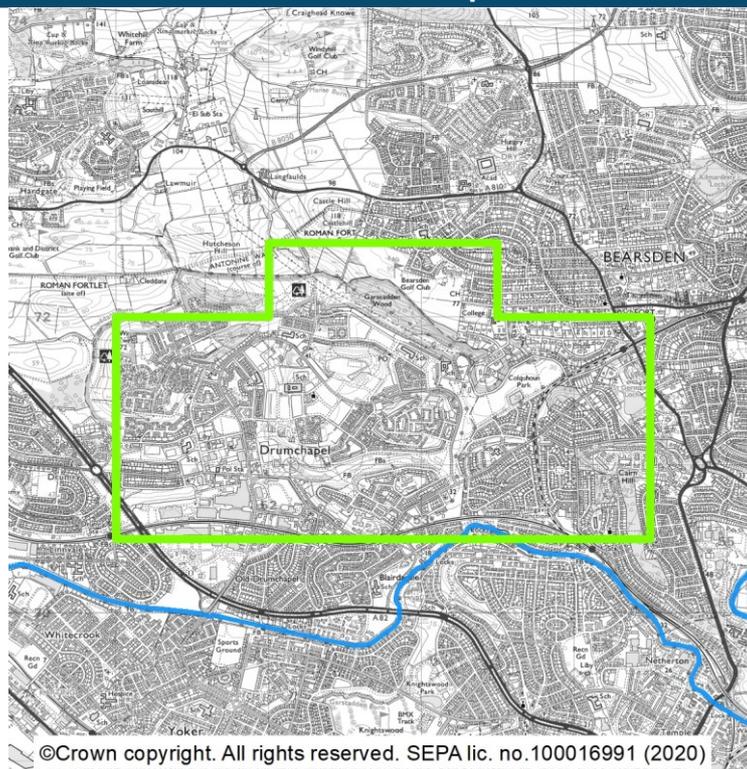
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, 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.

## Drumchapel (target area 52)

### Summary

Drumchapel is in north western Glasgow and located within the East Dunbartonshire and Glasgow City Council areas. The main source of flooding in Drumchapel is surface water flooding, however there is also a risk of river flooding. There are approximately 3,200 people and 1,700 homes and businesses currently at risk of flooding. This is likely to increase to 3,510 people and 1,800 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 and river by the natural flood management study, surface water management plan and sewer flood risk assessment. 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
521	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
522	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of surface water management measures
523	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
524	Reduce flood risk	Reduce the risk of flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

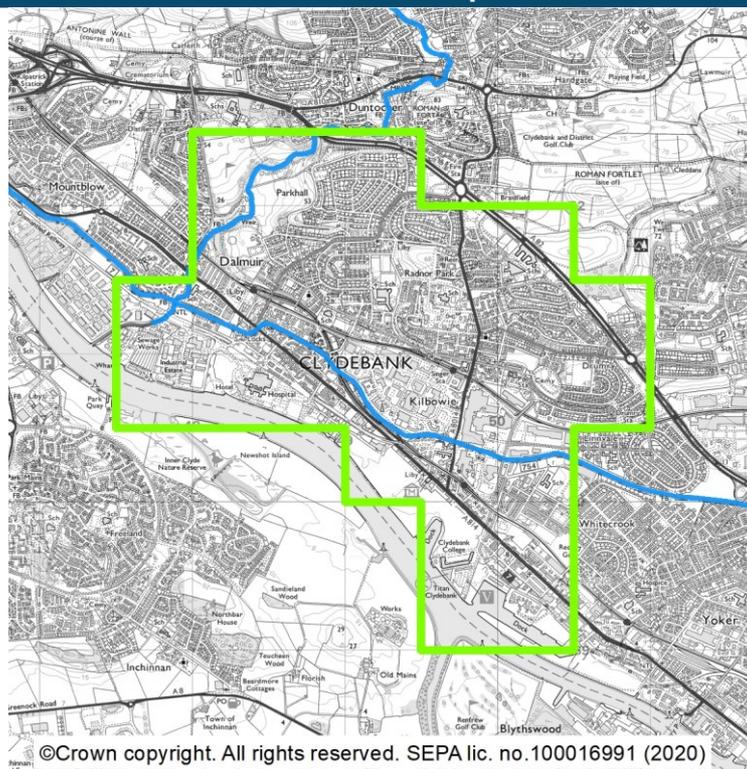
Flood scheme or works design (Ref: 5201)	
Action	The selected preferred approach for managing flood risk is to be designed following the completion of the flood study, including consideration of the long-term impacts of climate change. These can include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	Glasgow City Council to complete the Drumchapel surface water management preferred option detail design for Phase 2 of the works. The detail design outputs will be used to develop a programme to take forward key recommendations where funding permits.
Community engagement (Ref: 5202)	
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	Detailed design for surface water management options 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.
Sewer flood risk assessment (Ref: 5203)	
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Description	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Dalmuir 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.

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.

### Summary

Clydebank is located on the River Clyde within the West Dunbartonshire local authority area. Small parts are covered by Renfrewshire and Glasgow City Councils. The main source of flooding in Clydebank is surface water flooding, however there is also a river and coastal flood risk from the tidally influenced River Clyde. There are approximately 1,800 people at risk from flooding and approximately 1,200 homes and businesses. This is estimated to increase to 2,700 people and 1,700 homes and businesses by 2080 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 flood risk by a 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
541	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
542	Improve data and understanding	Improve data and understanding of surface water flooding in this target area
543	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Sewer flood risk assessment (Ref: 5401)	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Dalmuir 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.

## 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: 5402)	
<b>Action</b>	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.
<b>Description</b>	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.

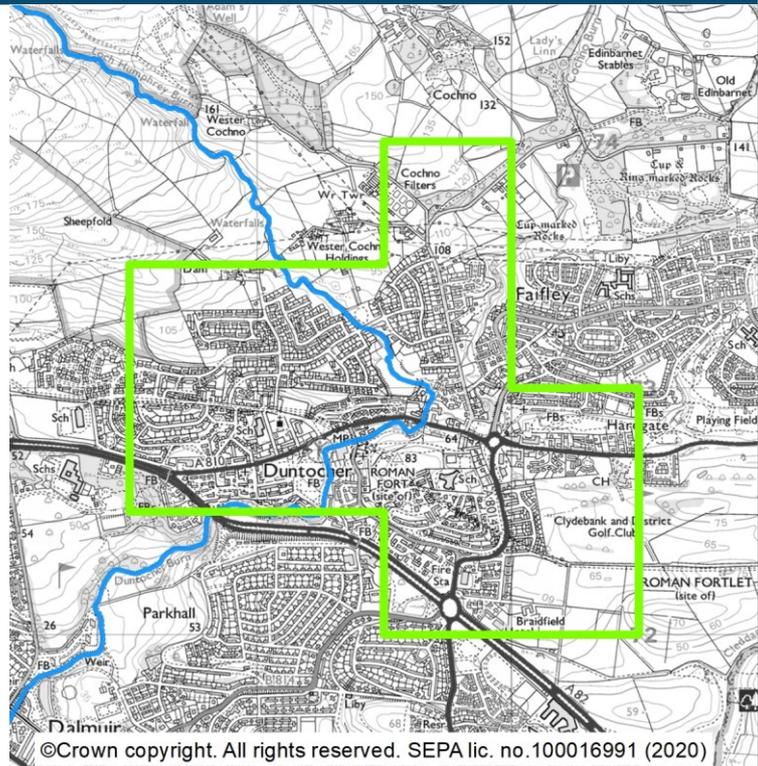
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places,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

## Duntocher and Hardgate (target area 62)

### Summary

Duntocher and Hardgate are 2 villages located west of Glasgow, within West Dunbartonshire local authority area. The main source of flooding in Duntocher and Hardgate is surface water flooding, however there is also a risk of river flooding. There are approximately 310 people and 170 homes and businesses currently at risk from flooding. This is likely to increase to 360 people and 210 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 flood risk by a 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
621	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
622	Improve data and understanding	Improve data and understanding of surface water flooding in this target area
623	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Sewer flood risk assessment (Ref: 6201)	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Dalmeir 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.

## 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: 6202)	
<b>Action</b>	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.
<b>Description</b>	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.

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

## 02/11/04 (River Kelvin)

This area is designated as a potentially vulnerable area due to flood risk to a number of communities. Some of these include Bearsden, Bishopbriggs, Milngavie, Torrance and Balmore. The main sources of flooding are from river and surface water. There is a long history of flooding in the area, with recent floods being caused by surface water and by river flooding.

There are 12 target areas in this potentially vulnerable area, which have been the focus of further assessment, these are listed below. Further information on the objectives and actions to manage flood risk within this area is provided below.

### List of target areas

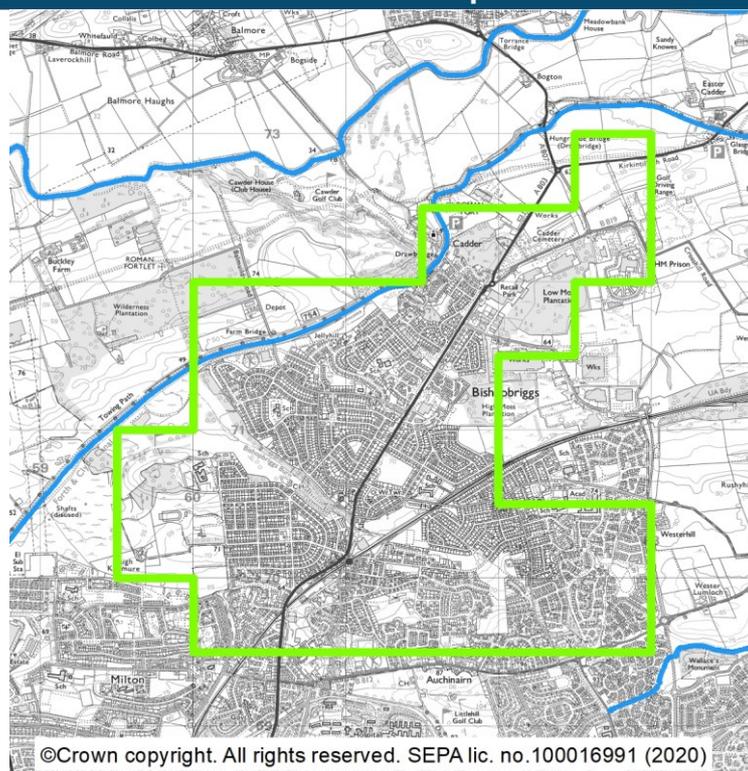
Bishopbriggs west	(target area 4)
Kelvinside	(target area 46)
Kilsyth	(target area 79)
Milngavie	(target area 84)
Queenzieburn	(target area 91)
Lennoxton	(target area 98)
Bearsden	(target area 103)
Kirkintilloch North	(target area 157)
Possil Park	(target area 158)
Milton	(target area 159)
Summerston	(target area 160)
Torrance and Balmore	(target area 81001)

## Bishopbriggs west (target area 4)

### Summary

Bishopbriggs west is a suburb of Glasgow. The area is located within East Dunbartonshire and Glasgow City Council areas. There is a risk of surface water and river flooding in the Bishopbriggs West area. There are approximately 1,200 people at risk from flooding and approximately 720 homes and businesses. This is likely to increase to 1,500 people and 900 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 surface water management plan (2019). There are periodic records of flooding in this target area, most notably in June 2018 when intense summer rainfall brought localised flooding in Bishopbriggs.

### 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
41	Avoid flood risk	Avoid inappropriate development that increases flood risk in Bishopbriggs
42	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Bishopbriggs
43	Reduce flood risk	Reduce the risk of flooding in Bishopbriggs

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

<b>Flood scheme or works design (Ref: 401)</b>	
<b>Action</b>	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.
<b>Description</b>	<p>East Dunbartonshire Council to develop the works identified in the Bishopbriggs (west) surface water management plan to detailed design. The preferred option is comprised of a combination of underground storage, property flood protection, sustainable urban drainage systems retrofit, swales, bunds, and roof disconnection.</p> <p>The responsible authority proposes this action as the best viable option for managing flood risk in this community. The delivery of this action is subject to capital funding being made available.</p>
<b>Flood scheme or works implementation (Ref: 402)</b>	
<b>Action</b>	The flood scheme/works is to be built following agreement of the design, costs and timescales.
<b>Description</b>	<p>East Dunbartonshire Council to develop the works identified in the Bishopbriggs (west) surface water management plan detailed design. The preferred option is comprised of a combination of underground storage, property flood protection, sustainable urban drainage systems retrofit, swales, bunds, and roof disconnection.</p> <p>The responsible authority proposes this action as the best viable option for managing flood risk in this community. The delivery of this action is subject to capital funding being made available.</p>
<b>Community engagement (Ref: 403)</b>	
<b>Action</b>	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
<b>Description</b>	Detailed design for surface water management options 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.

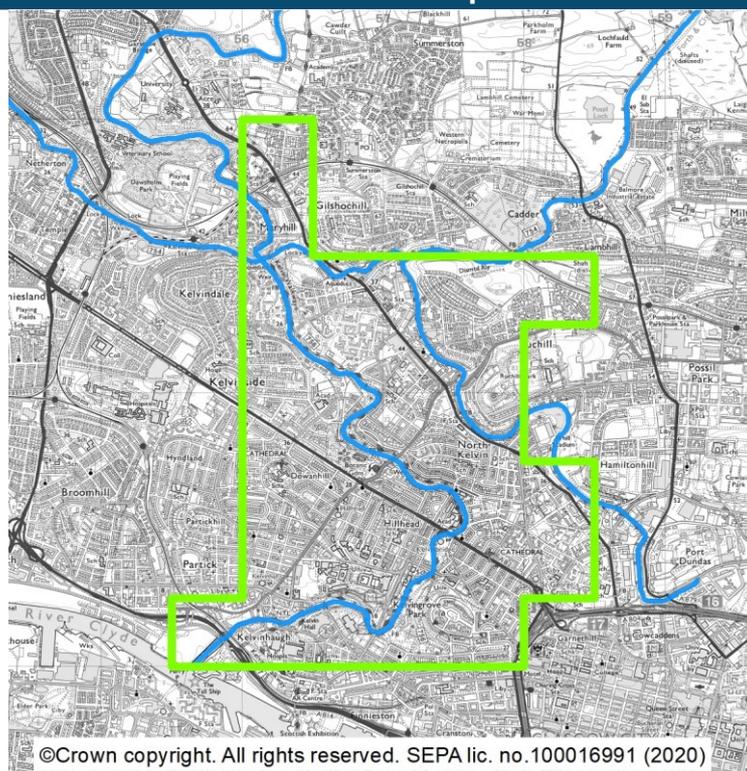
<b>Sewer flood risk assessment (Ref: 404)</b>	
<b>Action</b>	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Dalmarnock 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.

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.

### Summary

Kelvinside is a residential area of north-west Glasgow, including a section of the River Kelvin. The area is located within the Glasgow City Council area. The main source of flooding in Kelvinside is from surface water flooding, however there is also a risk from river flooding. There are approximately 6,700 people and 4,300 homes and businesses currently at risk of flooding. This is likely to increase to 8,800 people and 5,400 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 River Kelvin flood study (2015). There is a long record of flooding in this target area, most notably in December 2015 due to Storm Desmond.

### 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
461	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
462	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
463	Reduce flood risk	Reduce the risk of flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

<b>Flood study (Ref: 4601)</b>	
<b>Action</b>	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.
<b>Description</b>	Glasgow City Council and South Lanarkshire Council to develop an updated full flood model of the River Clyde following the outputs from the tidal Clyde and River Clyde models. The tidal Clyde model update outputs will be used to develop a programme to take forward key recommendations where funding permits.
<b>Flood study (Ref: 4602)</b>	
<b>Action</b>	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.
<b>Description</b>	In coordination with East Dunbartonshire, Glasgow City Council to complete the natural flood management study for their sections of the River Kelvin and tributaries. The study outputs will be used to develop a programme to take forward key recommendations where funding permits.
<b>Sewer flood risk assessment (Ref: 4603)</b>	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Dalmuir 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.
<b>Surface water management plan (Ref: 4604)</b>	
<b>Action</b>	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.
<b>Description</b>	The local flood risk management plans published in December 2022 will establish further detail on the actions.

### Flood warning maintenance (Ref: 4605)

**Action**

The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.

**Description**

SEPA should maintain the River Kelvin flood warning scheme. The scheme should be investigated for improvement and/or recalibration

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

### Coordination with the river basin management plan

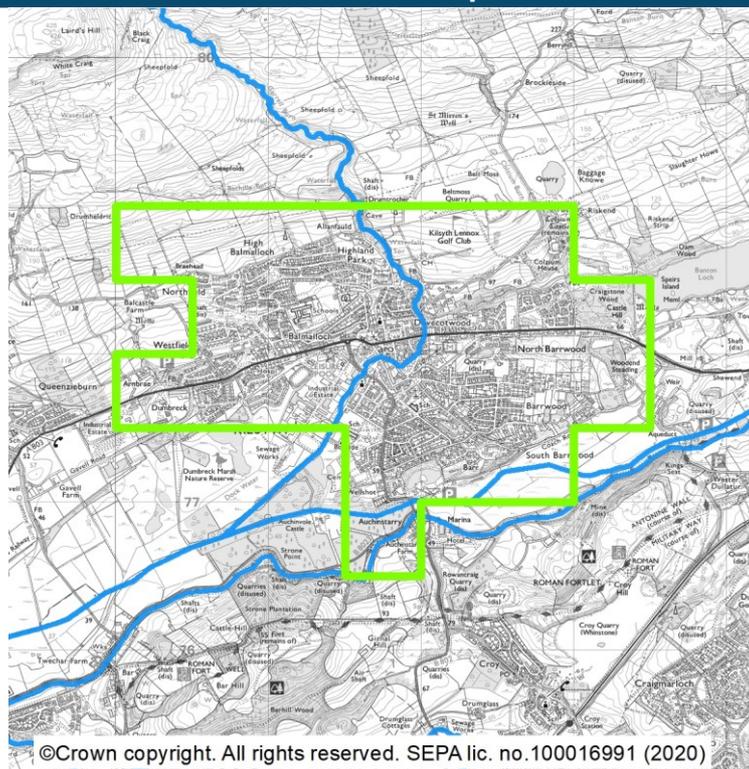
This area has been identified as having potential for restoration in Scotland's river basin management plan. Actions should be coordinated to deliver any potential joint objectives for restoration and flood risk management. This should be considered in the earliest stages of any projects.

## Kilsyth (target area 79)

### Summary

Kilsyth is located halfway between Glasgow and Stirling, within the North Lanarkshire local authority area. The main source of flooding in the Kilsyth is surface water flooding, however, there is also a risk from river flooding. There are approximately 720 people and 410 homes and businesses currently at risk from flooding. This is likely to increase to 840 people and 470 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 flood risk by the Kilsyth Flood Risk Assessment (2011) and Kilsyth Flood Mitigation report (2012). 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
791	Avoid flood risk	Avoid inappropriate development that increases flood risk in Kilsyth
792	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Kilsyth
793	Reduce flood risk	Reduce the risk of flooding in Kilsyth

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

<b>Flood scheme or works design (Ref: 7901)</b>	
<b>Action</b>	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.
<b>Description</b>	North Lanarkshire Council to develop detailed design for Kilsyth 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.
<b>Community engagement (Ref: 7902)</b>	
<b>Action</b>	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
<b>Description</b>	North Lanarkshire Council to carry out community engagement linked to any proposed Kilsyth Flood Protection Scheme. A community engagement plan will be created when the list of options are fully reviewed.
<b>Flood study (Ref: 7903)</b>	
<b>Action</b>	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.
<b>Description</b>	A more detailed flood modelling should be carried out to further investigate the interaction between surface water and river sources.
<b>Flood study (options appraisal) (Ref: 7904)</b>	
<b>Action</b>	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.
<b>Description</b>	The local flood risk management plans published in December 2022 will establish further detail on the actions.

**Sewer flood risk assessment (Ref: 7905)**

<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Dalmuir 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.

**Surface water management plan (Ref: 7906)**

<b>Action</b>	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.
<b>Description</b>	North Lanarkshire Council to complete the development of the plan and review feasible options in collaboration with Scottish Canals.

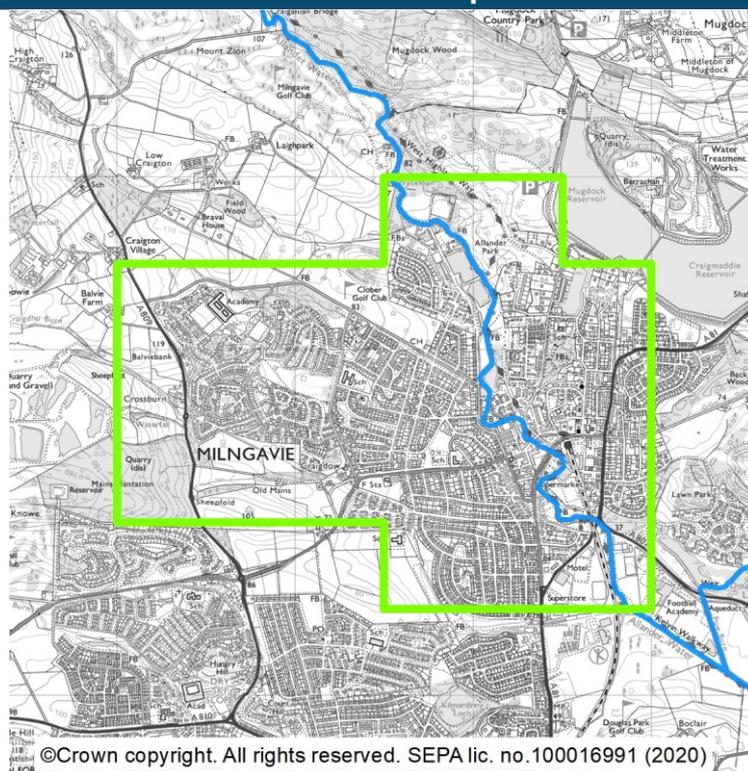
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, 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.

## Milngavie (target area 84)

### Summary

Milngavie lies 10km north-east of Glasgow, on the Allander Water and is located within the East Dunbartonshire Council area. The main source of flooding in Milngavie is river flooding, however there is also a risk from surface water flooding. There are approximately 1,000 people and 550 homes and businesses currently at risk from flooding. This is likely to increase to 1,100 people and 610 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 surface water management plan (2019) and for river flooding by the River Kelvin and tributaries study which included the Allander Water. 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
841	Avoid flood risk	Avoid inappropriate development that increases flood risk in Milngavie
842	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Milngavie
843	Reduce flood risk	Reduce the risk of flooding in Milngavie

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Flood study (options appraisal) (Ref: 8401)	
<b>Action</b>	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.
<b>Description</b>	The local authority to continue implementation of the surface water management plan, working with Scottish Water as appropriate.

Flood scheme or works design (Ref: 8402)	
<b>Action</b>	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.
<b>Description</b>	East Dunbartonshire Council to develop the works identified in the Milngavie Surface Water Management Plan to detailed design.  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.

Flood scheme or works implementation (Ref: 8403)	
<b>Action</b>	The flood scheme/works is to be built following agreement of the design, costs and timescales.
<b>Description</b>	East Dunbartonshire Council to take forward construction of the surface water management detailed designs.  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.

Community engagement (Ref: 8404)	
<b>Action</b>	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
<b>Description</b>	Detailed design for surface water management options 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.

### Flood study (options appraisal) (Ref: 8405)

<b>Action</b>	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.
<b>Description</b>	Following on the outputs of the River Kelvin and tributaries feasibility study, East Dunbartonshire Council to develop an options appraisal to managed flood risk in the Allander Water catchment.

### Sewer flood risk assessment (Ref: 8406)

<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Dalmuir 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.

## 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: 8407)

<b>Action</b>	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.
<b>Description</b>	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.

### Community engagement (Ref: 8408)

<b>Action</b>	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
<b>Description</b>	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.

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

## Coordination with the river basin management plan

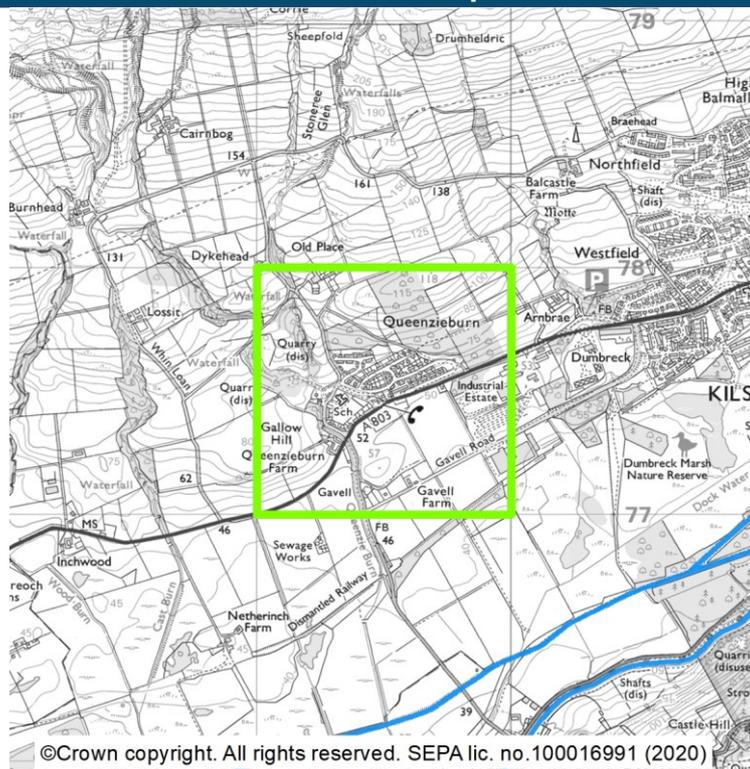
This area has been identified as having potential for restoration in Scotland's river basin management plan. Actions should be coordinated to deliver any potential joint objectives for restoration and flood risk management. This should be considered in the earliest stages of any projects.

## Queenzieburn (target area 91)

### Summary

The small settlement of Queenzieburn is located within the North Lanarkshire local authority area. The main sources of flooding in Queenzieburn are surface water and river flooding. There are approximately 80 people and 50 homes and businesses currently at risk of flooding. The number of people is likely to remain the same and homes and businesses to increase to 60 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 flood risk by a sewer flood risk assessment. Together, this information has highlighted the risk of flooding in this area. Queenzieburn 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
911	Avoid flood risk	Avoid inappropriate development that increases flood risk in Queenzieburn
912	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Queenzieburn
913	Reduce flood risk	Reduce the risk of flooding in Queenzieburn

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Sewer flood risk assessment (Ref: 9101)	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Dalmuir 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.

## 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.

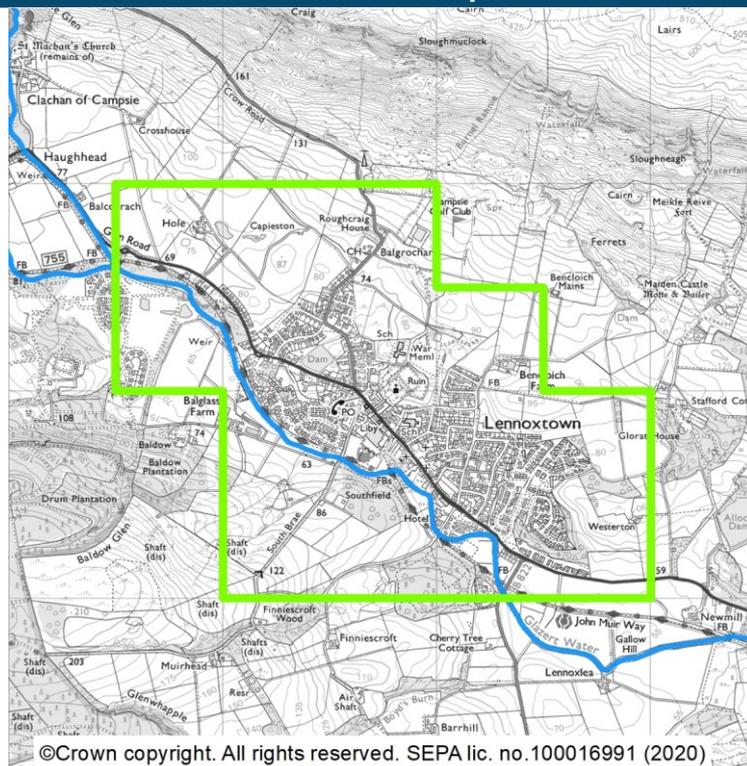
Flood study (Ref: 9102)	
<b>Action</b>	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
<b>Description</b>	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.

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

### Summary

Lennoxtown is a town located within the East Dunbartonshire Council area. The main source of flooding in Lennoxtown is surface water, however there is also risk of river flooding. There are approximately 690 people and 330 properties currently at risk from flooding. This is likely to increase to 880 people and 410 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 natural flood management study carried out for the Glazert catchment (2016). 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
981	Avoid flood risk	Avoid inappropriate development that increases flood risk in Lennoxtown
982	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of the Lennoxtown 1963 and Glazertbank Flood Protection Scheme 2000
983	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Lennoxtown
984	Reduce flood risk	Reduce the risk of flooding in Lennoxtown

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

<b>Flood study (existing flood defences) (Ref: 9801)</b>	
<b>Action</b>	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.
<b>Description</b>	The study of the Lennoxtown Flood Protection Schemes 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.
<b>Flood defence maintenance (Ref: 9802)</b>	
<b>Action</b>	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
<b>Description</b>	Maintenance to the Lennoxtown Flood Protection Schemes should continue and updates to the maintenance regime be made based on the findings of the flood study.
<b>Sewer flood risk assessment (Ref: 9803)</b>	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Dalmuir 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.

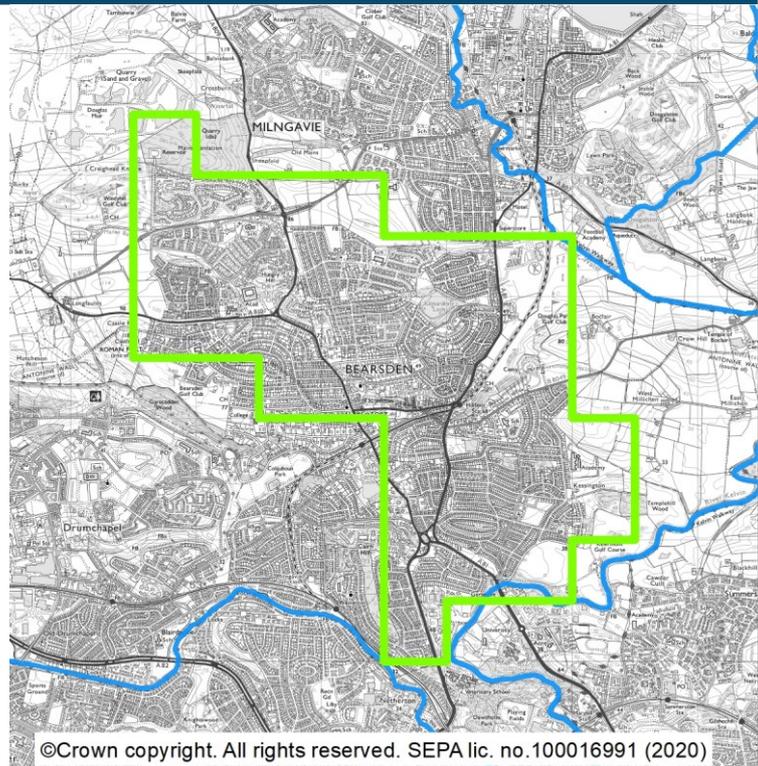
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, 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.

## Bearsden (target area 103)

### Summary

Bearsden is located 10km from Glasgow city centre. It is located within the Glasgow City and East Dunbartonshire Council areas. The main source of flooding in Bearsden is surface water flooding. There is also a risk from river flooding. There are approximately 1,400 people and 690 homes and businesses currently at risk from flooding. This is expected to increase to 1,600 people and 810 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 surface water management plan (2019). Understanding is improved for river flooding by the Manse Burn Flood Risk Assessment (2014) and the flood studies that have supported the development of the flood protection schemes in the target area. There is a long record of flooding in the 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
1031	Avoid flood risk	Avoid inappropriate development that increases flood risk in Bearsden
1032	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of the Heather Avenue Flood Protection Scheme 2018
1033	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Bearsden
1034	Reduce flood risk	Reduce the risk of flooding in Bearsden

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

<b>Flood scheme or works design (Ref: 10301)</b>	
<b>Action</b>	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.
<b>Description</b>	<p>East Dunbartonshire Council to develop the works identified in the Bearsden Surface Water Management Plan to detailed design.</p> <p>The responsible authority proposes this action as the best viable option for managing flood risk in this community. The delivery of this action is subject to capital funding being made available.</p>
<b>Flood scheme or works implementation (Ref: 10302)</b>	
<b>Action</b>	The flood scheme/works is to be built following agreement of the design, costs and timescales.
<b>Description</b>	<p>East Dunbartonshire Council to take forward construction of the detailed designs identified in the Bearsden Surface Water Management Plan.</p> <p>The responsible authority proposes this action as the best viable option for managing flood risk in this community. The delivery of this action is subject to capital funding being made available.</p>
<b>Community engagement (Ref: 10303)</b>	
<b>Action</b>	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
<b>Description</b>	Detailed design for surface water management options 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.

<b>Sewer flood risk assessment (Ref: 10304)</b>	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Dalmuir 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.
<b>Flood study (existing flood defences) (Ref: 10305)</b>	
<b>Action</b>	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.
<b>Description</b>	Study of the Heather Avenue Flood Protection Scheme (2018).
<b>Flood defence maintenance (Ref: 10306)</b>	
<b>Action</b>	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
<b>Description</b>	Maintenance to the Heather Avenue Flood Protection Scheme (2018), Golf View Flood Protection Scheme (2021) and Colquhoun park Flood Protection Scheme (2014) should continue and updates to the maintenance regime be made based on the findings of the flood study.

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

### **Coordination with the river basin management plan**

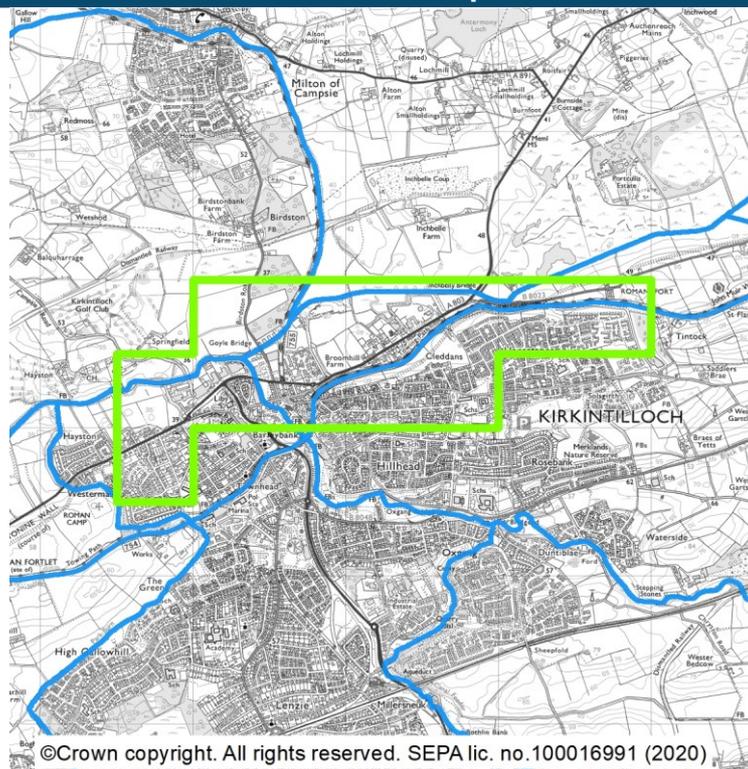
This area has been identified as having potential for restoration in Scotland's river basin management plan. Actions should be coordinated to deliver any potential joint objectives for restoration and flood risk management. This should be considered in the earliest stages of any projects.

## Kirkintilloch north (target area 157)

### Summary

The Kirkintilloch North area covers the northern part of the town of Kirkintilloch and a section of the A807. It is within the East Dunbartonshire Council area. The main source of flooding in Kirkintilloch North is river flooding, however there is also a risk of surface water flooding. There are approximately 960 people and 550 homes and businesses currently at risk from flooding. This is likely to increase to 1,100 people and 740 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 river flooding by the River Kelvin and tributaries study. 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
1571	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
1572	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of the River Kelvin Flood Protection Scheme 1998
1573	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
1574	Reduce flood risk	Reduce the risk of flooding in this target area

## What actions are proposed for this area?

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

### Actions proposed to start between 2022 and 2028

<b>Flood study (Ref: 15701)</b>	
<b>Action</b>	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.
<b>Description</b>	In coordination with Glasgow City Council and SEPA, East Dunbartonshire to complete the natural flood management study for their sections of the River Kelvin and tributaries. The findings from the river restoration feasibility studies carried out by the local authority for Park Burn, Allander Water and Luggie Water should be used if required.
<b>Flood study (Ref: 15702)</b>	
<b>Action</b>	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.
<b>Description</b>	East Dunbartonshire Council to undertake joint working with North Lanarkshire Council to understand flood risk from the Luggie Water. If 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.
<b>Flood defence maintenance (Ref: 15703)</b>	
<b>Action</b>	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
<b>Description</b>	Maintenance to the River Kelvin Flood Protection Scheme 1998 should continue and updates to the maintenance regime be made based on the findings of the flood study.
<b>Flood warning maintenance (Ref: 15704)</b>	
<b>Action</b>	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
<b>Description</b>	SEPA should maintain the River Kelvin flood warning scheme. The scheme should be investigated for improvement and/or recalibration

### Sewer flood risk assessment (Ref: 15705)

<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Dalmeir 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.

### 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: 15706)

<b>Action</b>	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.
<b>Description</b>	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.

### Adaptation plan (Ref: 15707)

<b>Action</b>	Information on climate change is to be used to develop an adaptation plan to allow for the impacts of climate change to be monitored, understood and managed.
<b>Description</b>	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.

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

### Coordination with the river basin management plan

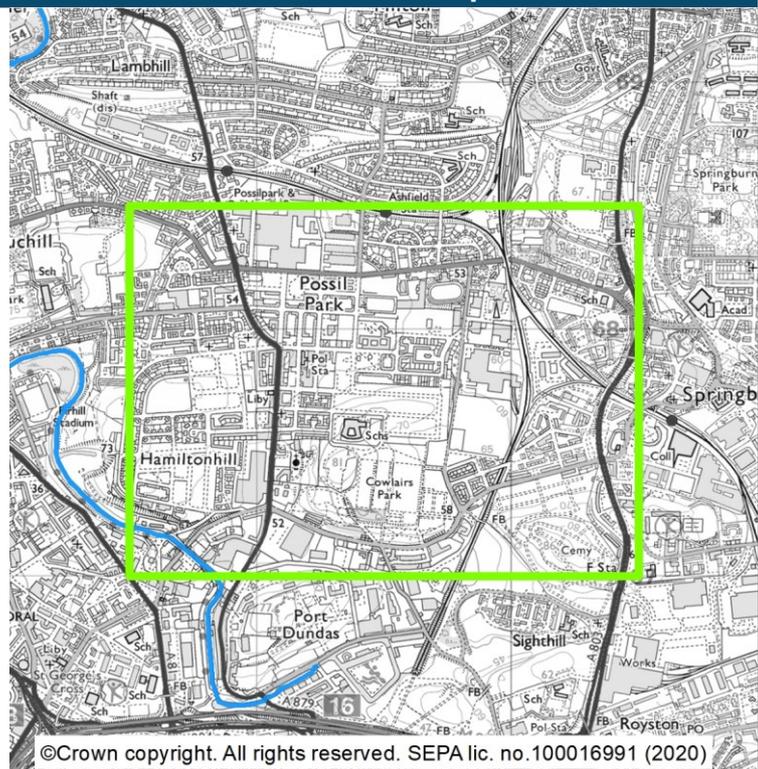
This area has been identified as having potential for restoration in Scotland's river basin management plan. Actions should be coordinated to deliver any potential joint objectives for restoration and flood risk management. This should be considered in the earliest stages of any projects.

## Possil Park (target area 158)

### Summary

Possil Park is located north of the River Clyde within the Glasgow City Council area. The only source of flooding in Possil Park is surface water. There are approximately 1,100 people and 610 homes and businesses currently at risk of flooding. This is likely to increase to 1,400 people and 750 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 by the sewer flood risk assessment. Since 2015 this target area has not experienced significant rainfall events and there are therefore no recent records of flooding. 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
1581	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
1582	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
1583	Reduce flood risk	Reduce the risk of surface water flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

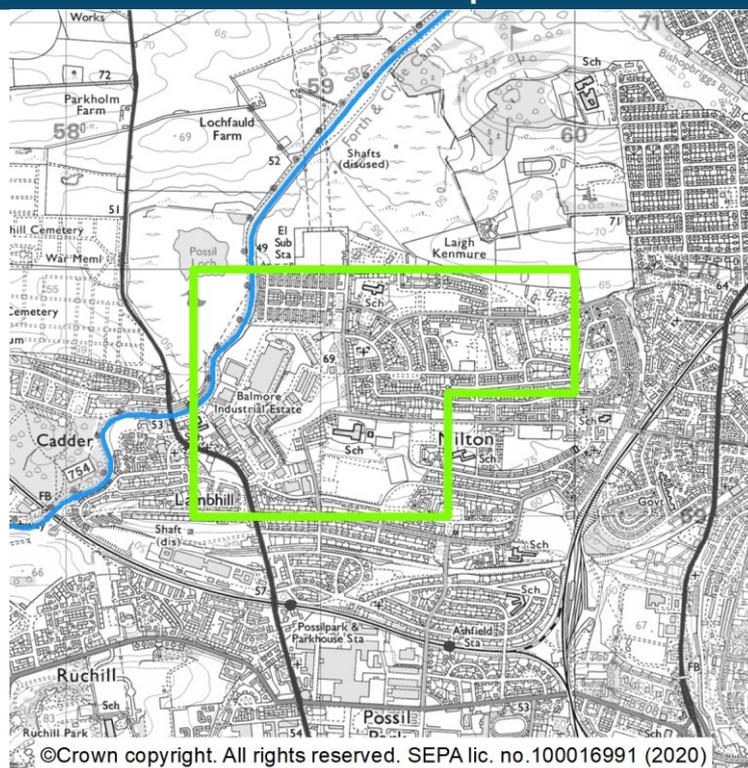
<b>Sewer flood risk assessment (Ref: 15801)</b>	
<b>Action</b>	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Dalmarnock and Dalmuir sewer catchments 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.
<b>Surface water management plan (Ref: 15802)</b>	
<b>Action</b>	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.
<b>Description</b>	The local flood risk management plans published in December 2022 will establish further detail on the actions.

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.

### Summary

Milton is located within the northern district of Glasgow approximately 6km from Glasgow City Centre. Milton is situated within the Glasgow City Council area. The only source of flooding in Milton is surface water. There are approximately 120 people and 70 homes and businesses currently at risk of flooding. This is likely 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 surface water by the sewer flood risk assessment. Localised flooding was experienced due to heavy rain during June 2018.

### 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
1591	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
1592	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
1593	Reduce flood risk	Reduce the risk of surface water flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Sewer flood risk assessment (Ref: 15901)	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Dalmeir 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.

## 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: 15902)	
<b>Action</b>	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.
<b>Description</b>	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.

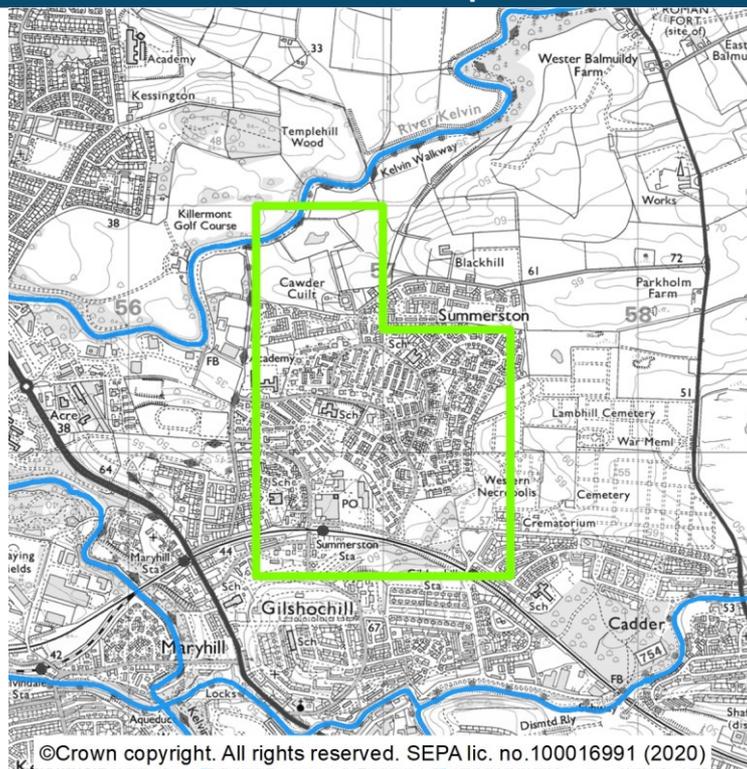
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places,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

## Summerston (target area 160)

### Summary

Summerston covers a small urban area of north-west Glasgow. It is within the Glasgow City Council area. The main source of flooding in Summerston is surface water. There are approximately 420 people and 210 homes and businesses currently at risk of flooding. This is likely to increase to 510 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 surface water by the sewer flood risk assessment. Since 2015 this target area has not experienced significant rainfall events and there are therefore no recent records of flooding. 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
1601	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
1602	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
1603	Reduce flood risk	Reduce the risk of surface water flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Sewer flood risk assessment (Ref: 16001)	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Dalmeir 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.

## 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: 16002)	
<b>Action</b>	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.
<b>Description</b>	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.

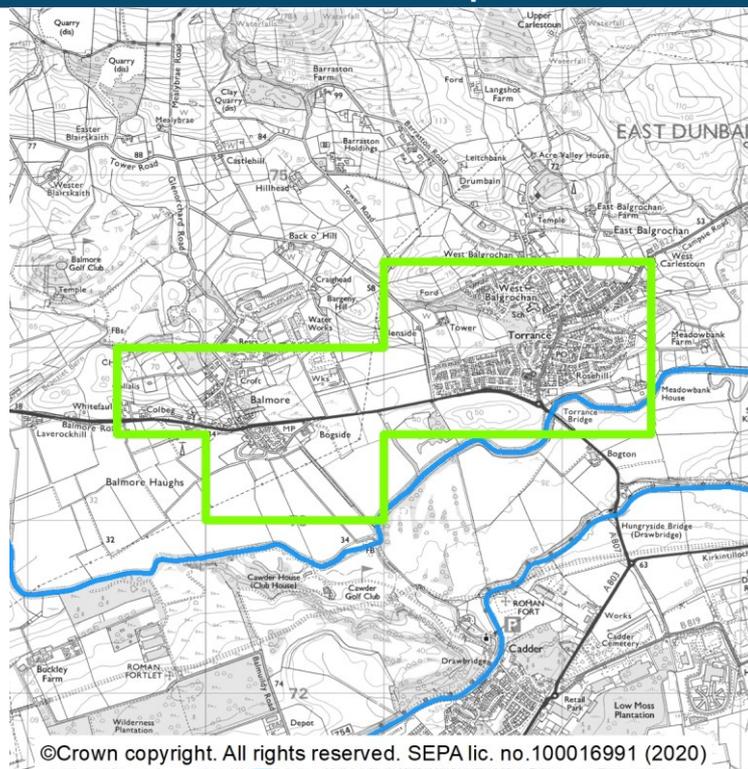
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places,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

## Torrance and Balmore (target area 81001)

### Summary

Torrance and Balmore are villages located along the northern fringe of Glasgow. It is within East Dunbartonshire Council area. The main source of flooding in Torrance and Balmore is from surface water flooding, however there is also risk from river flooding. There are approximately 110 people and 60 homes and businesses currently at risk from flooding. This is likely to increase to 190 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. Torrance and Balmore 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
810011	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
810012	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of the River Kelvin Flood Protection Scheme 1998
810013	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Flood defence maintenance (Ref: 8100101)	
<b>Action</b>	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
<b>Description</b>	Maintenance to the River Kelvin Flood Protection Scheme 1998 should continue and updates to the maintenance regime be made based on the findings of the flood study.

Sewer flood risk assessment (Ref: 8100102)	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Dalmuir 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.

## 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.

Adaptation plan (Ref: 8100103)	
<b>Action</b>	Information on climate change is to be used to develop an adaptation plan to allow for the impacts of climate change to be monitored, understood and managed.
<b>Description</b>	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.

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

## Coordination with the river basin management plan

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

## 02/11/05 (Glasgow City Centre)

This area is designated as a potentially vulnerable area due to the flood risk in Glasgow City Centre. The main source of flooding is from surface water. Recent floods have occurred in the area from surface water.

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

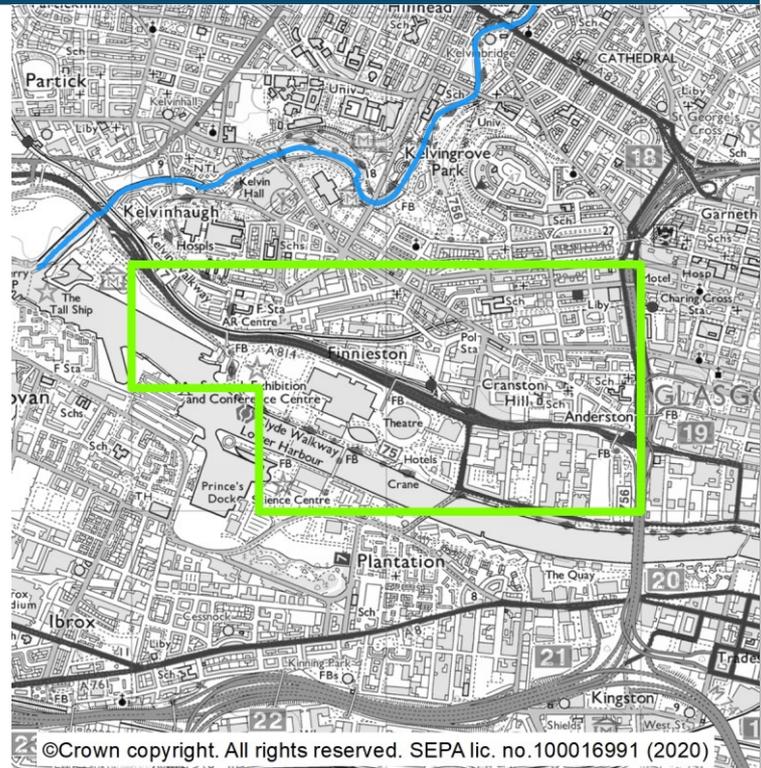
### List of target areas

Glasgow centre west	(target area 45001)
Glasgow centre east	(target area 45002)

### Summary

Glasgow Centre West covers an area of the city centre of Glasgow. It is in the Glasgow City Council area including the Scottish Event Campus (SEC). The main source of flooding in the area is surface water flooding, however there is also a risk from coastal (tidal) flooding. There are approximately 2,500 people and 1,400 homes and businesses currently at risk from flooding. This is likely to increase to 3,200 people and 1,800 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 coastal flooding by the tidal Clyde model (December 2020). 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
450011	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
450012	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of the flood defences along the River Clyde in the Exhibition Centre Quarter area
450013	Improve data and understanding	Improve data and understanding of the performance of the flood defences along the River Clyde in the Exhibition Centre Quarter area
450014	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
450015	Reduce flood risk	Reduce the risk of flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Flood study (Ref: 4500101)	
<b>Action</b>	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.
<b>Description</b>	Glasgow City Council and South Lanarkshire Council to develop an updated full flood model of the River Clyde following the outputs from the tidal Clyde and River Clyde models. The tidal Clyde model update outputs will be used to develop a programme to take forward key recommendations where funding permits.

Flood study (existing flood defences) (Ref: 4500102)	
<b>Action</b>	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.
<b>Description</b>	Study of River Clyde flood defences following on the outputs from the tidal Clyde model update on the present performance of the River Clyde flood defences.

Sewer flood risk assessment (Ref: 4500103)	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Dalmuir 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.

Surface water management plan (Ref: 4500104)	
<b>Action</b>	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.
<b>Description</b>	The local flood risk management plans published in December 2022 will establish further detail on the actions.

**Strategic mapping improvements (Ref: 4500105)**

<b>Action</b>	SEPA will continue to update flood maps based on new information.
<b>Description</b>	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.

**Flood defence maintenance (Ref: 4500106)**

<b>Action</b>	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
<b>Description</b>	Maintenance to the River Clyde flood defences should continue and updates to the maintenance regime be made based on the findings of the flood study.

**Flood warning maintenance (Ref: 4500107)**

<b>Action</b>	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
<b>Description</b>	SEPA should maintain the Firth of Clyde coastal flood warning scheme.

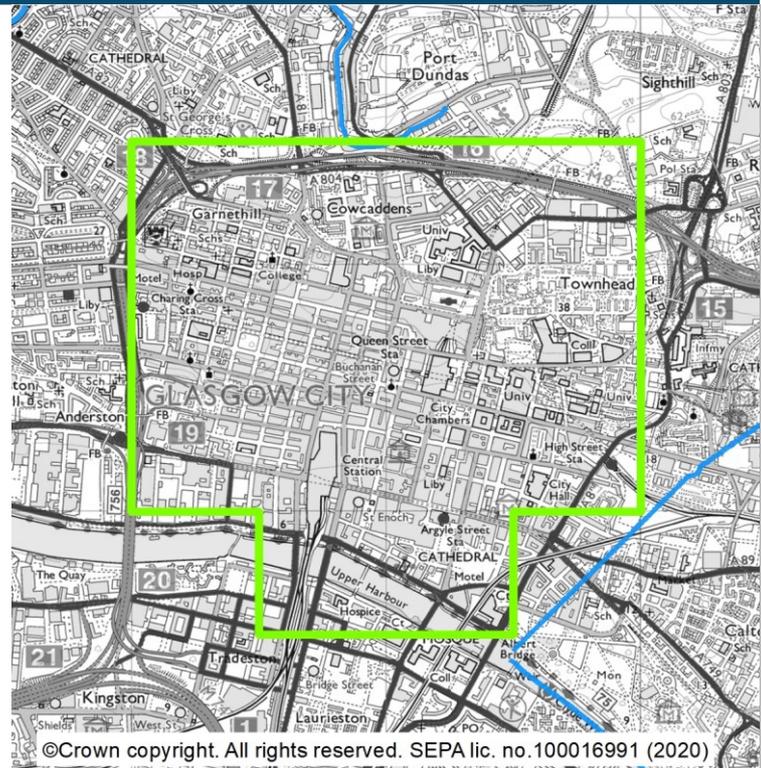
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, 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.

## Glasgow centre east (target area 45002)

### Summary

The Glasgow centre east covers the eastern section of central Glasgow. The area is located within the Glasgow City Council area. The main source of flooding in Glasgow centre east is surface water flooding. There are approximately 4,000 people and 3,600 homes and businesses currently at risk from flooding. This is likely to increase to 5,000 people and 4,500 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 surface water management plan and sewer flood risk assessment. Since 2015 this target area has not experienced significant rainfall events and there are therefore no recent records of flooding. 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
450021	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
450022	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of surface water management measures
450023	Improve data and understanding	Improve data and understanding of future river flooding in this target area
450024	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
450025	Reduce flood risk	Reduce the risk of surface water flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Flood scheme or works implementation (Ref: 4500201)	
Action	The flood scheme/works is to be built following agreement of the design, costs and timescales.
Description	Glasgow City Council to implement surface water management phase 1 measures in this target area.
Flood study (Ref: 4500202)	
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Description	Glasgow City Council and South Lanarkshire Council to develop an updated full flood model of the River Clyde following the outputs from the tidal Clyde and River Clyde models. The tidal Clyde model update outputs will be used to develop a programme to take forward key recommendations where funding permits.
Sewer flood risk assessment (Ref: 4500203)	
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Description	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Dalmarnock 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.
Flood defence maintenance (Ref: 4500204)	
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Description	Maintenance to the surface water management measures should be carried out on an ongoing basis following construction. The performance of the surface water management measures should be monitored under any significant events.
Flood warning maintenance (Ref: 4500205)	
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Description	SEPA should maintain the Firth of Clyde coastal flood warning scheme.

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

## 02/11/06 (Glasgow City North)

This area is designated as a potentially vulnerable area due to flood risk to a number of communities. Some of these include Carntyne, Glasgow east end, and Springburn. The main sources of flooding are from river and surface water. Recent flooding has occurred in these communities.

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

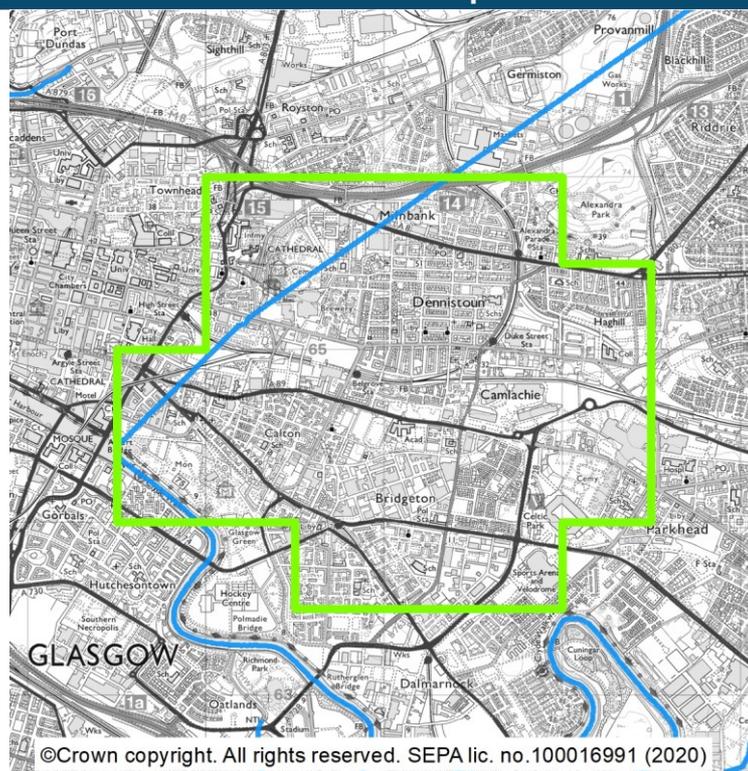
### List of target areas

Glasgow east end	(target area 47)
Carntyne	(target area 49)
Springburn	(target area 167)
Barlanark	(target area 466)
Garthamlock	(target area 16800)

### Summary

Glasgow east end covers the areas of Milnbank, Dennistoun, Camlachie and Bridgeton. It is within the Glasgow City Council area. The main source of flooding is from surface water, however there is also a risk of river flooding. There are approximately 5,200 people and 3,200 homes and businesses currently at risk from flooding. This is likely to increase to 6,000 people and 3,700 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 studies supporting the development of the Camlachie Burn Flood Protection Works. 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
471	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
472	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of the Camlachie Burn conduit
473	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
474	Reduce flood risk	Reduce the risk of flooding in this target area

## What actions are proposed for this area?

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

### Actions proposed to start between 2022 and 2028

Data collection (Ref: 4701)	
Action	Equipment that measures rainfall, river levels, erosion, ground levels or wave height may be installed and maintained to improve our understanding of flood risk. This can be done over short term or to measure longer term impacts.
Description	A condition survey should be carried out for Camlachie and Molendinar burn conduit to assess their physical condition and establish the current standard of protection/culvert capacity and the predicted for a number of climate change scenarios.

Flood defence maintenance (Ref: 4702)	
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Description	Maintenance to the Camlachie Burn conduit should continue and updates to the maintenance regime be made based on the findings of the condition survey.

Sewer flood risk assessment (Ref: 4703)	
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Description	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Dalmarnock 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.

### 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.

Adaptation plan (Ref: 4704)	
Action	Information on climate change is to be used to develop an adaptation plan to allow for the impacts of climate change to be monitored, understood and managed.
Description	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.

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

### **Coordination with the river basin management plan**

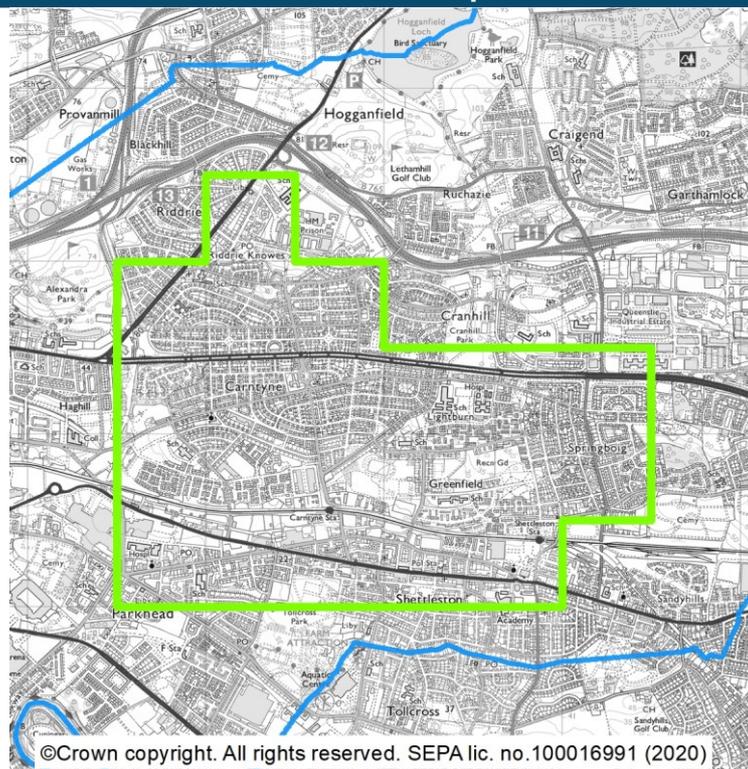
This area has been identified as having potential for restoration in Scotland's river basin management plan. Actions should be coordinated to deliver any potential joint objectives for restoration and flood risk management. This should be considered in the earliest stages of any projects.

## Carntyne (target area 49)

### Summary

The suburban area of Carntyne is located in east Glasgow, which is within the Glasgow City Council area. The main source of flooding in Carntyne is surface water flooding, however there is also a risk of river flooding. There are approximately 2,800 people at risk from flooding and approximately 1,600 homes and businesses. This is likely to increase to 3,200 people and 1,800 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 and sewer flood risk assessment. Since 2015 this target area has not experienced significant rainfall events and there are therefore no recent records of flooding. 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
491	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
492	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
493	Reduce flood risk	Reduce the risk of flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Flood scheme or works design (Ref: 4901)	
Action	The selected preferred approach for managing flood risk is to be designed following the completion of the flood study, including consideration of the long-term impacts of climate change. These can include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	Detail design of the preferred option identified for the Cockenzie Street surface water management plan phase 2 works to be developed. The detail design outputs will be used to develop a programme to take forward key recommendations where funding permits.

Community engagement (Ref: 4902)	
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	Detailed design for surface water management options 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.

Sewer flood risk assessment (Ref: 4903)	
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Description	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Dalmarnock 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.

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

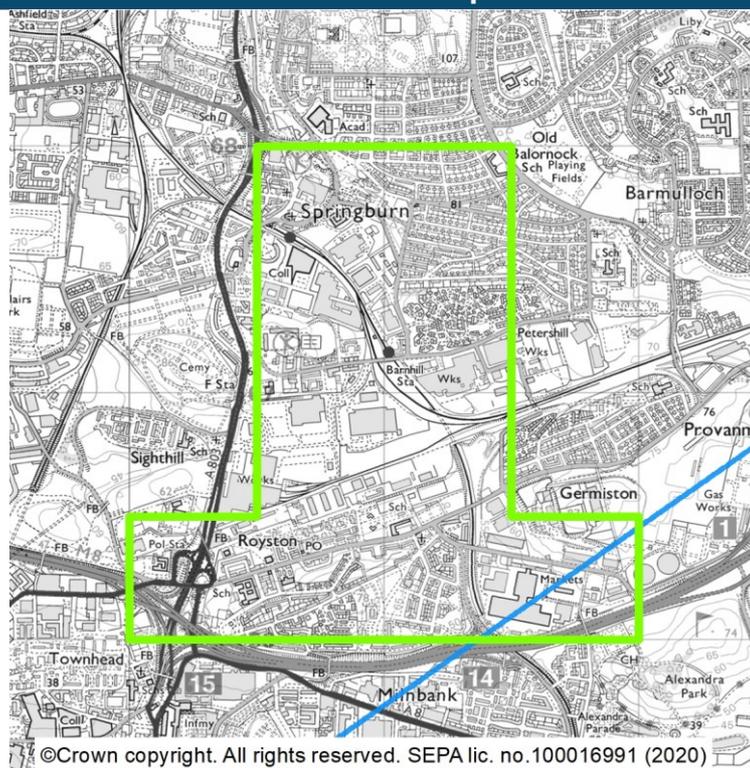
## Coordination with the river basin management plan

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

### Summary

Springburn covers a district of Glasgow that lies to the north of the city centre. It is within the Glasgow City Council area. The only source of flooding in Springburn is from surface water flooding. There are approximately 860 people and 460 homes and businesses currently at risk of flooding. This is likely to increase to 950 people and 520 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 by the 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
1671	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
1672	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
1673	Reduce flood risk	Reduce the risk of surface water flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

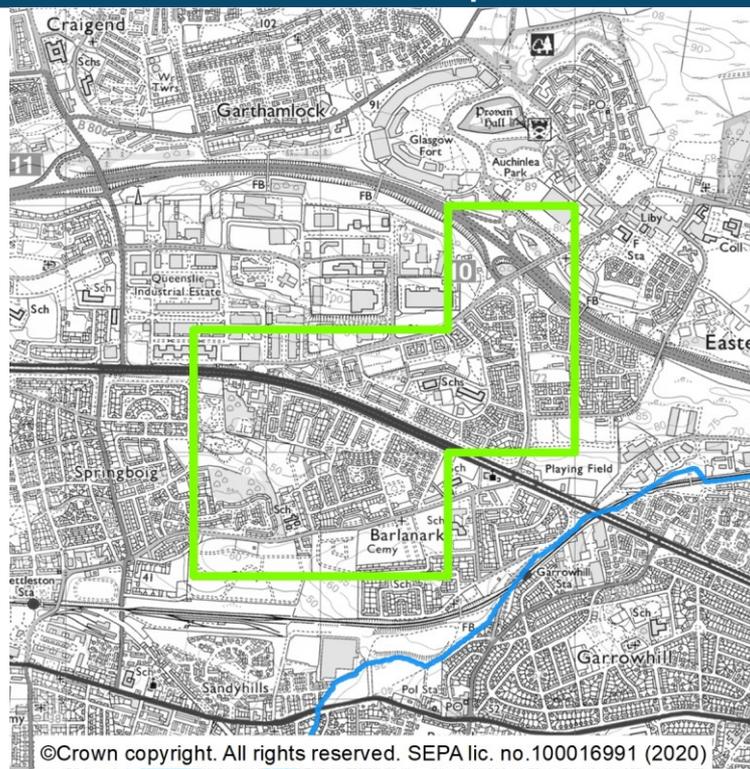
<b>Sewer flood risk assessment (Ref: 16701)</b>	
<b>Action</b>	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Dalmarnock 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.
<b>Surface water management plan (Ref: 16702)</b>	
<b>Action</b>	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.
<b>Description</b>	The local flood risk management plans published in December 2022 will establish further detail on the actions.

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.

### Summary

The district of Barlanark is located in east Glasgow. It is within the Glasgow City Council area. The main source of flooding in Barlanark is surface water flooding. There are approximately 220 people and 120 homes and businesses currently at risk from flooding. This is likely to increase to 300 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 surface water by the sewer flood risk assessment. Since 2015 this target area has not experienced significant rainfall events and there are therefore no recent records of flooding. 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
4661	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
4662	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
4663	Reduce flood risk	Reduce the risk of surface water flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

<b>Sewer flood risk assessment (Ref: 46601)</b>	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Dalmarnock 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.
<b>Surface water management plan (Ref: 46602)</b>	
<b>Action</b>	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.
<b>Description</b>	Glasgow City Council to develop a surface water management plan following a review of the Scottish Water sewer and surface water flooding management outputs in the Wellhouse Crescent and Newhills Road area. The resulting surface water management plan will be used to develop a programme to take forward key recommendations where funding permits.

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.

### Summary

Garthamlock is a north-eastern suburb of Glasgow and located to the north of the River Clyde. It is within the Glasgow City Council area. The main source of flooding in Garthamlock is surface water flooding. There are approximately 460 people and 250 homes and businesses at risk from flooding. This is estimated to increase to 620 people and 320 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 by the sewer flood risk assessment. Since 2015 this target area has not experienced significant rainfall events and there are therefore no recent records of flooding. 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
168001	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of surface water management measures
168002	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
168003	Improve data and understanding	Improve data and understanding of surface water flooding in this target area
168004	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Sewer flood risk assessment (Ref: 1680001)	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Dalmarnock 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.

Flood defence maintenance (Ref: 1680002)	
<b>Action</b>	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
<b>Description</b>	Maintenance to the phase 1 surface water management measures in Cardowan should be carried out on an ongoing basis following construction. The performance of the surface water management measures should be monitored under any significant events.

## 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: 1680003)	
<b>Action</b>	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.
<b>Description</b>	Glasgow City Council to develop the scope for Phase 2 of the Cardowan surface water management measures.

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

## 02/11/07 (Luggie Water catchment)

This area is designated as a potentially vulnerable area due to the flood risk to a number of communities. Some of these include Kirkintilloch, Lenzie and Cumbernauld. The main source of flooding is from surface water, however there is also river flooding from the River Kelvin and the Luggie Water. Recent flooding has occurred due to river and surface water flooding.

There are 4 target areas in this potentially vulnerable area, which have been the focus of further assessment, these are listed below. Further information on the objectives and actions to manage flood risk within this area is provided below.

### List of target areas

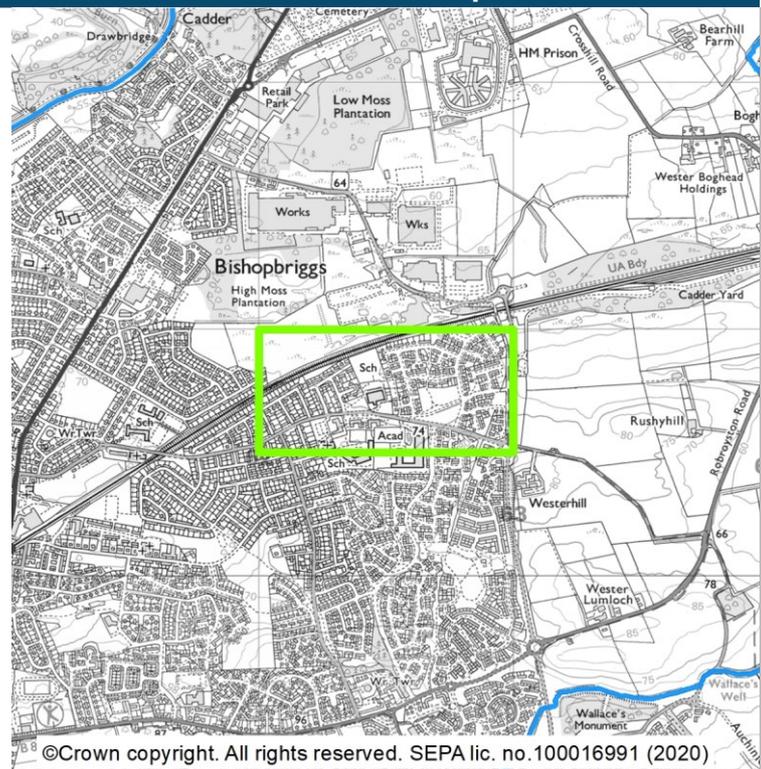
Bishopbriggs east	(target area 5)
Cumbernauld	(target area 60)
Kirkintilloch South and Lenzie	(target area 81)
Balornock	(target area 16702)

## Bishopbriggs east (target area 5)

### Summary

Bishopbriggs east is a suburb of Glasgow. The area is located within the East Dunbartonshire and North Lanarkshire Council areas. The only source of flooding is surface water flooding. There are approximately 100 people at risk from flooding and approximately 50 homes and businesses. This is estimated to increase to 120 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. The national level assessment for surface water flooding is improved by a 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
51	Avoid flood risk	Avoid inappropriate development that increases flood risk in Bishopbriggs
52	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Bishopbriggs
53	Reduce flood risk	Reduce the risk of flooding in Bishopbriggs

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

<b>Flood scheme or works design (Ref: 501)</b>	
<b>Action</b>	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.
<b>Description</b>	<p>East Dunbartonshire Council to develop the works identified in the Bishopbriggs (East) surface water management plan to detailed design. The preferred option is comprised of a combination of underground storage, property flood protection, sustainable urban drainage systems retrofit, swales, bunds, and roof disconnection.</p> <p>The responsible authority proposes this action as the best viable option for managing flood risk in this community. The delivery of this action is subject to capital funding being made available.</p>
<b>Flood scheme or works implementation (Ref: 502)</b>	
<b>Action</b>	The flood scheme/works is to be built following agreement of the design, costs and timescales.
<b>Description</b>	<p>East Dunbartonshire Council to develop the works identified in the Bishopbriggs (East) surface water management plan detailed design. The preferred option is comprised of a combination of underground storage, property flood protection, sustainable urban drainage systems retrofit, swales, bunds, and roof disconnection.</p> <p>The responsible authority proposes this action as the best viable option for managing flood risk in this community. The delivery of this action is subject to capital funding being made available.</p>
<b>Community engagement (Ref: 503)</b>	
<b>Action</b>	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
<b>Description</b>	Detailed design for surface water management options 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.

### Sewer flood risk assessment (Ref: 504)

#### Action

The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network

#### Description

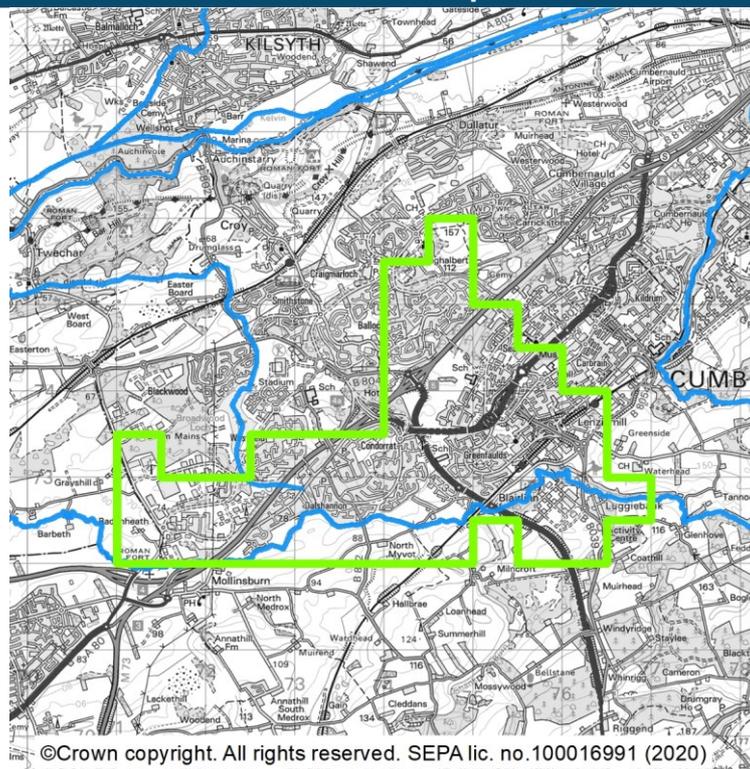
Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Dalmuir sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.

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.

### Summary

Cumbernauld is within the East Dunbartonshire and North Lanarkshire local authority areas. The main source of flooding in Cumbernauld is surface water flooding, however there is also a risk from river flooding. There is approximately 780 people at risk from flooding and approximately 460 homes and businesses. This is estimated to increase to 920 people and 580 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 flood risk by the Luggie Water Flood Study. 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
601	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
602	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
603	Reduce flood risk	Reduce the risk of flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Flood study (options appraisal) (Ref: 6001)	
Action	In areas where flood risk is confirmed, a range of possible options to manage flood risk are to be identified, including natural flood management actions where suitable, and a preferred approach is to be chosen. This should include adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	North Lanarkshire Council in partnership with East Dunbartonshire Council to continue with the Luggie Water flood study and develop the options appraisal.

Flood study (existing flood defences) (Ref: 6002)	
Action	The performance and condition of the existing flood defences are to be evaluated, including consideration of the likely impacts of climate change. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	Following on the outputs from the Luggie Water flood study on the present performance of the Broadwood Loch flood protection scheme 1993, 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.

Sewer flood risk assessment (Ref: 6003)	
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Description	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Dalmuir and Dunnswood sewer catchments 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.

Surface water management plan (Ref: 6004)	
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	North Lanarkshire Council to develop a surface water management plan, review and implement any feasible options as and when funding is available.

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

### **Coordination with the river basin management plan**

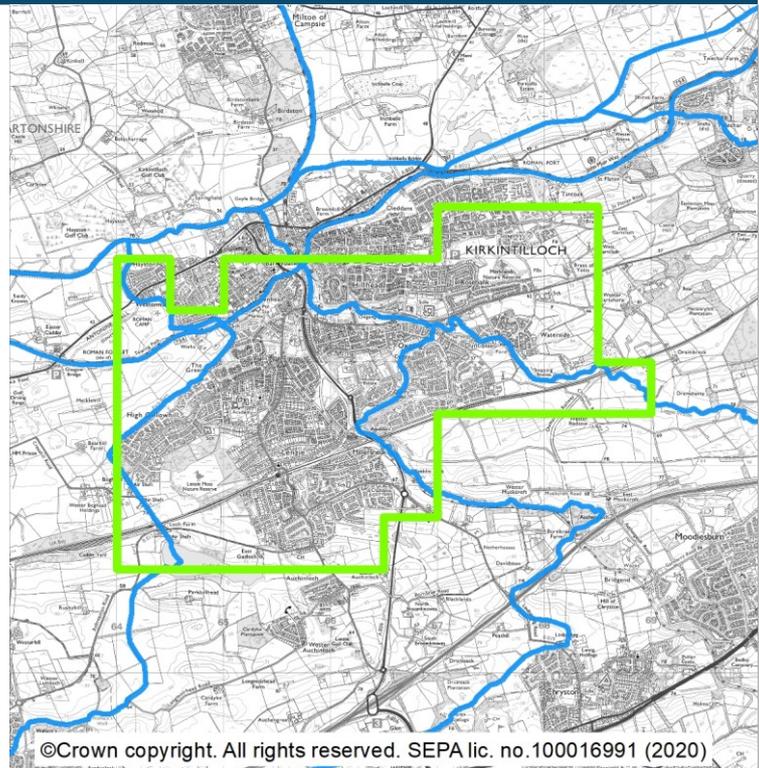
This area has been identified as having potential for restoration in Scotland's river basin management plan. Actions should be coordinated to deliver any potential joint objectives for restoration and flood risk management. This should be considered in the earliest stages of any projects.

## Kirkintilloch South and Lenzie (target area 81)

### Summary

Kirkintilloch South and Lenzie are located within the East Dunbartonshire and North Lanarkshire Council areas. The main source of flooding in Kirkintilloch South and Lenzie is surface water flooding, however there is also a risk of river flooding. There are approximately 1,500 people and 760 homes and businesses currently at risk from flooding. This is likely to increase to 2,300 people and 1,100 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. The national level assessment is improved for river flooding by the River Kelvin and tributaries study and the flood studies that have supported the development of the Park Burn Flood Protection Works. Understanding is improved for surface water by the sewer flood risk assessment. There is a long record of flooding in this target area, most notably in December 1994, when persistent rain over a 48 hour period caused widespread flooding in the 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
811	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
812	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
813	Reduce flood risk	Reduce the risk of flooding in this target area

## What actions are proposed for this area?

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

### Actions proposed to start between 2022 and 2028

<b>Flood scheme or works implementation (Ref: 8101)</b>	
<b>Action</b>	The flood scheme/works is to be built following agreement of the design, costs and timescales.
<b>Description</b>	East Dunbartonshire Council to complete the Park Burn Flood Prevention Works.
<b>Flood study (Ref: 8102)</b>	
<b>Action</b>	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.
<b>Description</b>	East Dunbartonshire Council to undertake joint working with North Lanarkshire Council to understand flood risk from the Luggie Water.
<b>Flood study (Ref: 8103)</b>	
<b>Action</b>	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.
<b>Description</b>	In coordination with Glasgow City Council and SEPA, East Dunbartonshire to complete the natural flood management study for their sections of the River Kelvin and tributaries. The findings from the river restoration feasibility studies carried out by the local authority for Park Burn, Allander Water and Luggie Water should be used if required.
<b>Sewer flood risk assessment (Ref: 8104)</b>	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Dalmuir 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.

## 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: 8105)	
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.

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

## Coordination with the river basin management plan

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



Objective ref	Objective type	Objective Description
167021	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
167022	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
167023	Reduce flood risk	Reduce the risk of flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Sewer flood risk assessment (Ref: 1670201)	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Dalmarnock 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.

## 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: 1670202)	
<b>Action</b>	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.
<b>Description</b>	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.

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

## 02/11/08 (Strathblane)

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

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

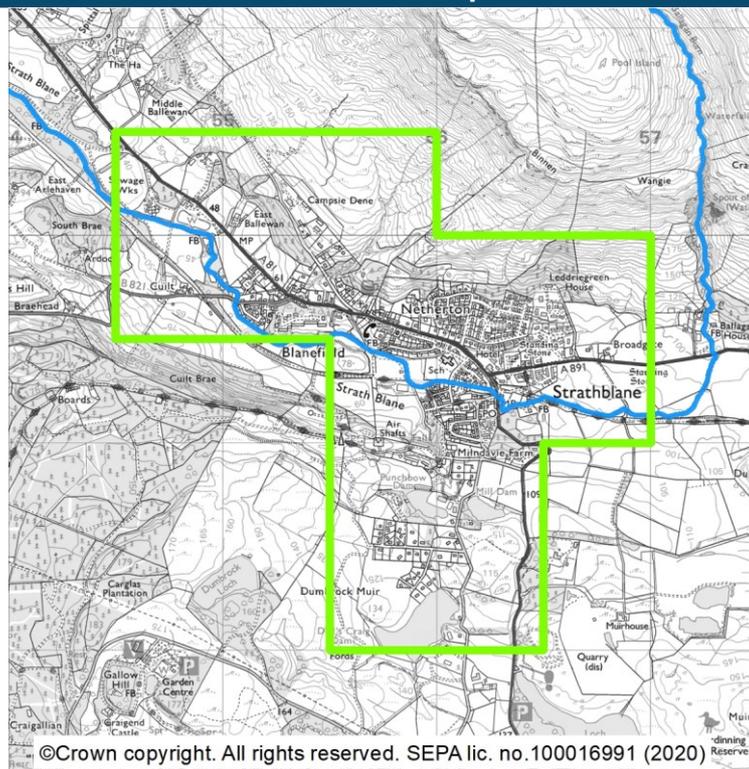
### List of target areas

Strathblane (target area 152)

### Summary

Strathblane is a village located in the Stirling Council area. The main source of flooding in Strathblane is river flooding, however there is also risk from surface water flooding. There are approximately 130 people and 70 homes and businesses currently at risk from flooding.

### 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. River monitoring equipment has been installed by the local authority to improve the national level assessment for river flooding and to improve operational response to flooding. The national assessment for surface water flooding is improved by sewer flood risk assessment carried out by Scottish Water. A number of floods have been recorded in the Strathblane area. A flood was recorded in December 2015 due to Storm Desmond. A recent river and surface water flood also occurred in July 2019 which resulted in damage to homes.

### 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
1521	Avoid flood risk	Avoid inappropriate development that increases flood risk in Strathblane
1522	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Strathblane
1523	Reduce flood risk	Reduce the risk of flooding from small watercourses and surface water in Strathblane

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

<b>Data collection (Ref: 15201)</b>	
<b>Action</b>	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.
<b>Description</b>	A flood study has been undertaken for Strathblane but modelling results are not robust enough. Rain gauge instrumentation is scheduled to be installed to gather further information that can be used to update modelling and consequently the flood study outputs. This will improve understanding of river and surface water flood risk and consider options for flood risk management.
<b>Flood study (Ref: 15202)</b>	
<b>Action</b>	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.
<b>Description</b>	A combined surface water and river flood study has been developed for Strathblane to improve understanding of flood risk and assess possible flood management options. However, further data is required to verify the model. Flow measuring instrumentation is scheduled to be installed. Flood study will be updated once further data becomes available.
<b>Community engagement (Ref: 15203)</b>	
<b>Action</b>	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
<b>Description</b>	Awareness raising and community engagement should be based on current understanding and informed by the development of a flood study. Stirling Council have commissioned the Conservation Trust to work with the community to develop resilience measures on the basis of flood study outputs and community priorities.
<b>Community resilience group (Ref: 15204)</b>	
<b>Action</b>	The group of community volunteers work to prepare and put in practice their Community Resilience Plan and be supported by the local authority.
<b>Description</b>	Where communities are prepared to develop community resilience plans the Stirling Council facilitates development of the plans and provide a stock of sandbag replacements for emergency use as part of the plan.

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

## 02/11/09 (Coatbridge and Airdrie)

This area is designated as a potentially vulnerable area due to the flood risk to Airdrie, Chapelhall, Coatbridge and Plains. The main source of flooding is from surface water, with some risk from river and groundwater in Plains. Recent flooding has been caused by surface water flooding.

There are 4 target areas in this potentially vulnerable area, which have been the focus of further assessment, these are listed below. Further information on the objectives and actions to manage flood risk within this area is provided below.

### List of target areas

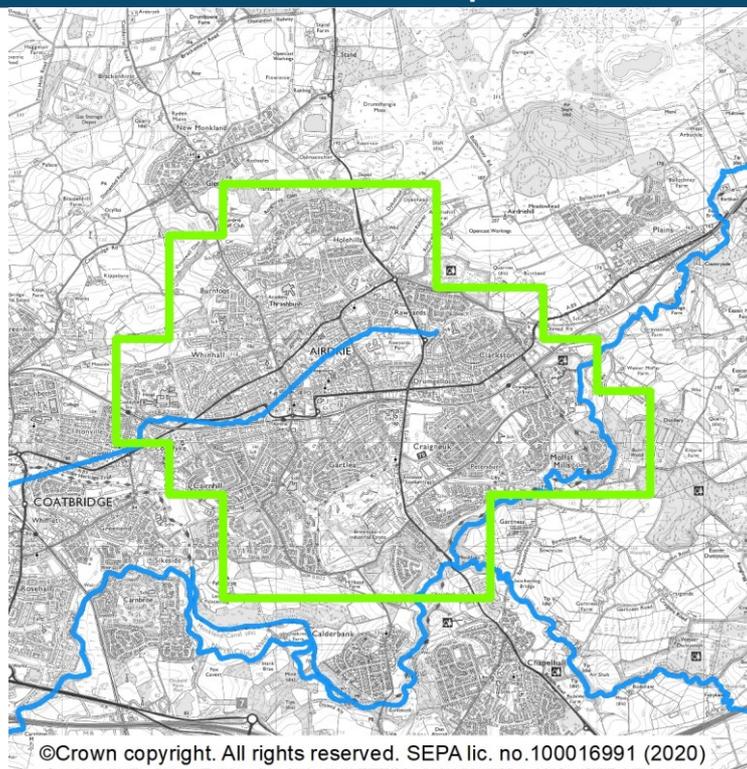
Airdrie	(target area 102)
Coatbridge	(target area 106)
Chapelhall	(target area 161)
Plains	(target area 10300)

## Airdrie (target area 102)

### Summary

Airdrie is located approximately 20km east of Glasgow, within the North Lanarkshire local authority area. The main source of flooding in Airdrie is surface water flooding, however there is also risk of river flooding. There are approximately 1,300 people and 670 homes and businesses currently at risk from flooding. This is likely to increase to 1,500 people and 770 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 flood risk by a sewer flood risk assessment and an 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
1021	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
1022	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
1023	Reduce flood risk	Reduce the risk of flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Surface water management plan (Ref: 10201)	
<b>Action</b>	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.
<b>Description</b>	North Lanarkshire Council to complete the development of a surface water management plan and review options.
Flood study (Ref: 10202)	
<b>Action</b>	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.
<b>Description</b>	North Lanarkshire Council to review the surface water management plan and collaborate with Scottish Water in respect to their sewer flood risk assessment. If flood risk is confirmed in the target area a scoping study should be carried out to identify the future studies and works required to achieve the objectives avoid, reduce and prepare.
Sewer flood risk assessment (Ref: 10203)	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Daldowie 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.

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

## Coordination with the river basin management plan

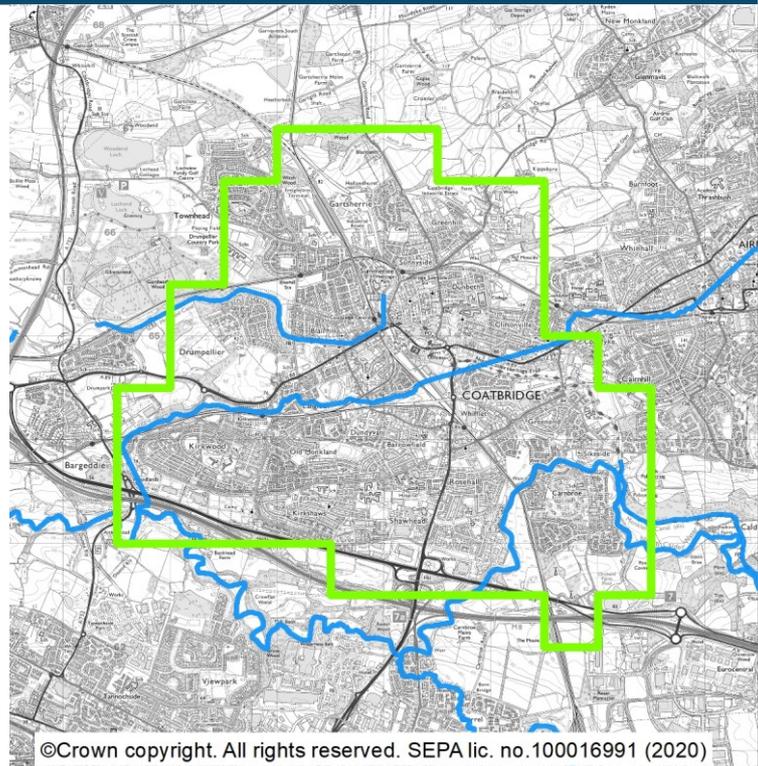
This area has been identified as having potential for restoration in Scotland's river basin management plan. Actions should be coordinated to deliver any potential joint objectives for restoration and flood risk management. This should be considered in the earliest stages of any projects.

## Coatbridge (target area 106)

### Summary

Coatbridge is a town located in North Lanarkshire local authority area. The main source of flooding in Coatbridge is surface water flooding, however there is also risk of river flooding. There are around 2,500 people and 1,400 homes and businesses currently at risk from flooding. This is likely to increase to 3,400 people and 1,900 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 flood risk by a 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
1061	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
1062	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
1063	Reduce flood risk	Reduce the risk of flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Sewer flood risk assessment (Ref: 10601)	
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Description	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Daldowie 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.

Flood warning scoping (Ref: 10602)	
Action	The potential to provide a new flood warning scheme is to be considered by SEPA. Flood warnings are only effective where it is possible to send a warning message with sufficient time to allow communities to take appropriate actions before flooding occurs.
Description	Scoping for a river and surface water flood warning scheme will be carried out in Coatbridge.

## 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: 10603)	
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Description	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.

Surface water management plan (Ref: 10604)	
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.

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

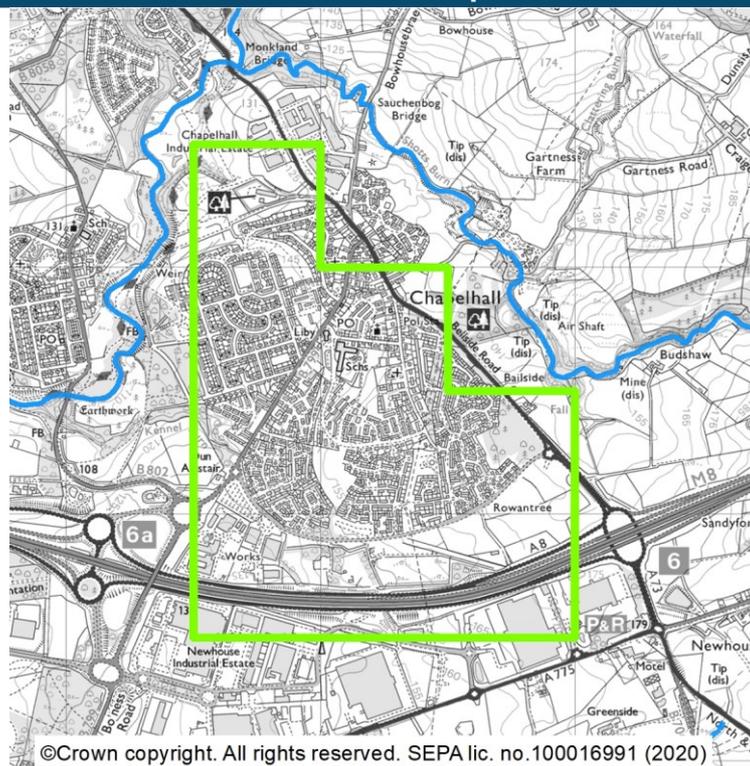
### **Coordination with the river basin management plan**

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

### Summary

Chapelhall is a village located near the North Calder Water and within the North Lanarkshire local authority area. The only source of flooding in Chapelhall is surface water flooding. There are approximately 30 people and 30 homes and businesses currently at risk of flooding. This is likely to increase to 50 people and 40 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 flood risk by a sewer flood risk assessment. Together, this information has highlighted the risk of flooding in this area. Chapelhall 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
1611	Avoid flood risk	Avoid inappropriate development that increases flood risk in Chapelhall
1612	Improve data and understanding	Improve data and understanding of surface water flooding in Chapelhall

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Sewer flood risk assessment (Ref: 16101)	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Daldowie 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.

## 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: 16102)	
<b>Action</b>	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.
<b>Description</b>	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.

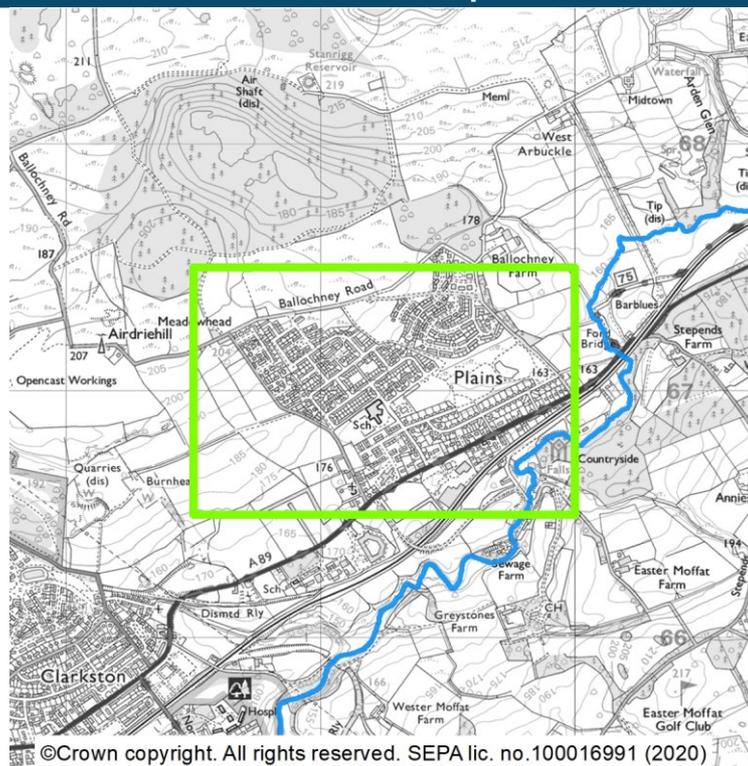
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places,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

## Plains (target area 10300)

### Summary

Plains is a village located on the outskirts of Airdrie in North Lanarkshire local authority area, on the northern side of the North Calder Water. SEPA strategic flood modelling indicates the main source of flooding in Plains is from surface water, with additional risk from river flooding. There are however known issues in the area relating to groundwater flooding.

### 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. Plains 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
103001	Avoid flood risk	Avoid inappropriate development that increases flood risk in Plains
103002	Improve data and understanding	Improve data and understanding of groundwater flooding in Plains

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Flood risk management review (Ref: 1030001)	
<b>Action</b>	During each 6 year planning cycle, we update our understanding of flooding to include all new data and information that has become available. This includes information on any flooding that has happened and the latest predictions on the impacts of climate change. The updated understanding is used to set any appropriate objectives and actions for areas at risk of flooding.
<b>Description</b>	No local actions specific to this target area have been identified yet. There are national actions planned that will cover this area, including an update to SEPA's surface water flood maps and an update to the national flood risk assessment. These, along with other actions that are carried out across the whole local plan district covering this area, will help to manage flood risk in the long term. The need for actions for this area will be reviewed again in 2026.

## 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: 1030002)	
<b>Action</b>	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.
<b>Description</b>	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.

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

## 02/11/10 (East of Glasgow to Strathaven)

This area is designated as a potentially vulnerable area due to flood risk to a number of communities. Some of these include Cambuslang, Hamilton, Shettleston, Uddingston and East Kilbride. The main source of flooding is from surface water, however there is also some river flooding. Recent river flooding has occurred in the area.

There are 10 target areas in this potentially vulnerable area, which have been the focus of further assessment, these are listed below. Further information on the objectives and actions to manage flood risk within this area is provided below.

### List of target areas

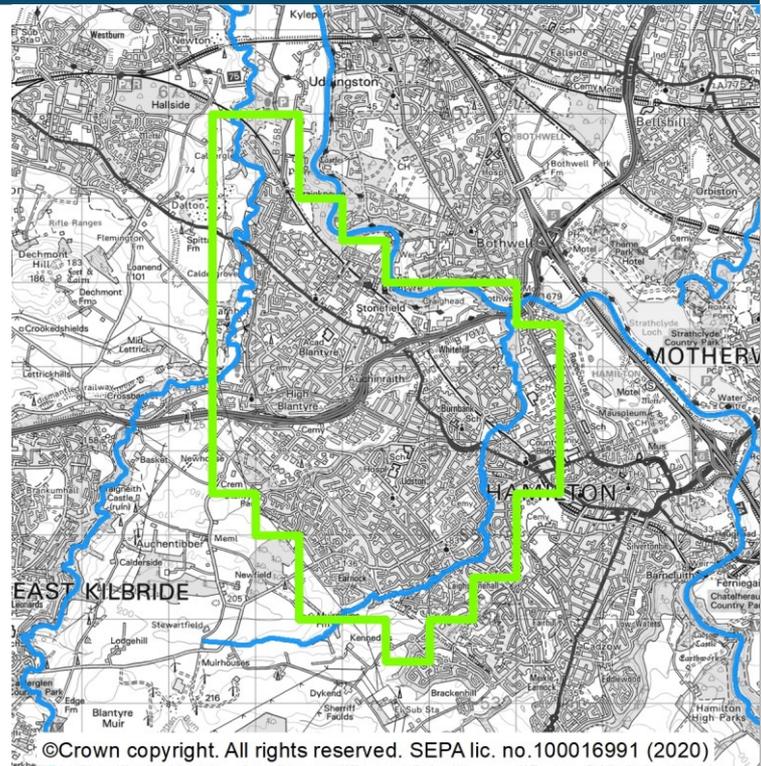
Hamilton west	(target area 1)
Uddingston	(target area 93)
Strathaven	(target area 101)
East Kilbride east	(target area 108)
Easterhouse south	(target area 156)
Dalmarnock	(target area 48001)
Tollcross	(target area 48002)
Carmyle	(target area 80001)
Cambuslang west	(target area 80002)
Cambuslang east	(target area 80003)

## Hamilton west (target area 1)

### Summary

The Hamilton West area covers west Hamilton and all of Blantyre. The area is located within the South Lanarkshire Council area. The main source of flooding is surface water flooding, however there is also a risk of river flooding. There are approximately 1,700 people at risk from flooding and approximately 990 homes and businesses. This is likely to increase to 2,300 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 surface water flooding by a sewer flood risk assessment. 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
11	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
12	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
13	Reduce flood risk	Reduce the risk of flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

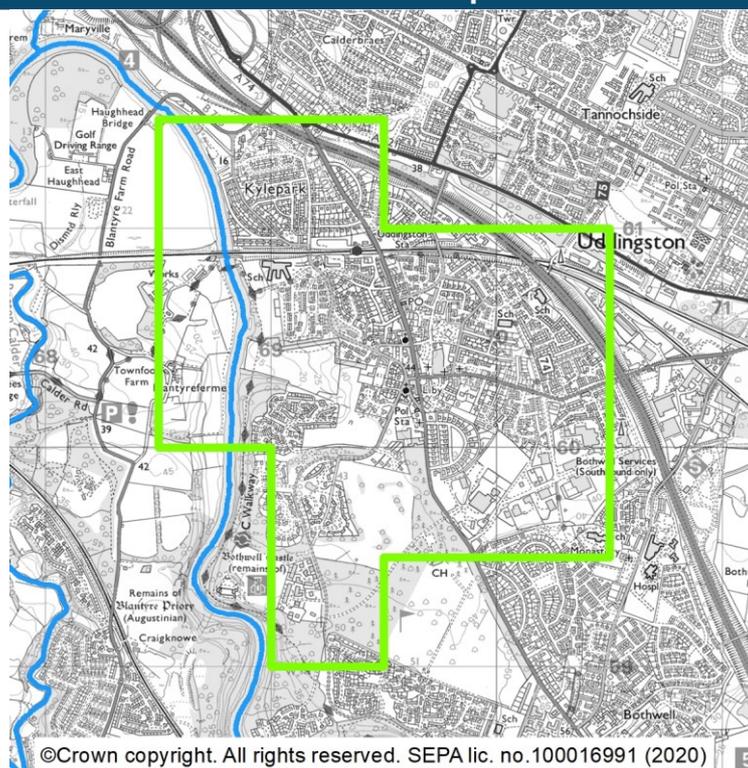
<b>Flood study (Ref: 101)</b>	
<b>Action</b>	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
<b>Description</b>	If flood risk is confirmed from the River Clyde flood model update, a scoping study should be carried out by South Lanarkshire Council to identify the future studies and works required that will achieve the Prepare, Avoid and Reduce objectives.
<b>Sewer flood risk assessment (Ref: 102)</b>	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes the Hamilton and Bothwellbank sewer catchments 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.
<b>Surface water management plan (Ref: 103)</b>	
<b>Action</b>	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.
<b>Description</b>	The surface water management plan for Hamilton should be completed. Flood risk should be quantified for present day and future flood risk. The interactivity between surface water and river flooding should be assessed. If flood risk is confirmed, scoping of the next steps should be completed.

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

### Summary

The town of Uddingston is located on the east bank of the River Clyde, and within the South Lanarkshire local authority area. The main sources of flooding in Uddingston is river and surface water flooding. There are approximately 290 people and approximately 160 homes and businesses currently at risk of flooding. This is likely to increase to 540 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 river flooding by the ongoing River Clyde Flood Modelling and Mapping study and improved for surface water flooding by a sewer flood risk assessment. 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
931	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
932	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of the Meadowbank Flood Bund Flood Protection Scheme
933	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
934	Reduce flood risk	Reduce the risk of flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

<b>Flood study (Ref: 9301)</b>	
<b>Action</b>	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.
<b>Description</b>	If flood risk is confirmed from the River Clyde flood model update, a scoping study should be carried out by South Lanarkshire Council to identify the future studies and works required that will achieve the Prepare, Avoid and Reduce objectives set. The study should focus primarily on establishing the predicted standard of protection for a number of climate change scenarios at the Meadowbank Flood Bund. This information will underpin the development of an adaptation plan for the long term protection of the community.
<b>Flood defence maintenance (Ref: 9302)</b>	
<b>Action</b>	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
<b>Description</b>	Maintenance to the Meadowbank Flood Bund Flood Protection Scheme should continue and updates to the maintenance regime be made based on the findings of the flood study.
<b>Sewer flood risk assessment (Ref: 9303)</b>	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Daldowie 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.

## 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.

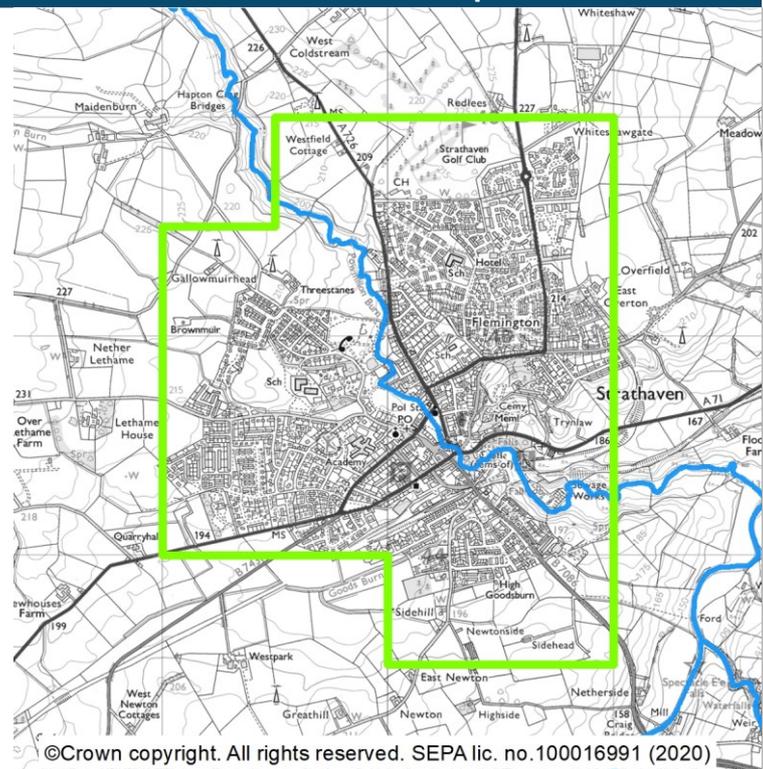
Surface water management plan (Ref: 9304)	
<b>Action</b>	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps 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.
<b>Description</b>	South Lanarkshire Council to develop a surface water management plan working with Scottish Water as appropriate, to gain an understanding of the hotspots of flooding and potential interaction with other sources of flooding. The impacts of climate change on surface water flood risk should be considered.

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.

### Summary

Strathaven is a town in the South Lanarkshire Council area, located south of Glasgow on the banks of Powmillion Burn and just north of Avon Water. The main source of flooding in Strathaven is river flooding, however there is also a risk of surface water flooding. There are approximately 210 people and 160 homes and businesses currently at risk from flooding. This is likely to increase to 270 people and 200 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 a sewer flood risk assessment. 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
1011	Avoid flood risk	Avoid inappropriate development that increases flood risk in Strathaven
1012	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Strathaven
1013	Reduce flood risk	Reduce the risk of flooding in Strathaven

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

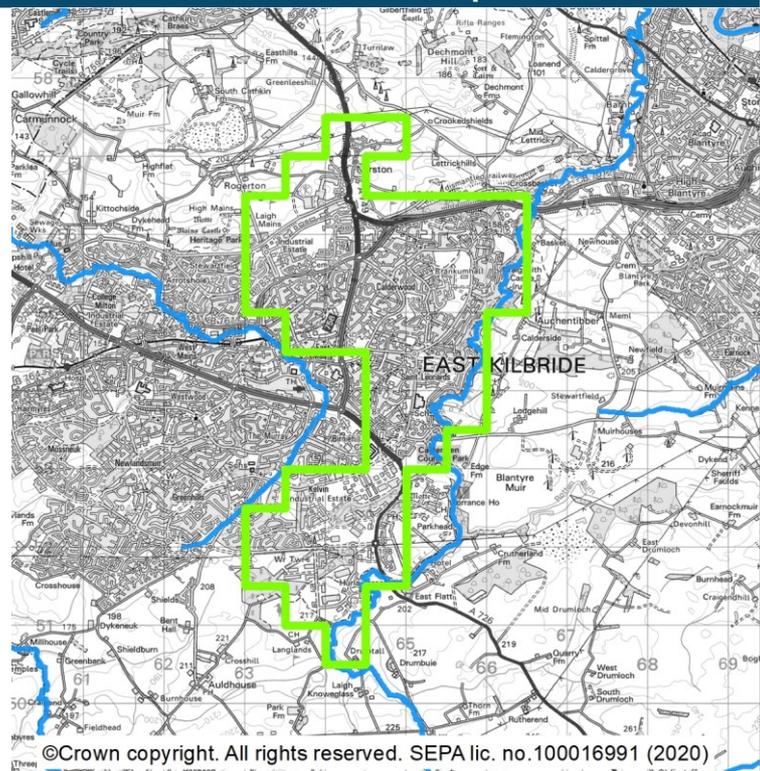
Flood study (Ref: 10101)	
<b>Action</b>	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
<b>Description</b>	A review of the Strathaven study should be carried out regarding the flooding source and mechanisms and the feasible flood protection options. The impacts of climate change on flood risk should be evaluated. If flood risk is confirmed, scoping of the flood protection options should be completed.

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

### Summary

This covers the eastern area of the town East Kilbride, which is located to the south of Glasgow and within the South Lanarkshire Council area. The main source of flooding in East Kilbride east is surface water flooding, however there is also a risk from river flooding. There are approximately 1,300 people and 750 homes and businesses currently at risk from flooding and approximately. This is likely to increase to 1,600 people and 930 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 and the interactions between different flood sources by an integrated catchment study. 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
1081	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
1082	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
1083	Reduce flood risk	Reduce the risk of flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Sewer flood risk assessment (Ref: 10801)	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Allers and Philipshill sewer catchments 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.
Surface water management plan (Ref: 10802)	
<b>Action</b>	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.
<b>Description</b>	South Lanarkshire Council to develop a surface water management plan working with Scottish Water as appropriate, to gain an understanding of the hotspots of flooding and potential interaction with river flooding. The impacts of climate change on surface water flood risk should be considered. Where flood risk is confirmed, scoping of the flood protection options should be completed.

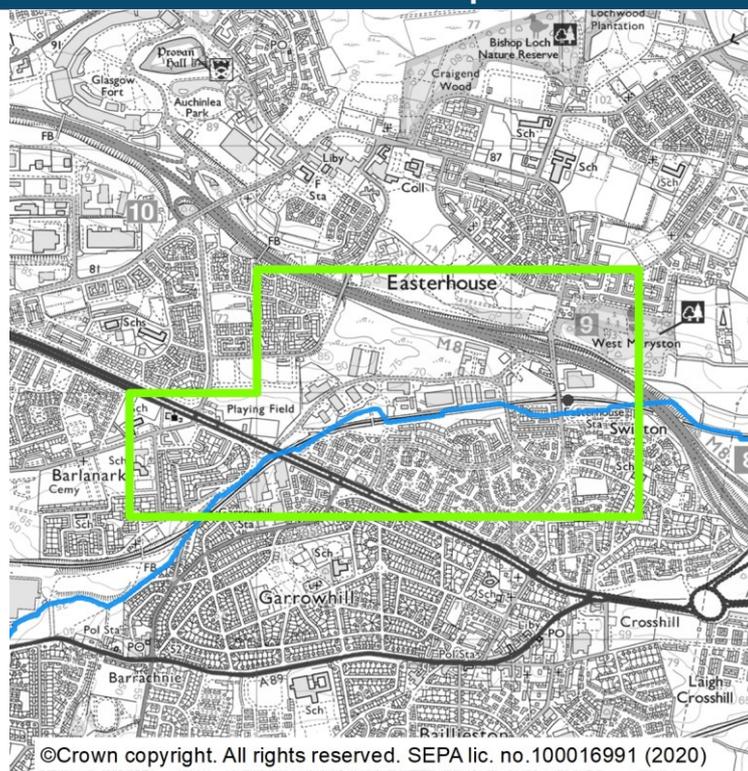
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places,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

## Easterhouse south (target area 156)

### Summary

Easterhouse south is a north-eastern suburb of Glasgow, within the Glasgow City Council area. The main source of flooding in Easterhouse south is surface water, however there is also a risk from river flooding. There are approximately 310 people and 160 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 surface water by the sewer flood risk assessment. Since 2015 this target area has not experienced significant rainfall events and there are therefore no recent records of flooding. 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
1561	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
1562	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
1563	Reduce flood risk	Reduce the risk of flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Flood study (options appraisal) (Ref: 15601)	
<b>Action</b>	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.
<b>Description</b>	Glasgow City Council to develop options appraisal for the Tollcross Burn catchment surface water management phase 2 . The potential for natural flood management should be investigated. The options appraisal study outputs will be used to develop a programme to take forward key recommendations where funding permits.
Sewer flood risk assessment (Ref: 15602)	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Daldowie and Dalmarnock sewer catchments 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.

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

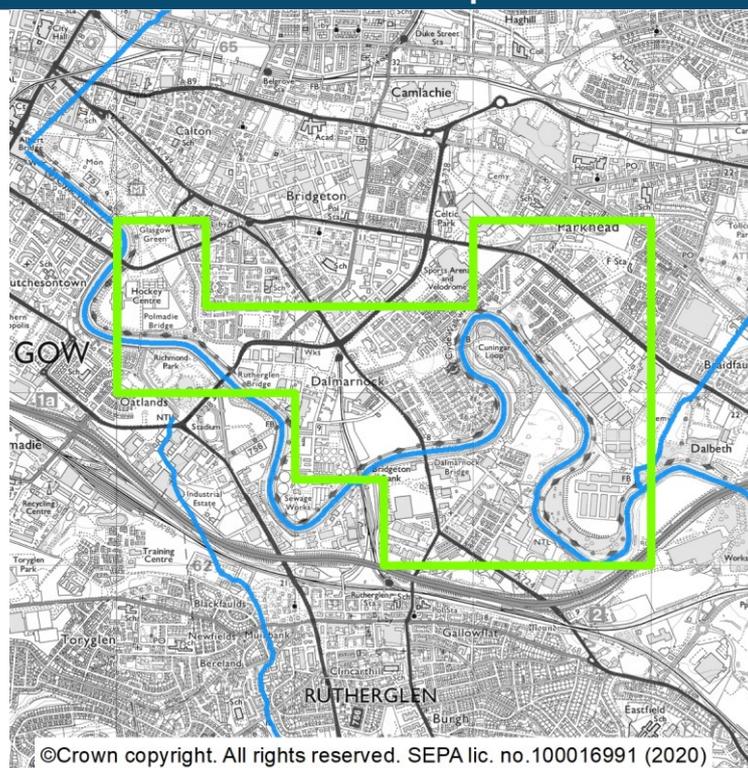
## Coordination with the river basin management plan

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

### Summary

The area of Dalmarnock is located in Glasgow, on the River Clyde and within the Glasgow City and South Lanarkshire Council areas. The main source of flooding in the catchment is river flooding, however there is also risk from surface water flooding. There are approximately 1,900 people and 1,000 homes and businesses currently at risk from flooding. This is likely to increase to 3,500 people and 1,900 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 river flooding by the tidal Clyde model (December 2020) and the ongoing River Clyde Flood Modelling and Mapping study. Understanding is also 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
480011	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
480012	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of the Dalmarnock Flood Bund Flood Protection Scheme
480013	Improve data and understanding	Improve data and understanding of the performance of the Dalmarnock Flood Bund Flood Protection Scheme
480014	Improve data and understanding	Improve data and understanding of surface water flooding in this target area
480015	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
480016	Reduce flood risk	Reduce the risk of flooding in this target area

## What actions are proposed for this area?

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

### Actions proposed to start between 2022 and 2028

Flood study (Ref: 4800101)	
<b>Action</b>	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.
<b>Description</b>	Glasgow City Council and South Lanarkshire Council to develop an updated full flood model of the River Clyde following the outputs from the tidal Clyde and River Clyde models.

Flood study (Ref: 4800102)	
<b>Action</b>	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.
<b>Description</b>	If flood risk is confirmed from the River Clyde flood model update, a scoping study should be carried out by South Lanarkshire Council to identify the future studies and works required that will achieve the Prepare, Avoid and Reduce objectives set. The scoping study should include the outputs from the River Clyde flood study on the present performance of the Dalmarnock flood bund, and establish the predicted standard of protection for a number of climate change scenarios. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.

Sewer flood risk assessment (Ref: 4800103)	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Dalmarnock 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.

### Flood defence maintenance (Ref: 4800104)

**Action**

The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.

**Description**

Maintenance to the Dalmarnock Flood Bund Flood Protection Scheme should continue and updates to the maintenance regime be made based on the findings of the flood study.

### Flood warning maintenance (Ref: 4800105)

**Action**

The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.

**Description**

SEPA should maintain the Clyde flood warning scheme. The scheme should be investigated for improvement and/or recalibration.

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

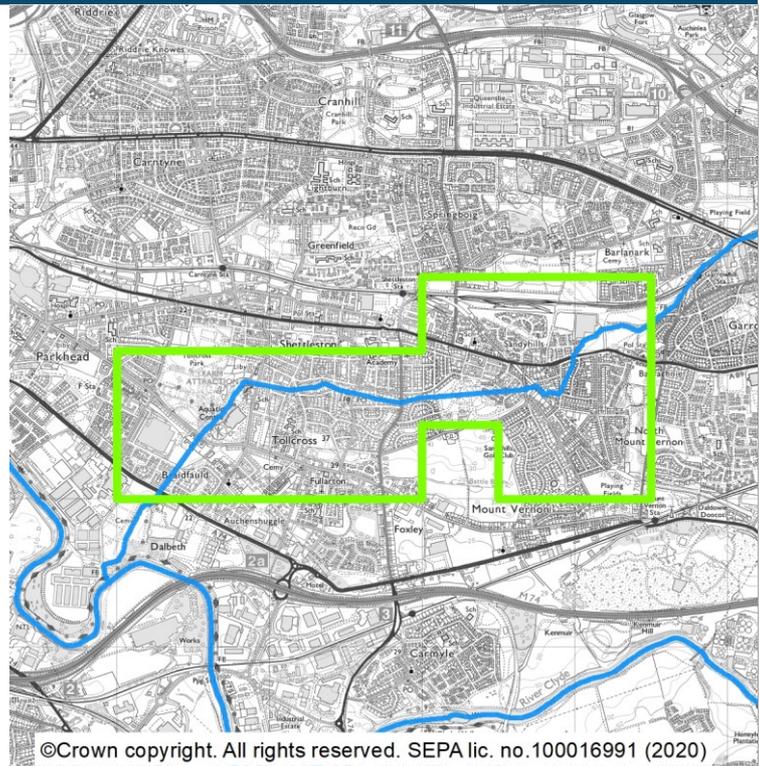
### Coordination with the river basin management plan

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

### Summary

Tollcross is located to the east of Glasgow. It is also located within the Glasgow City Council area. The main source of flooding in Tollcross is river flooding, however there is also risk from surface water flooding. There are approximately 3,300 people and 1,600 homes and businesses currently at risk from flooding. This is likely to increase to 3,700 people and 1,800 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 and sewer flood risk assessment. Understanding has also improved for river flooding by the Tollcross Burn de-culverting and river basin management project. 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
480021	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
480022	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
480023	Reduce flood risk	Reduce the risk of flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Flood scheme or works design (Ref: 4800201)	
<b>Action</b>	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.
<b>Description</b>	Detail design of the preferred option identified for the Shettleston surface water management plan phase 1 to be developed. The detail design outputs will be used to develop a programme to take forward key recommendations where funding permits.

Community engagement (Ref: 4800202)	
<b>Action</b>	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
<b>Description</b>	Detailed design for surface water management options 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.

Sewer flood risk assessment (Ref: 4800203)	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Dalmarnock 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.

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

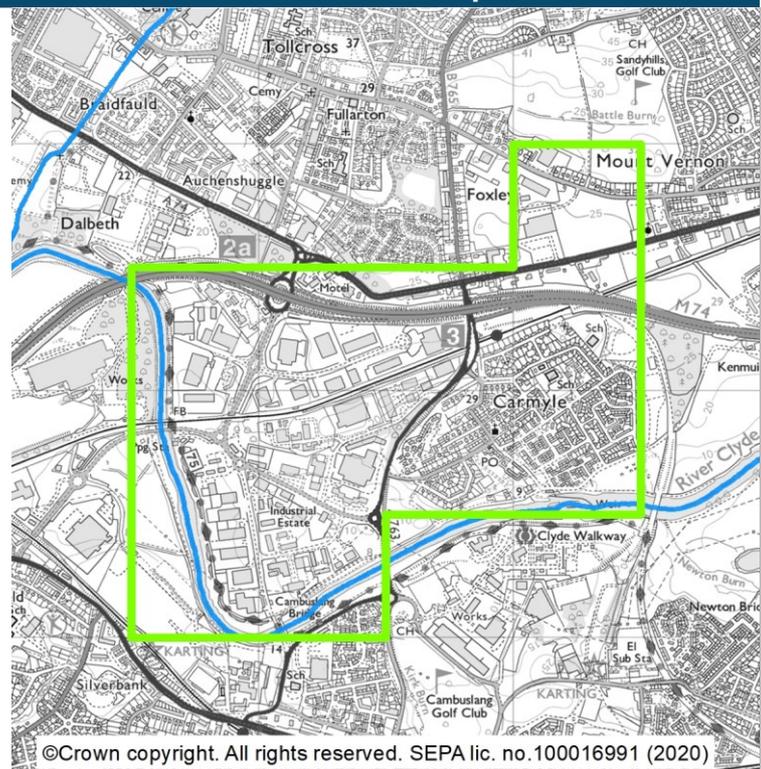
## Coordination with the river basin management plan

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

### Summary

The eastern Glasgow suburb of Carmyle is located on the River Clyde. It is within the Glasgow City and South Lanarkshire Council areas. The main source of flooding in the catchment is surface water flooding, however there is also risk of river flooding. There are approximately 140 people and 120 homes and businesses currently at risk from flooding. This is likely to increase to 430 people and 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 surface water flooding by the sewer flood risk assessment and for river flooding by the ongoing River Clyde Flood Modelling and Mapping Study. 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
800011	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
800012	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
800013	Reduce flood risk	Reduce the risk of flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Flood study (Ref: 8000101)	
<b>Action</b>	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.
<b>Description</b>	Glasgow City Council and South Lanarkshire Council to develop an updated full flood model of the River Clyde following the outputs from the tidal Clyde and River Clyde models. The tidal Clyde model update outputs will be used to develop a programme to take forward key recommendations where funding permits.
Flood warning maintenance (Ref: 8000102)	
<b>Action</b>	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
<b>Description</b>	SEPA should maintain the Clyde flood warning scheme. The scheme should be investigated for improvement and/or recalibration.
Sewer flood risk assessment (Ref: 8000103)	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Shieldhall 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.

## 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: 8000104)	
<b>Action</b>	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.
<b>Description</b>	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.

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

### **Coordination with the river basin management plan**

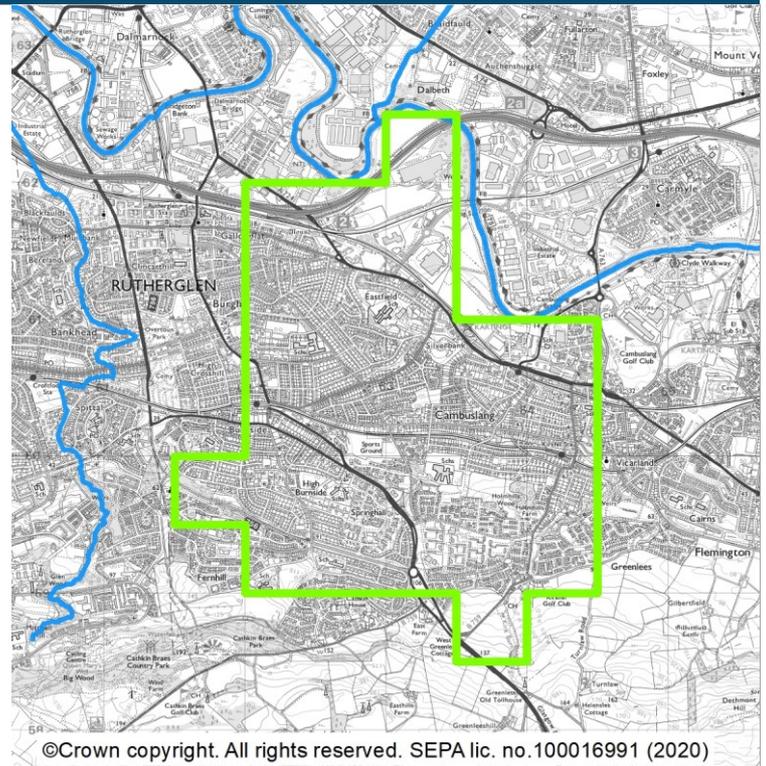
This area has been identified as having potential for restoration in Scotland's river basin management plan. Actions should be coordinated to deliver any potential joint objectives for restoration and flood risk management. This should be considered in the earliest stages of any projects.

## Cambuslang west (target area 80002)

### Summary

The western section of the town of Cambuslang is located east of Glasgow on the River Clyde. It is mostly in the South Lanarkshire local authority areas. The main source of flooding in the catchment is surface water flooding, however there is also risk from river flooding. There are approximately 1,600 people and 910 homes and businesses currently at risk from flooding. This is likely to increase to 2,100 people and 1,200 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 Eastfield and Muirbank Surface Water Management Plan. Understanding is also improved for river flooding by the flood warning scheme. 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
800021	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
800022	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
800023	Reduce flood risk	Reduce the risk of flooding in this target area

## What actions are proposed for this area?

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

### Actions proposed to start between 2022 and 2028

Flood study (Ref: 8000201)	
<b>Action</b>	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.
<b>Description</b>	If flood risk is confirmed from the River Clyde flood model update, a scoping study should be carried out by South Lanarkshire Council to identify the future studies and works required that will achieve the Prepare, Avoid and Reduce objectives set.

Sewer flood risk assessment (Ref: 8000202)	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Shieldhall 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.

Surface water management plan (Ref: 8000203)	
<b>Action</b>	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system have been identified. Next steps in managing such water ponding or over-whelmed drainage systems have been identified and should be implemented. The plan is to be reviewed and updated as needed.
<b>Description</b>	South Lanarkshire Council to review the surface water management plan outputs in collaboration with Scottish Water. If flood risk is confirmed, scoping of the next steps should be completed.

Flood warning maintenance (Ref: 8000204)	
<b>Action</b>	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
<b>Description</b>	SEPA should maintain the Clyde flood warning scheme. The scheme should be investigated for improvement and/or recalibration.

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

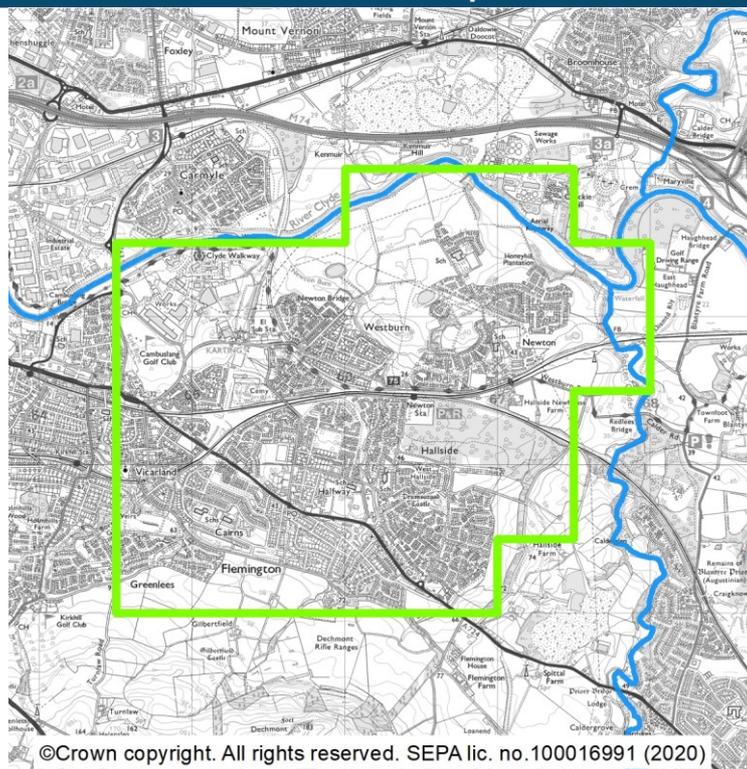
## Coordination with the river basin management plan

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

### Summary

The eastern section of the town of Cambuslang is located east of Glasgow on the River Clyde. The area is in the South Lanarkshire Local Council area. The main source of flooding in the area is surface water flooding, however there is also a risk from river flooding. There are approximately 1,400 people and 710 homes and businesses currently at risk from flooding. This is likely to increase to 1,700 people and 920 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 assessments carried out in support of the Clydesmill Flood Protection Scheme has underpinned the understanding of river flood risk. Understanding is also 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
800031	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
800032	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of the Clydesmill Flood Protection Scheme in the River Clyde
800033	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
800034	Reduce flood risk	Reduce the risk of flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

<b>Flood study (Ref: 8000301)</b>	
<b>Action</b>	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.
<b>Description</b>	If flood risk is confirmed from the River Clyde flood model update, a scoping study should be carried out by South Lanarkshire Council to identify the future studies and works required that will achieve the Prepare, Avoid and Reduce objectives set. This will include a review of the present and future performance of the Clydesmill Flood Protection Scheme.
<b>Sewer flood risk assessment (Ref: 8000302)</b>	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Shieldhall 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.
<b>Surface water management plan (Ref: 8000303)</b>	
<b>Action</b>	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system have been identified. Next steps in managing such water ponding or over-whelmed drainage systems have been identified and should be implemented. The plan is to be reviewed and updated as needed.
<b>Description</b>	South Lanarkshire Council to review the surface water management plan outputs in collaboration with Scottish Water. If flood risk is confirmed, scoping of the next steps should be completed.
<b>Flood defence maintenance (Ref: 8000304)</b>	
<b>Action</b>	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
<b>Description</b>	Maintenance to the Clydesmill Flood Protection Scheme should continue and updates to the maintenance regime be made based on the findings of the flood study.

### Flood warning maintenance (Ref: 8000305)

**Action**

The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.

**Description**

SEPA should maintain the Clyde flood warning scheme. The scheme should be investigated for improvement and/or recalibration.

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

### Coordination with the river basin management plan

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

## 02/11/11 (Clyde catchment - Motherwell to Larkhall)

This area is designated as a potentially vulnerable area due to flood risk to a number of communities. Some of these include Hamilton, Holytown, Larkhall and Motherwell. The main sources of flooding are from surface water and river flooding from the River Clyde and tributaries. There have been widespread reports of flooding in the area, with the most of them caused by surface water.

There are 7 target areas in this potentially vulnerable area, which have been the focus of further assessment, these are listed below. Further information on the objectives and actions to manage flood risk within this area is provided below.

### List of target areas

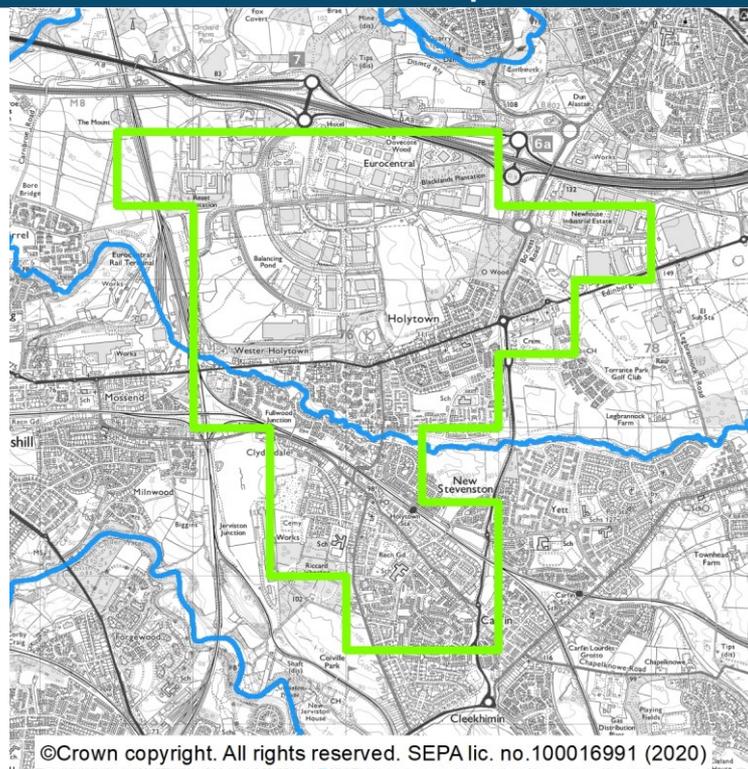
Holytown and New Stevenston	(target area 10)
Larkhall	(target area 82)
Motherwell	(target area 86)
Newarthill	(target area 87)
Wishaw south	(target area 94)
Bellshill	(target area 104)
Hamilton east	(target area 112)

## Holytown and New Stevenston (target area 10)

### Summary

Holytown and New Stevenston are villages located just north of Motherwell, in the North Lanarkshire local authority area. The main source of flooding in Holytown and New Stevenston is surface water flooding, however there is also a risk from river flooding. There are approximately 540 people and 270 homes and businesses currently at risk from flooding. This is estimated to increase to 750 people and 370 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 surface water flood risk by the Holytown Flood Study (stage 1). 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
101	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
102	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
103	Reduce flood risk	Reduce the risk of flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Sewer flood risk assessment (Ref: 1001)	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Daldowie 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.
Surface water management plan (Ref: 1002)	
<b>Action</b>	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.
<b>Description</b>	North Lanarkshire Council to develop a surface water management plan based on the outputs from the surface water study. The plan should be reviewed and updated regularly.

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

## Coordination with the river basin management plan

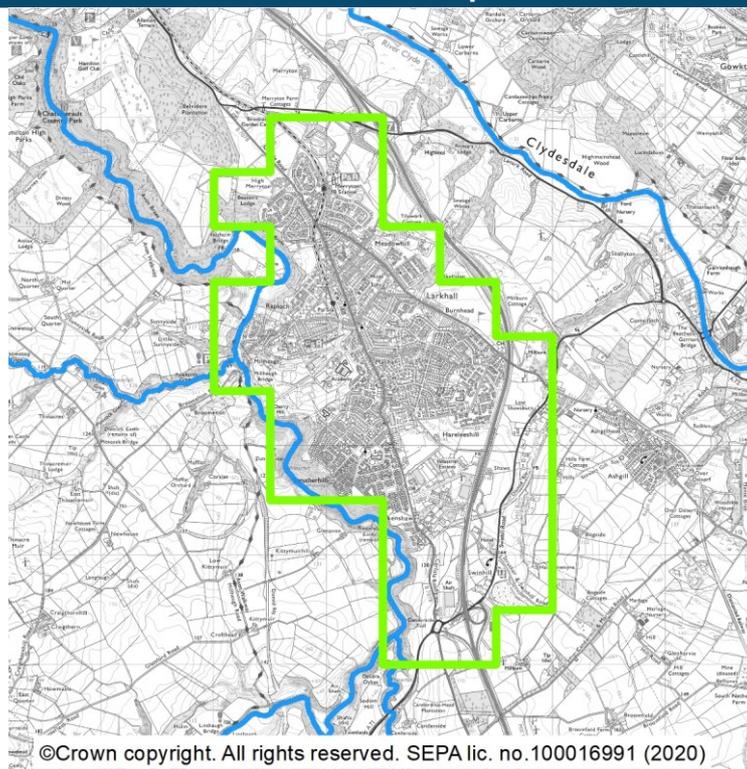
This area has been identified as having potential for restoration in Scotland's river basin management plan. Actions should be coordinated to deliver any potential joint objectives for restoration and flood risk management. This should be considered in the earliest stages of any projects.

## Larkhall (target area 82)

### Summary

Larkhall is a town between the River Clyde and Avon Water within the South Lanarkshire Council area. The main source of flooding in Larkhall is surface water flooding, however there is also a risk of river flooding. There are around 400 people and 240 homes and businesses currently 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. A 2006 flood study in support of the Golf Gardens Flood Protection Scheme has underpinned the understanding of river flood risk. The national level assessment is also improved for surface water flooding by a sewer flood risk assessment. 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
821	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
822	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of the Golf Gardens flood protection scheme 2006
823	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
824	Reduce flood risk	Reduce the risk of flooding in this target area

## What actions are proposed for this area?

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

### Actions proposed to start between 2022 and 2028

Flood defence maintenance (Ref: 8201)	
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Description	Maintenance to the Golf Gardens Flood Protection Scheme should continue and updates to the maintenance regime be made based on the findings of the flood study.

### 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 (existing flood defences) (Ref: 8202)	
Action	The performance and condition of the existing flood defences are to be evaluated, including consideration of the likely impacts of climate change. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	The study should focus primarily on the present performance of the Golf Gardens Flood Protection Scheme and 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.

Surface water management plan (Ref: 8203)	
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	South Lanarkshire Council to develop a surface water management plan working with Scottish Water as appropriate, to gain an understanding of the hotspots of flooding and potential interaction with other sources of flooding. The impacts of climate change on surface water flood risk should be considered.

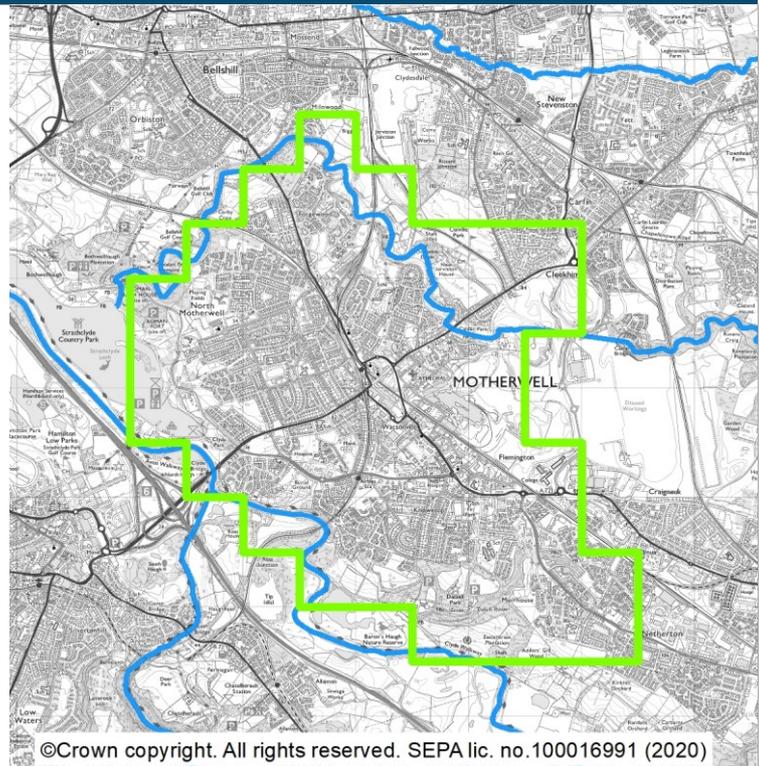
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, 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.

## Motherwell (target area 86)

### Summary

The town of Motherwell is located south-east of Glasgow within the North Lanarkshire local authority area. It also includes a small part of South Lanarkshire local authority area. The main source of flooding in Motherwell is surface water flooding, however there is also a risk of river flooding. There are approximately 2,300 people at risk from flooding and approximately 1,100 homes and businesses. This is likely to increase to 2,700 people and 1,400 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 flood risk by the ongoing River Clyde Flood Mapping and Modelling study and improved for surface water flood risk by a sewer flood risk assessment. Understanding is also 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
861	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
862	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
863	Reduce flood risk	Reduce the risk of flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Flood study (Ref: 8601)	
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Description	North Lanarkshire to carry out a review of the River Clyde Flood Mapping and Modelling study, surface water management plan and sewer flood risk assessment. If flood risk is confirmed in the target area a scoping study should be carried out to identify the future studies and works required to achieve the objectives avoid, reduce and prepare.

Flood study (options appraisal) (Ref: 8602)	
Action	In areas where flood risk is confirmed, a range of possible options to manage flood risk are to be identified, including natural flood management actions where suitable, and a preferred approach is to be chosen. This should include adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	Following on the outputs from the River Clyde Flood Mapping and Modelling study developed by South Lanarkshire Council, North Lanarkshire Council should carry out an options appraisal to further investigate the feasibility of flood protection work in Greenacres.

Sewer flood risk assessment (Ref: 8603)	
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Description	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Carbarns and Daldowie sewer catchments 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.

Surface water management plan (Ref: 8604)	
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	The local flood risk management plans published in December 2022 will establish further detail on the actions.

**Flood warning maintenance (Ref: 8605)****Action**

The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.

**Description**

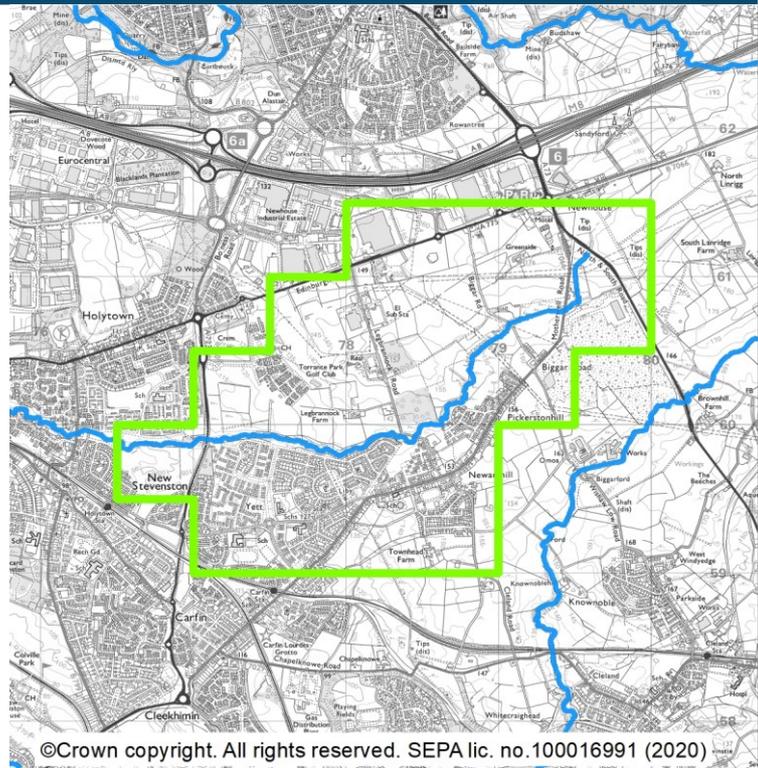
SEPA should maintain the Clyde flood warning scheme. The scheme should be investigated for improvement and/or recalibration.

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.

### Summary

The small village of Newarthill, is located three kilometres north-east of Motherwell within the North Lanarkshire local authority area. The main source of flooding in Newarthill is surface water flooding, however there is also a risk of river flooding. There are approximately 240 people and 120 homes and businesses at risk of flooding. This is likely to increase to 290 people and 150 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 flood risk by a sewer flood risk assessment. Together, this information has highlighted the risk of flooding in this area. Newarthill 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
871	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
872	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
873	Reduce flood risk	Reduce the risk of flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Sewer flood risk assessment (Ref: 8701)	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Daldowie 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.

## 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: 8702)	
<b>Action</b>	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.
<b>Description</b>	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.

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

## Coordination with the river basin management plan

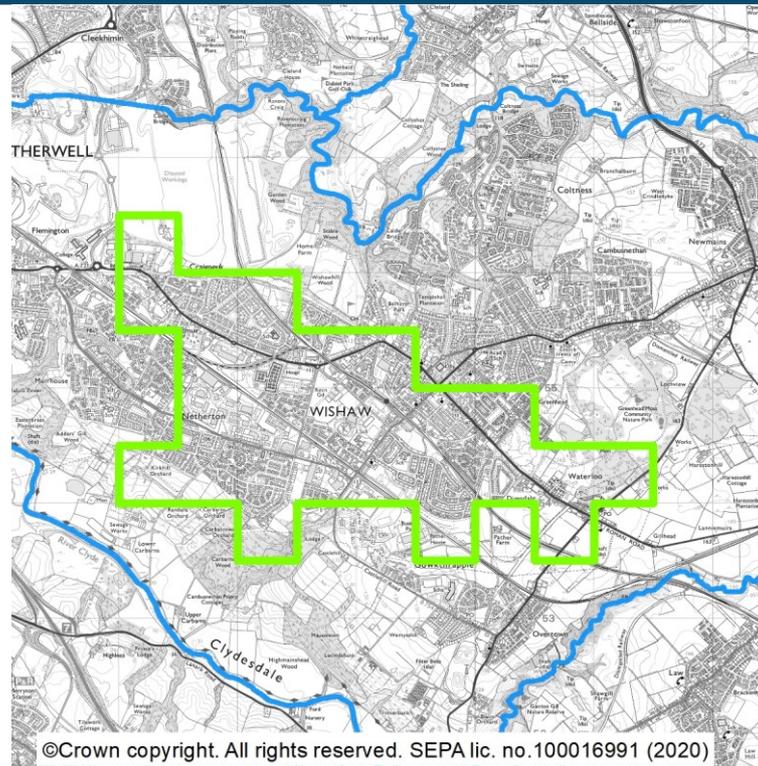
This area has been identified as having potential for restoration in Scotland's river basin management plan. Actions should be coordinated to deliver any potential joint objectives for restoration and flood risk management. This should be considered in the earliest stages of any projects.

## Wishaw south (target area 94)

### Summary

Wishaw south covers the south side of Wishaw, a large town located on the edge of the Clyde Valley. The area is located within the North Lanarkshire local authority area. The main source of flooding in Netherton is surface water flooding. There are approximately 780 people at risk from flooding and approximately 390 homes and businesses. This is likely to increase to 1,100 people and 560 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 flood risk by a 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
941	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
942	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
943	Reduce flood risk	Reduce the risk of flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Sewer flood risk assessment (Ref: 9401)	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Carbarns 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.

## 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: 9402)	
<b>Action</b>	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.
<b>Description</b>	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.

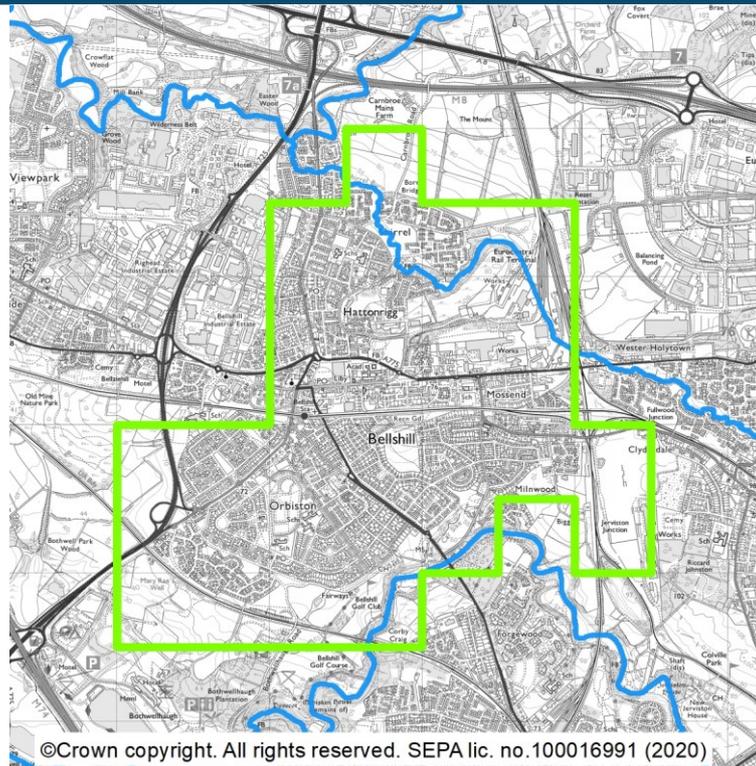
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places,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

## Bellshill (target area 104)

### Summary

Bellshill area includes the towns of Bellshill, Orbiston and Milnwood, and is located to the north of the South Calder Water. The area is located within the North Lanarkshire local authority area. The main source of flooding in Bellshill is surface water flooding and there is also risk from river flooding. There are approximately 930 people and 460 homes and businesses currently at risk from flooding. This is likely to increase to 1,300 people and 650 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 flood risk by a 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
1041	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
1042	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
1043	Reduce flood risk	Reduce the risk of flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Sewer flood risk assessment (Ref: 10401)	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Daldowie 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.

## 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: 10402)	
<b>Action</b>	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.
<b>Description</b>	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.

Flood study (Ref: 10403)	
<b>Action</b>	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.
<b>Description</b>	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.

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

## Coordination with the river basin management plan

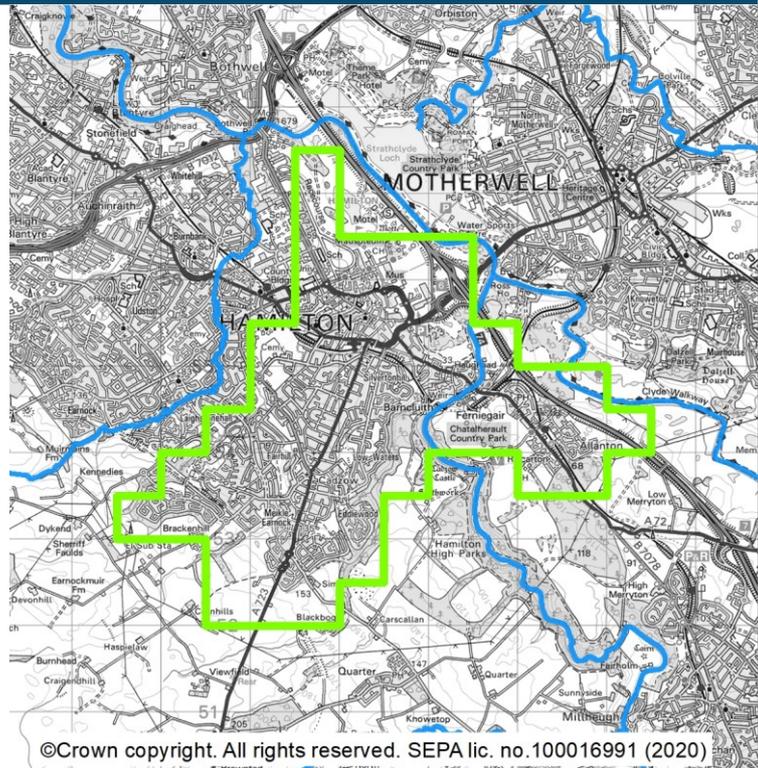
This area has been identified as having potential for restoration in Scotland's river basin management plan. Actions should be coordinated to deliver any potential joint objectives for restoration and flood risk management. This should be considered in the earliest stages of any projects.

## Hamilton east (target area 112)

### Summary

The town of Hamilton is located south-east of Glasgow and is within the South Lanarkshire Council area. The main source of flooding in Hamilton east is river flooding, however there is also a risk from surface water flooding. There are approximately 910 people at risk from flooding and approximately 520 homes and businesses. This is estimated to increase to 1,200 people and 670 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 ongoing River Clyde Flood Modelling and Mapping study and improved for surface water flooding by a sewer flood risk assessment. 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
1121	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
1122	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
1123	Reduce flood risk	Reduce the risk of flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

<b>Flood study (Ref: 11201)</b>	
<b>Action</b>	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.
<b>Description</b>	If flood risk is confirmed from the River Clyde flood model update (including Avon Water, Covan Burn and Cadzow Burn), a scoping study should be carried out by South Lanarkshire Council to identify the future studies and works required that will achieve the Prepare, Avoid and Reduce objectives set.
<b>Surface water management plan (Ref: 11202)</b>	
<b>Action</b>	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.
<b>Description</b>	The surface water management plan for Hamilton should be completed. Flood risk should be quantified for present day and future flood risk. The interactivity between surface water and river flooding should be assessed. If flood risk is confirmed, scoping of the next steps should be completed.
<b>Sewer flood risk assessment (Ref: 11203)</b>	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Hamilton 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.
<b>Flood warning maintenance (Ref: 11204)</b>	
<b>Action</b>	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
<b>Description</b>	SEPA should maintain the Clyde flood warning scheme. The scheme should be investigated for improvement and/or recalibration.

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

## 02/11/12 (Clyde catchment - Lanark to Lesmahagow)

This area is designated as a potentially vulnerable area due to the flood risk in Crossford (South Lanarkshire), Lesmahagow and Kirkfieldbank. The main source of flooding is from the River Clyde and its tributaries. There is the potential for an increased flood risk due to climate change in Lesmahagow. Recent flooding has occurred in the area.

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

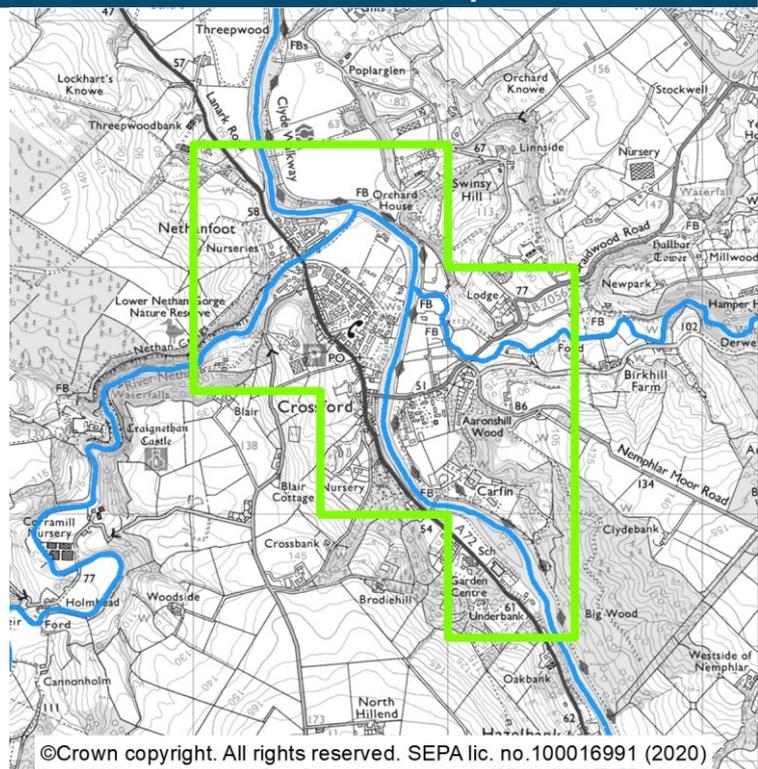
### List of target areas

Crossford (South Lanarkshire)	(target area 29)
Kirkfieldbank	(target area 30)
Lesmahagow	(target area 151)

### Summary

The village of Crossford (South Lanarkshire) lies alongside the River Clyde and the River Nethan. The area is located within the South Lanarkshire Council area. The main source of flooding in Crossford is river flooding, however there is also a risk from surface water flooding. There are approximately 190 people at risk from flooding and approximately 120 homes and businesses. This is estimated to increase to 250 people and 150 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 ongoing River Clyde Flood Modelling and Mapping study and improved for surface water flooding by a sewer flood risk assessment. Understanding is also improved for river flooding by the flood warning scheme. 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
291	Avoid flood risk	Avoid inappropriate development that increases flood risk in Crossford
292	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Crossford
293	Reduce flood risk	Reduce the risk of flooding in Crossford

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

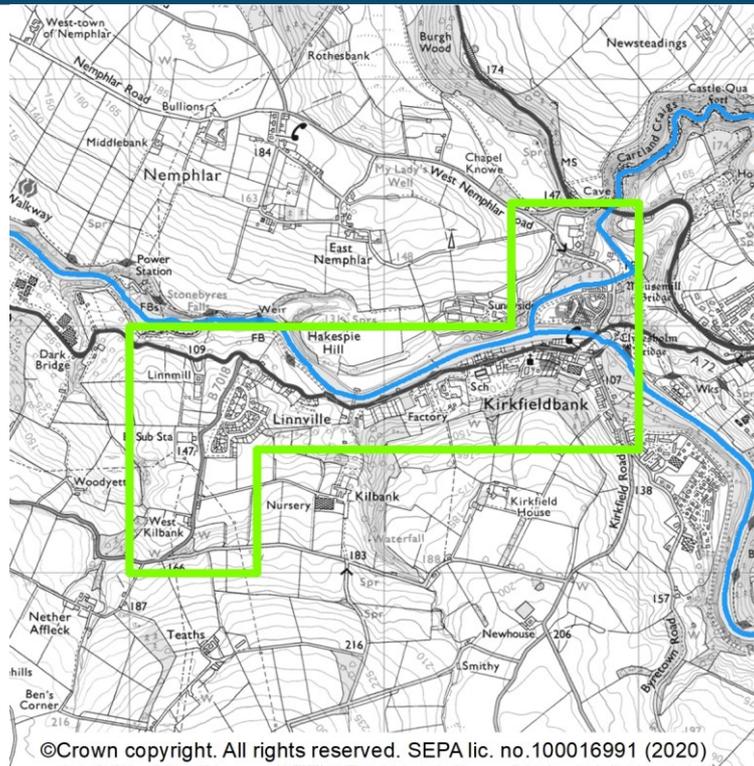
Flood study (Ref: 2901)	
<b>Action</b>	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
<b>Description</b>	If flood risk is confirmed from the River Clyde flood model update, a scoping study should be carried out by South Lanarkshire Council to identify the future studies and works required that will achieve the Prepare, Avoid and Reduce objectives set.
Flood warning maintenance (Ref: 2902)	
<b>Action</b>	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
<b>Description</b>	SEPA should maintain the Clyde flood warning scheme. The scheme should be investigated for improvement and/or recalibration.

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.

### Summary

The village of Kirkfieldbank is situated on the banks of the River Clyde and west of the town of Lanark. The area is located within South Lanarkshire Council area. The main source of flooding in Kirkfieldbank is river flooding. There are approximately 170 people at risk from flooding and approximately 100 homes and businesses. 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 river flooding by the ongoing River Clyde Flood Modelling and Mapping study. 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
301	Avoid flood risk	Avoid inappropriate development that increases flood risk in Kirkfieldbank
302	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Kirkfieldbank
303	Reduce flood risk	Reduce the risk of flooding in Kirkfieldbank

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

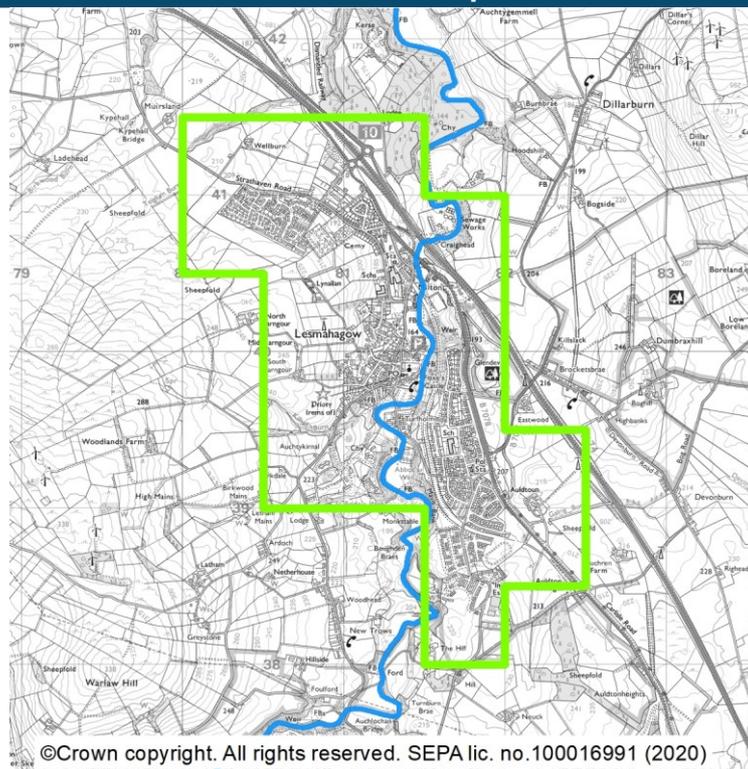
Flood study (Ref: 3001)	
<b>Action</b>	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
<b>Description</b>	If flood risk is confirmed from the River Clyde flood model update, a scoping study should be carried out by South Lanarkshire Council to identify the future studies and works required that will achieve the Prepare, Avoid and Reduce objectives set.

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.

### Summary

Lesmahagow is a town in South Lanarkshire Council area located on the banks of the River Nethan. The main sources of flooding in Lesmahagow are surface water and river flooding. There is approximately 110 people and 70 homes and businesses currently at risk from flooding. This is likely to increase to 160 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. The national level assessment is improved for surface water flooding by a sewer flood risk assessment. Together, this information has highlighted the risk of flooding in this target area. Lesmahagow 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
1511	Avoid flood risk	Avoid inappropriate development that increases flood risk in Lesmahagow
1512	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Lesmahagow
1513	Reduce flood risk	Reduce the risk of flooding in Lesmahagow

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Flood risk management review (Ref: 15101)	
<b>Action</b>	During each 6 year planning cycle, we update our understanding of flooding to include all new data and information that has become available. This includes information on any flooding that has happened and the latest predictions on the impacts of climate change. The updated understanding is used to set any appropriate objectives and actions for areas at risk of flooding.
<b>Description</b>	No local actions specific to this target area have been identified yet. There are national actions planned that will cover this area, including an update to SEPA's surface water flood maps and an update to the national flood risk assessment. These, along with other actions that are carried out across the whole local plan district covering this area, will help to manage flood risk in the long term. The need for actions for this area will be reviewed again in 2026.

## 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: 15102)	
<b>Action</b>	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.
<b>Description</b>	A flood study should be carried out to improve understanding of river flood risk in Lesmahagow. The impacts of climate change on flood risk should be evaluated. If flood risk is confirmed, scoping of the next steps should be completed.

Surface water management plan (Ref: 15103)	
<b>Action</b>	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.
<b>Description</b>	South Lanarkshire Council to develop a surface water management plan working with Scottish Water as appropriate, to gain an understanding of the hotspots of flooding and potential interaction with river flooding. The impacts of climate change on surface water flood risk should be considered.

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

## 02/11/13 (Shotts)

This area is designated as a potentially vulnerable area due to flood risk in Allanton. The main source of flooding is groundwater, although there is also a risk from surface water and river flooding. There is a known drainage problem in Allanton due to the cessation of mining activities, with the groundwater table close to or above ground level. Historically there has been flooding in the area, with recent flooding being caused by surface water.

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

### List of target areas

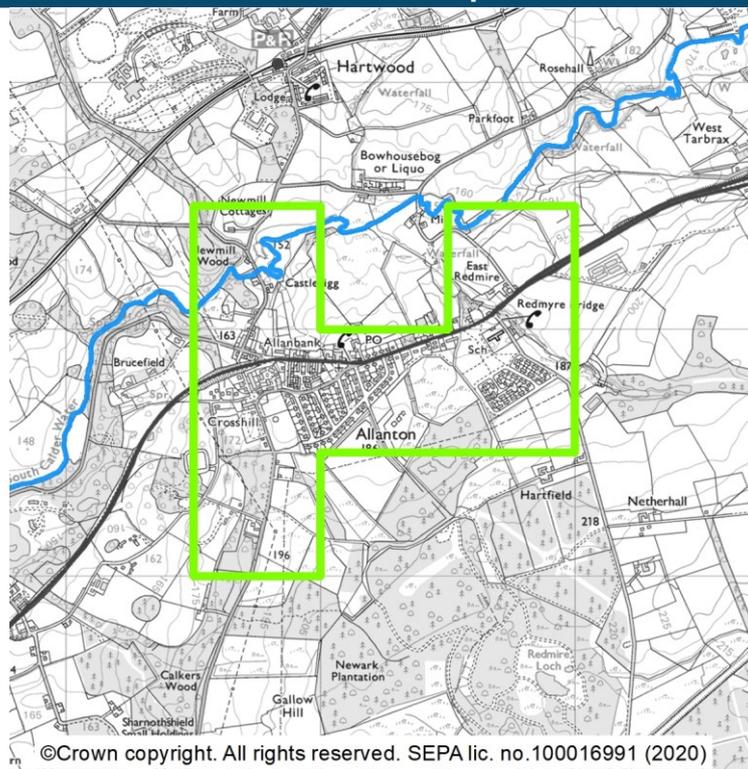
Allanton

(target area 169)

### Summary

The village of Allanton lies between Wishaw and Shotts, which is within the North Lanarkshire local authority area. Flood risk indicates the main source of flooding in Allanton is river flooding with additional risk from surface water flooding. There are however known issues in the area relating to groundwater flooding.

### 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. Allanton 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
1691	Avoid flood risk	Avoid inappropriate development that increases flood risk in Allanton
1692	Prepare for flooding	Prepare for current flood risk in this target area
1693	Reduce flood risk	Reduce the risk of groundwater flooding in this target area

### What actions are proposed for this area?

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

### Actions proposed to start between 2022 and 2028

Flood study (Ref: 16901)	
<b>Action</b>	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.
<b>Description</b>	North Lanarkshire Council to develop a flood study in Allanton with a focus on improving understanding on flood risk from groundwater sources. If flood risk is confirmed in the target area a scoping study should be carried out to identify the future studies and works required to achieve the objectives avoid, reduce and prepare.

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

## 02/11/14 (North of Wishaw)

This area is designated as a potentially vulnerable area due to flood risk in Wishaw. The main source of flooding is from surface water. Historically there has been flooding in this area, with recent flooding being caused by surface water flooding.

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

### List of target areas

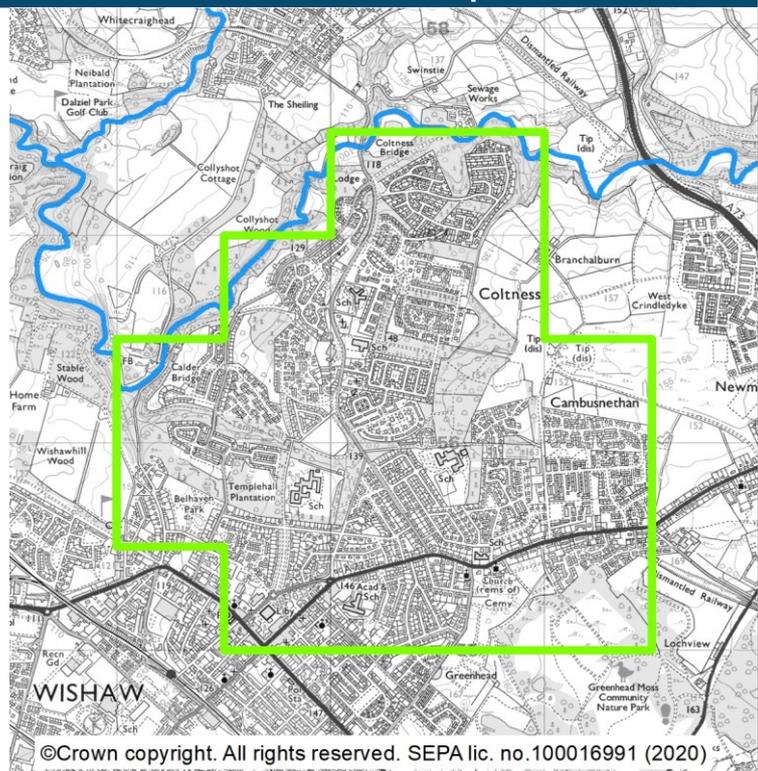
Wishaw North

(target area 94001)

### Summary

Wishaw is situated on the edge of the Clyde Valley, around 25km south-east of Glasgow city centre. The town is within the North Lanarkshire local authority area. The main source of flooding in the catchment is surface water flooding, however there is also risk from river flooding. There are approximately 300 people and 140 homes and businesses currently at risk from flooding. This is likely to increase to 380 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 surface water flood risk by a 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
940011	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
940012	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
940013	Reduce flood risk	Reduce the risk of flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Sewer flood risk assessment (Ref: 9400101)	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Carbarns 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.
Surface water management plan (Ref: 9400102)	
<b>Action</b>	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.
<b>Description</b>	The local flood risk management plans published in December 2022 will establish further detail on the actions.

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

## 02/11/15 (Symington and Coulter)

This area is designated as a potentially vulnerable area due to flood risk in Symington and Coulter. The main source of flooding is from the River Clyde, however there is also some surface water flooding. Recent floods have occurred due to river flooding and surface water flooding.

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

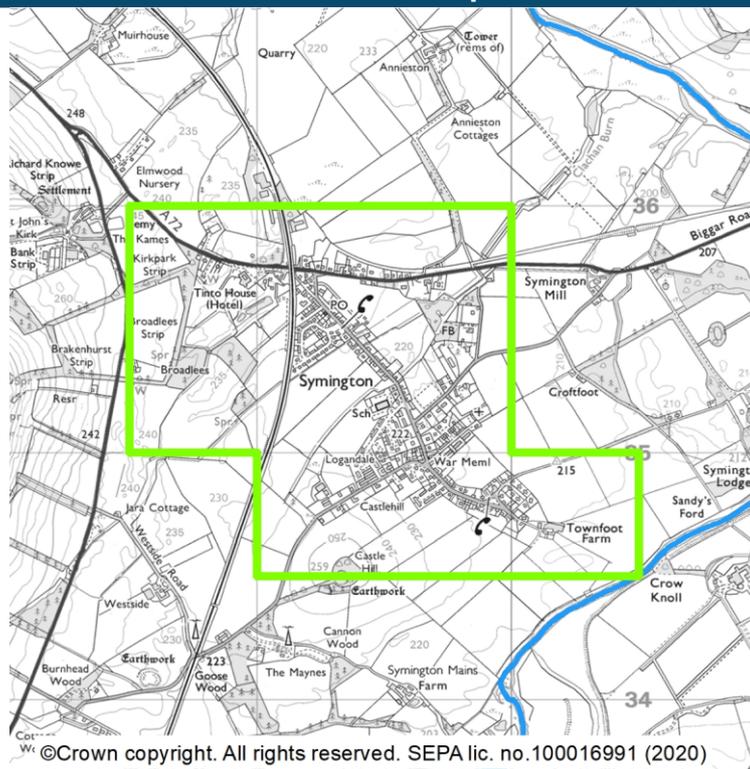
### List of target areas

Symington	(target area 114)
Coulter	(target area 115)

### Summary

The village of Symington is located south-west of Biggar and is within the South Lanarkshire Council area. The main source of flooding in Symington is river flooding, however there is also a risk of surface water flooding. There are approximately 140 people and 90 homes and businesses at risk from flooding. This is likely to increase to 150 people by the 2080s due to climate change, while the number of homes and businesses at risk is likely to 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 flood studies carried out prior to 2011 have underpinned the understanding of river flood risk. Together, this information has highlighted the risk of flooding in this target area. Symington 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
1141	Avoid flood risk	Avoid inappropriate development that increases flood risk in Symington
1142	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Symington
1143	Reduce flood risk	Reduce the risk of flooding in Symington

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Flood risk management review (Ref: 11401)	
<b>Action</b>	During each 6 year planning cycle, we update our understanding of flooding to include all new data and information that has become available. This includes information on any flooding that has happened and the latest predictions on the impacts of climate change. The updated understanding is used to set any appropriate objectives and actions for areas at risk of flooding.
<b>Description</b>	No local actions specific to this target area have been identified yet. There are national actions planned that will cover this area, including an update to SEPA's surface water flood maps and an update to the national flood risk assessment. These, along with other actions that are carried out across the whole local plan district covering this area, will help to manage flood risk in the long term. The need for actions for this area will be reviewed again in 2026.

## 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: 11402)	
<b>Action</b>	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.
<b>Description</b>	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.

Flood study (Ref: 11403)	
<b>Action</b>	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.
<b>Description</b>	A flood study should be carried out to improve understanding of flood risk in Symington. This should include a review of the 2009 flood study. The impacts of climate change on flood risk should be evaluated. If flood risk is confirmed, scoping of the next steps should be completed.

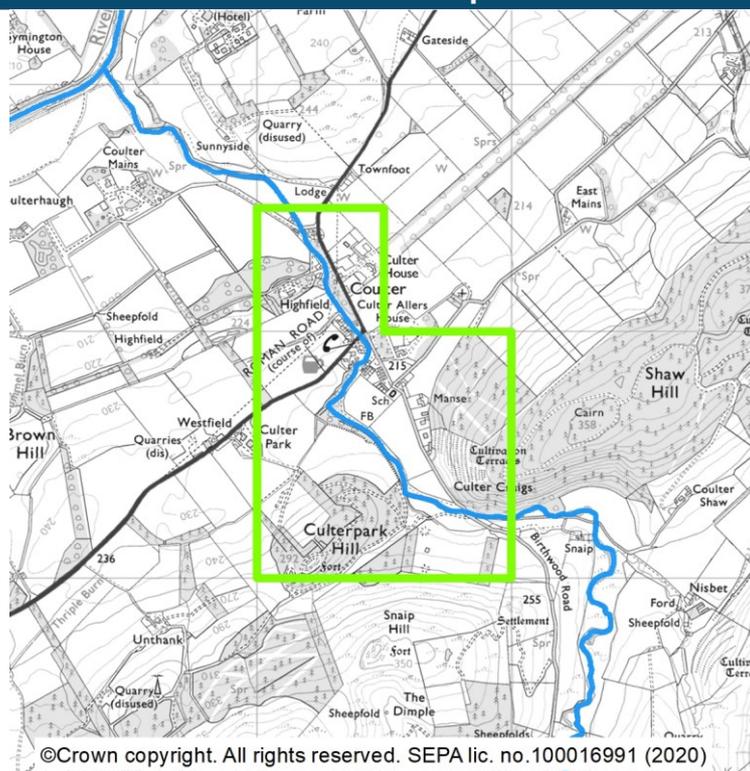
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places,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

## Coulter (target area 115)

### Summary

The village of Coulter is located 4km south of Biggar and it is within the South Lanarkshire Council area. The main source of flooding in Coulter is river flooding, however there is also a risk from surface water flooding. There are approximately 80 people and 50 homes and businesses at risk from flooding, which is a significant proportion of the community. This is estimated 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. The national level assessment is improved for river flooding by the Coulter flood study. Together, this information has highlighted the risk of flooding in this target area. Coulter 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
1151	Avoid flood risk	Avoid inappropriate development that increases flood risk in Coulter
1152	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Coulter
1153	Reduce flood risk	Reduce the risk of flooding in Coulter

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Flood study (Ref: 11501)	
<b>Action</b>	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.
<b>Description</b>	A review of the Coulter flood study should be carried out, including a public survey regarding the flooding source and mechanisms and the feasible flood protection options. The impacts of climate change on flood risk should be evaluated. If flood risk is confirmed, scoping of the flood protection options should be completed.

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

## 02/11/16 (Rutherglen)

This area is designated as a potentially vulnerable area due to flood risk in Rutherglen, Castlemilk, Mount Florida and Polmadie. The main sources of flooding are river and surface water. Recent floods have occurred within this area.

There are 4 target areas in this potentially vulnerable area, which have been the focus of further assessment, these are listed below. Further information on the objectives and actions to manage flood risk within this area is provided below.

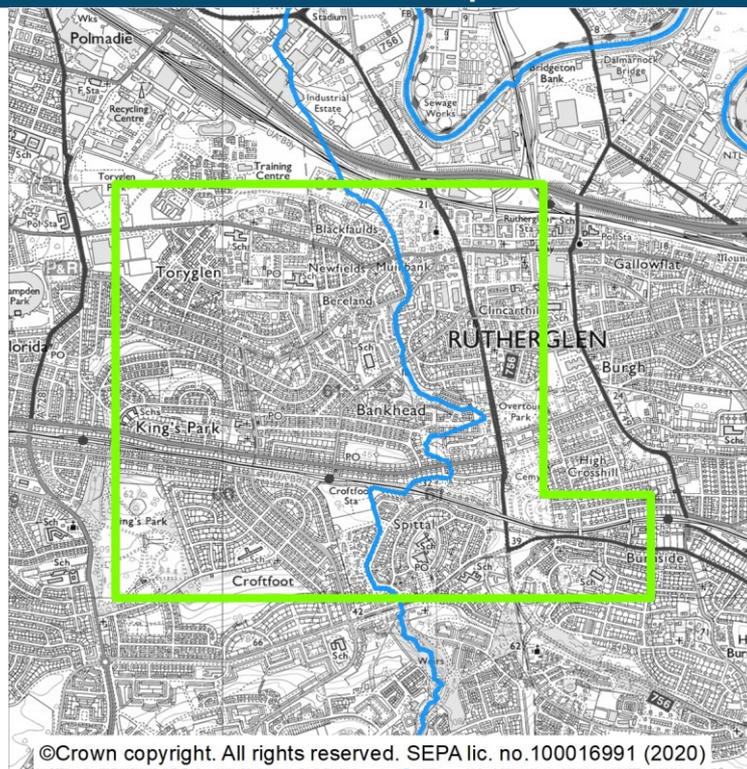
### List of target areas

Rutherglen	(target area 43001)
Polmadie	(target area 43002)
Mount Florida	(target area 43003)
Castlemilk east	(target area 43004)

### Summary

Rutherglen is on the south bank of the River Clyde within the South Lanarkshire and Glasgow City Council areas. The main source of flooding in Rutherglen is surface water flooding, however there is also a risk of river flooding from the Cityford Burn. There are approximately 3,300 people and 1,600 homes and businesses currently at risk from flooding. This is likely to increase to 3,800 people and 1,900 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 by the Southeast Glasgow Surface Water Management Plan (2019), sewer flood risk assessment and Culverted watercourse study within Croftfoot 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
430011	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
430012	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of the Cityford Burn Culvert Flood Protection Scheme
430013	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
430014	Reduce flood risk	Reduce the risk of flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

<b>Flood scheme or works implementation (Ref: 4300101)</b>	
<b>Action</b>	The flood scheme/works is to be built following agreement of the design, costs and timescales.
<b>Description</b>	Glasgow City Council to implement surface water management phase 4 measures in Croftfoot and King's Park.
<b>Flood defence maintenance (Ref: 4300102)</b>	
<b>Action</b>	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
<b>Description</b>	Maintenance to the surface water management measures in Croftfoot and King's Park should be carried out by Glasgow City Council on an ongoing basis following construction. The performance of the surface water management measures should be monitored under any significant events.
<b>Sewer flood risk assessment (Ref: 4300103)</b>	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Shieldhall 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.
<b>Surface water management plan (Ref: 4300104)</b>	
<b>Action</b>	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system have been identified. Next steps in managing such water ponding or over-whelmed drainage systems have been identified and should be implemented. The plan is to be reviewed and updated as needed.
<b>Description</b>	South Lanarkshire Council to review the outputs of the surface water management plan for Muirbank jointly with Scottish Water, to identify any future works/studies.
<b>Flood defence maintenance (Ref: 4300105)</b>	
<b>Action</b>	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
<b>Description</b>	South Lanarkshire Council is to continue to maintain the existing Cityford Burn Culvert Flood Protection Scheme.

## 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.

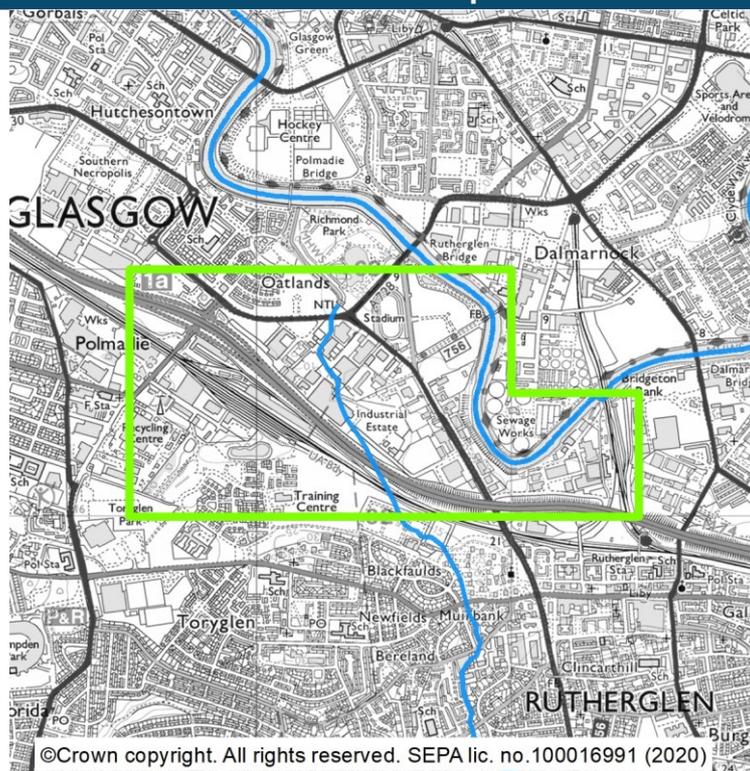
<b>Flood study (existing flood defences) (Ref: 4300106)</b>	
<b>Action</b>	The performance and condition of the existing flood defences are to be evaluated, including consideration of the likely impacts of climate change. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
<b>Description</b>	The study should focus primarily on reviewing the performance of the Cityford Burn Culvert Flood Protection Scheme and 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.

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.

### Summary

Polmadie is mainly an industrial zone of Glasgow and it is within the Glasgow City and South Lanarkshire Council areas. The main source of flooding in Polmadie is surface water flooding, however there is also a risk of river flooding from the Polmadie Burn and River Clyde. There are approximately 780 people and 440 homes and businesses currently at risk from flooding, which is a significant proportion of the community. This is likely to increase to 810 people and 480 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 by the Southeast Glasgow Surface Water Management Plan (2019) and sewer flood risk assessment. Understanding of river flooding has been improved by the tidal Clyde model update (December 2020). 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
430021	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
430022	Improve data and understanding	Improve data and understanding of flooding in this target area
430023	Reduce flood risk	Reduce the risk of surface water flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

<b>Flood scheme or works design (Ref: 4300201)</b>	
<b>Action</b>	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.
<b>Description</b>	Detail design of the preferred option identified for the Polamdie surface water management plan phase 3 measures to be developed. Outline design and community engagement has been completed. The detail design outputs will be used to develop a programme to take forward key recommendations where funding permits.
<b>Flood study (Ref: 4300202)</b>	
<b>Action</b>	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.
<b>Description</b>	Glasgow City Council and South Lanarkshire Council to develop an updated full flood model of the River Clyde following the outputs from the tidal Clyde and River Clyde models. The tidal Clyde model update outputs will be used to develop a programme to take forward key recommendations where funding permits.
<b>Flood study (Ref: 4300203)</b>	
<b>Action</b>	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.
<b>Description</b>	If flood risk is confirmed from the River Clyde flood model update, a scoping study should be carried out by South Lanarkshire Council to identify the future studies and works.
<b>Sewer flood risk assessment (Ref: 4300204)</b>	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Shieldhall 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.

**Flood warning maintenance (Ref: 4300205)****Action**

The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.

**Description**

SEPA should maintain the Clyde flood warning scheme. The scheme should be investigated for improvement and/or recalibration.

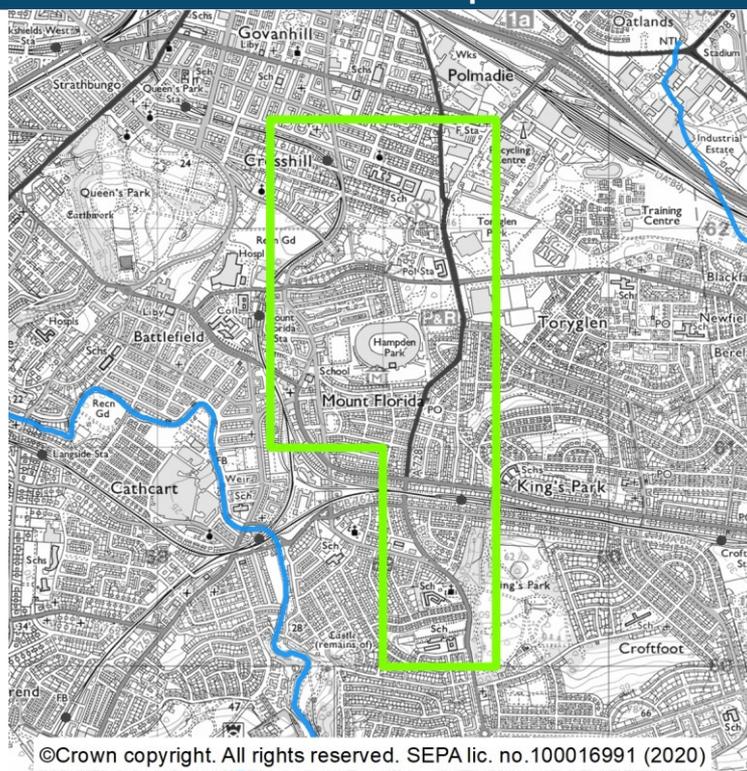
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, 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.

## Mount Florida (target area 43003)

### Summary

Mount Florida is an area located to the south east of Glasgow and is located within the Glasgow City Council area. The main source of flooding in Mount Florida is surface water flooding. There are approximately 800 people and 450 homes and businesses currently at risk from flooding. This is likely to increase to 1,200 people and 650 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 by the Southeast Glasgow Surface Water Management Plan (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
430031	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
430032	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of surface water management measures
430033	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
430034	Reduce flood risk	Reduce the risk of surface water flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

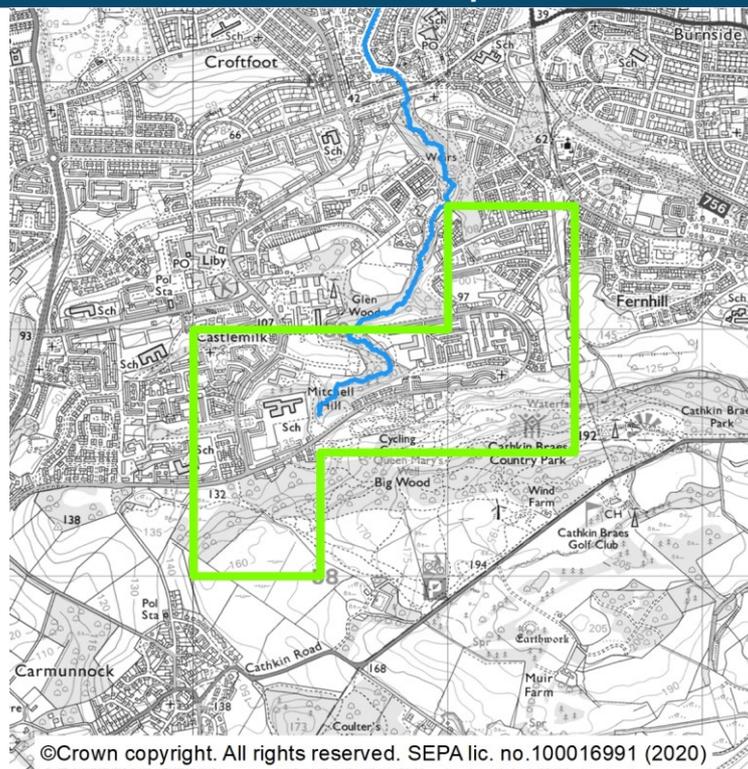
<b>Flood scheme or works implementation (Ref: 4300301)</b>	
<b>Action</b>	The flood scheme/works is to be built following agreement of the design, costs and timescales.
<b>Description</b>	Glasgow City Council to implement surface water management phase 4 measures in Croftfoot, King's Park and Overwood Drive / Aitkenhead Road.
<b>Flood defence maintenance (Ref: 4300302)</b>	
<b>Action</b>	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
<b>Description</b>	Maintenance to the surface water management measures in Croftfoot, King's Park and Overwood Drive / Aitkenhead Road should be carried out by Glasgow City Council on an ongoing basis following construction. The performance of the surface water management measures should be monitored under any significant events.
<b>Sewer flood risk assessment (Ref: 4300303)</b>	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Shieldhall 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.

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.

### Summary

The Castlemilk district lies to the south of Glasgow. It is within the City of Glasgow and South Lanarkshire Council areas. The main source of flooding in Castlemilk is surface water flooding, however there is also risk from river flooding. There are approximately 1,200 people and 600 homes and businesses currently at risk from flooding. This is likely to increase to 1,400 people and 680 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 and Culverted Watercourses study. Since 2015 this target area has not experienced significant rainfall events and there are therefore no recent records of flooding. 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
430041	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
430042	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
430043	Reduce flood risk	Reduce the risk of flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

<b>Flood scheme or works design (Ref: 4300401)</b>	
<b>Action</b>	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.
<b>Description</b>	Detail design of the preferred option identified for the Castlemilk surface water management plan to be developed. The detail design outputs will be used to develop a programme to take forward key recommendations where funding permits.
<b>Community engagement (Ref: 4300402)</b>	
<b>Action</b>	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
<b>Description</b>	Detailed design for surface water management options 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.
<b>Sewer flood risk assessment (Ref: 4300403)</b>	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Shieldhall 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.

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

## 02/11/17 (White Cart Water catchment)

This area is designated as a potentially vulnerable area due to flood risk to a number of communities. Some of these include Barrhead, East Kilbride, Newtown Mearns, Paisley and Pollokshields. The main sources of flooding are from river and surface water. There is a flood protection scheme on the White Cart Water which protects several communities in the south side of Glasgow. There is a long history of flooding with recent floods being caused by river and surface water.

There are 14 target areas in this potentially vulnerable area, which have been the focus of further assessment, these are listed below. Further information on the objectives and actions to manage flood risk within this area is provided below.

### List of target areas

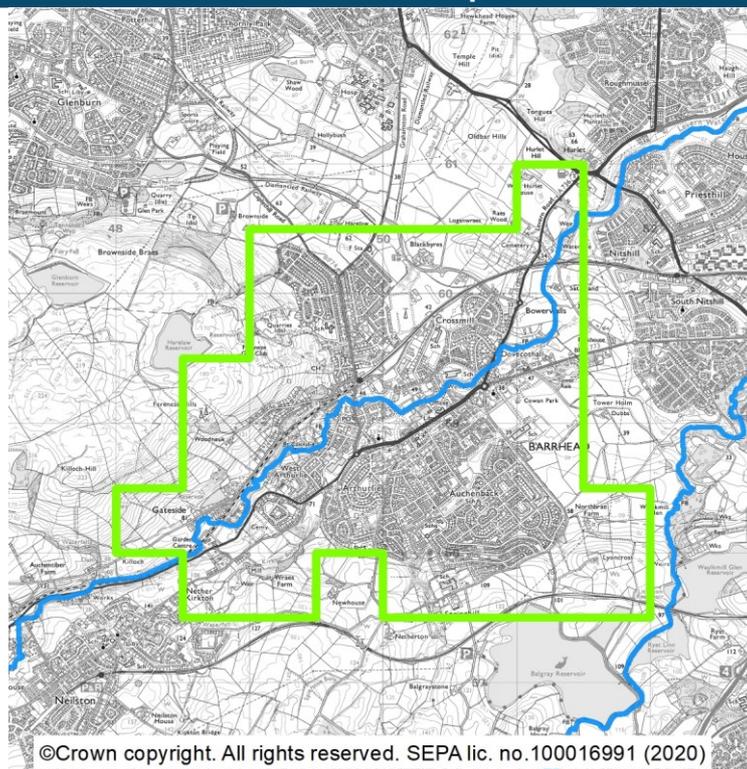
Barrhead	(target area 3)
Giffnock and Merrylee	(target area 9)
Paisley east	(target area 12)
Renfrew	(target area 13)
Cathcart & Shawlands	(target area 41)
Castlemilk west	(target area 42)
Hillington and Cardonald	(target area 55)
Pollok	(target area 56)
Thornliebank	(target area 57)
Newton Mearns	(target area 58)
Busby	(target area 59)
East Kilbride west	(target area 109)
Plantation	(target area 44001)
Pollokshields	(target area 44002)

## Barrhead (target area 3)

### Summary

Barrhead is a town located south of Glasgow and within East Renfrewshire Council area. The main source of flooding is surface water, however there is also a risk of river flooding. There are approximately 1,400 people at risk from flooding and approximately 670 homes and businesses. This is likely to increase to 1,600 people and 800 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 a 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
31	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
32	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
33	Reduce flood risk	Reduce the risk of flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Flood study (Ref: 301)	
<b>Action</b>	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.
<b>Description</b>	East Renfrewshire Council to review the outputs of the flood study and surface water management plan. If flood risk is confirmed 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.
Sewer flood risk assessment (Ref: 302)	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Shieldhall 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.

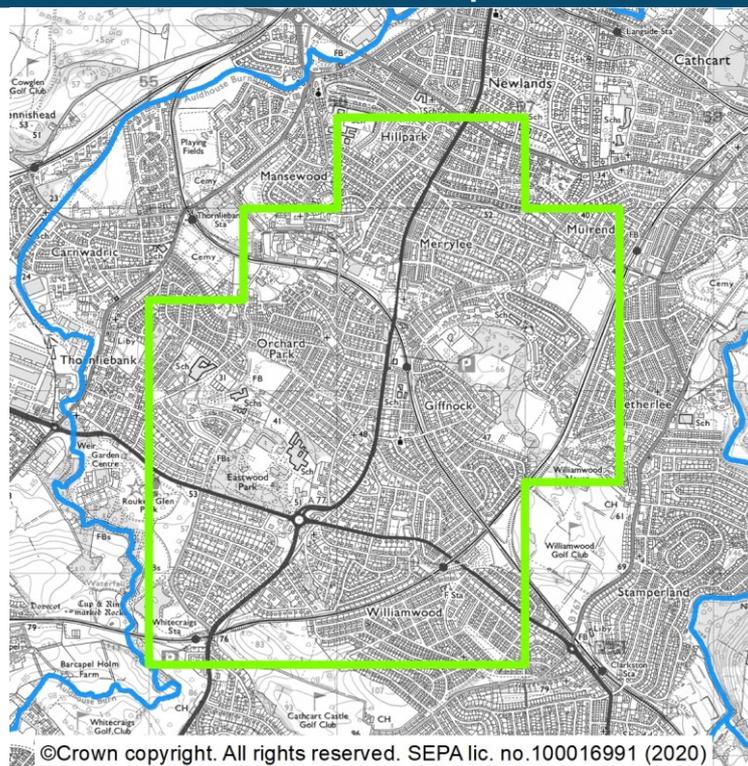
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, 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.

## Giffnock and Merrylee (target area 9)

### Summary

The Giffnock and Merrylee area covers a number of towns including Giffnock, Merrylee and part of Thornliebank. The area is located within the East Renfrewshire and Glasgow City Council areas. The main source of flooding in the area is river flooding, however there is also a risk from surface water flooding. There are approximately 3,000 people and 1,400 homes and businesses at risk from flooding. This is likely to increase to 3,500 people and 1,600 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 by the surface water management plan and the sewer flood risk assessment. 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
91	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
92	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
93	Reduce flood risk	Reduce the risk of flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Flood study (Ref: 901)	
<b>Action</b>	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.
<b>Description</b>	In coordination with East Renfrewshire, Glasgow City Council to carry out a detailed study of the burns including culverted sections to identify any potential constraints and identify the flood risk to people and properties in Merrylee. The study outputs will be used to develop a programme to take forward key recommendations where funding permits.

Flood study (Ref: 902)	
<b>Action</b>	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.
<b>Description</b>	East Renfrewshire Council to review the outputs of the surface water management plan and Scottish Water sewer flooding project in the Giffnock area. If flood risk is confirmed 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.

Sewer flood risk assessment (Ref: 903)	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Shieldhall 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.

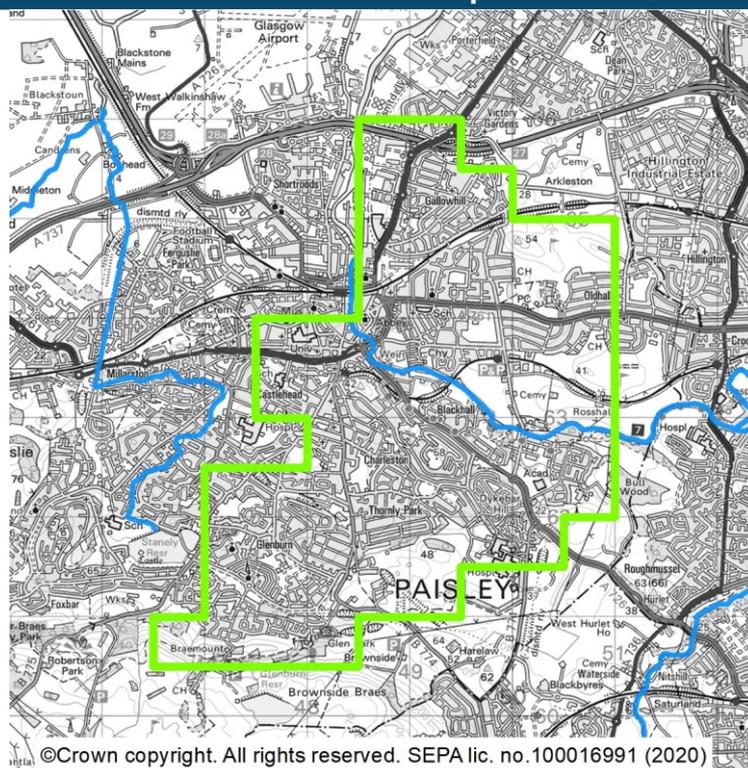
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, 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.

## Paisley east (target area 12)

### Summary

The Paisley east area covers the eastern half of the town of Paisley, which is located west of Glasgow. The area is located within the Renfrewshire Council area. The main sources of flooding in the area are river and surface water flooding. There are approximately 7,400 people at risk from flooding and approximately 4,200 homes and businesses. This is likely to increase to 9,300 people and 5,300 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 surface water flooding by the sewer flood risk assessment. 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
121	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of Moredun Playing Field Flood Protection Scheme 1998
122	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
123	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
124	Reduce flood risk	Reduce the risk of flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Flood study (Ref: 1201)	
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Description	This study is focused on investigating natural flood management options for the White Cart catchment that complements the protection offered by the flood protection schemes in the area.

Sewer flood risk assessment (Ref: 1202)	
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Description	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Laihypark Paisley 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.

Surface water management plan (Ref: 1203)	
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	Renfrewshire Council should develop a surface water management plan in this target area. The results of the integrated catchment study and sewer flood risk assessment should be considered. The surface water management plan should identify the future studies and works required to manage current and future flood risk and be reviewed regularly.

<b>Flood study (Ref: 1204)</b>	
<b>Action</b>	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.
<b>Description</b>	Following on the outputs of the Paisley surface water management plan, White Cart natural flood management and sewer flood risk assessment, Renfrewshire council should develop a flood study to address flood risk from the Espedair Burn. This should include a review of the performance of the Moredun Flood Protection Scheme.

<b>Flood defence maintenance (Ref: 1205)</b>	
<b>Action</b>	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
<b>Description</b>	Maintenance to the Moredun Flood Protection Scheme should continue and updates to the maintenance regime made based on the findings of the flood study.

<b>Flood warning maintenance (Ref: 1206)</b>	
<b>Action</b>	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
<b>Description</b>	SEPA should investigate a potential extension to the White Cart flood warning scheme to include 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.

### **Coordination with the river basin management plan**

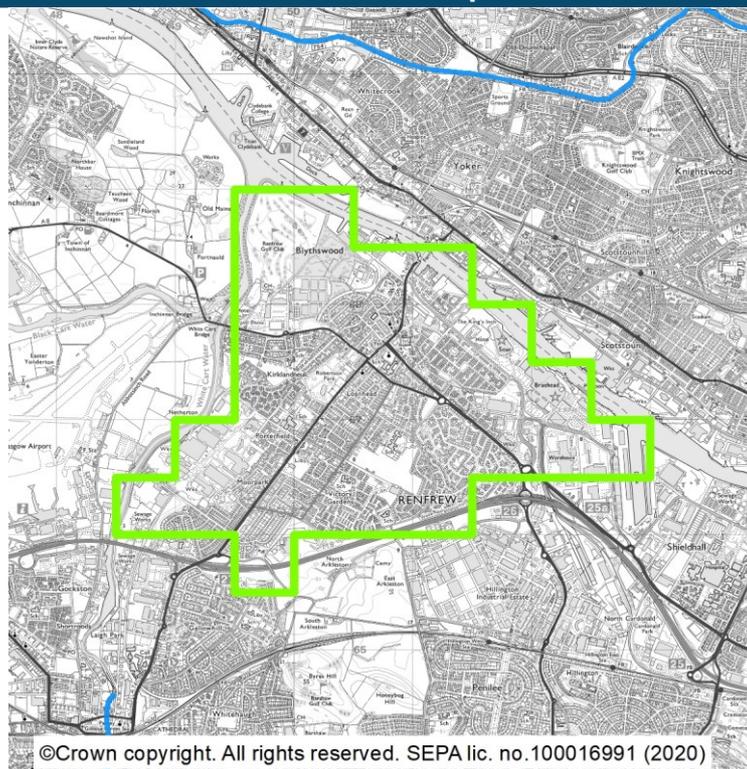
This area has been identified as having potential for restoration in Scotland's river basin management plan. Actions should be coordinated to deliver any potential joint objectives for restoration and flood risk management. This should be considered in the earliest stages of any projects.

## Renfrew (target area 13)

### Summary

Renfrew lies west of Glasgow on the White Cart Water and the River Clyde within Renfrewshire and Glasgow City Council areas. The main source of flooding is coastal flooding, however there is also a risk from surface water flooding. Coastal flooding is managed by the Renfrew North Flood Prevention Scheme (2007). There are approximately 2,800 people and 1,800 homes and businesses currently at risk of flooding. This is likely to increase to 5,700 people and 3,300 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 surface water flooding by the sewer flood risk assessment. The flood studies that have supported the development of the Renfrew North Flood Prevention Scheme (2007) have underpinned the understanding of coastal flood risk. 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
131	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of Renfrew North flood protection scheme 2007
132	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
133	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
134	Reduce flood risk	Reduce the risk of flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

<b>Sewer flood risk assessment (Ref: 1301)</b>	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Shieldhall 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.
<b>Adaptation plan (Ref: 1302)</b>	
<b>Action</b>	Information on climate change is to be used to develop an adaptation plan to allow for the impacts of climate change to be monitored, understood and managed.
<b>Description</b>	Renfrew North Flood Protection Scheme 2007 adaptation plan.
<b>Flood defence maintenance (Ref: 1303)</b>	
<b>Action</b>	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
<b>Description</b>	Maintenance to the Renfrew North Flood Protection Scheme 2007 should continue and updates to the maintenance regime made based on the findings of the adaptation plan. The as built drawings should be provided to SEPA, who will assess the need for updates to the flood warning scheme, flood maps and the Scottish Flood Defence Asset database.
<b>Flood warning maintenance (Ref: 1304)</b>	
<b>Action</b>	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
<b>Description</b>	SEPA should maintain the Firth of Clyde coastal flood warning scheme.
<b>Strategic mapping improvements (Ref: 1305)</b>	
<b>Action</b>	SEPA will continue to update flood maps based on new information.
<b>Description</b>	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.

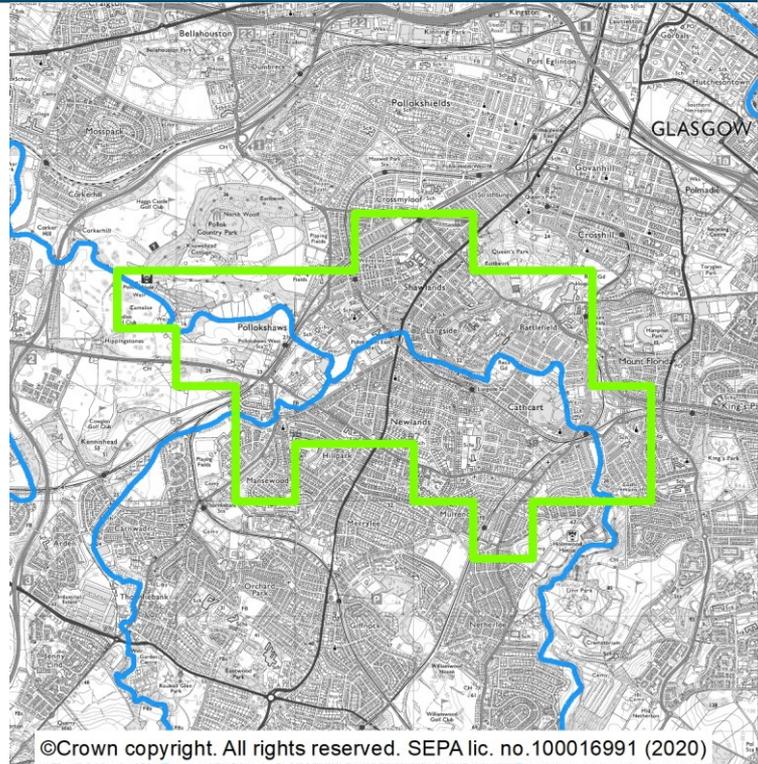
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, 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.

## Cathcart & Shawlands (target area 41)

### Summary

Cathcart and Shawlands are primarily within the Glasgow City Council area, with a small section covered by East Renfrewshire Council. The main source of flooding in Cathcart and Shawlands is surface water flooding, however there is also a risk of river flooding. The completion of the White Cart Flood Protection Scheme has significantly reduced the risk of flooding.

### 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 development of the White Cart flood protection scheme, and for surface water flooding by the sewer flood risk assessment. The completion of the White Cart Flood Protection Scheme has significantly reduced the risk of flooding. The completion of the White Cart Flood Protection Scheme has significantly reduced the risk of flooding. Since 2015 this target area has not experienced significant rainfall events and there are therefore no recent records of flooding. 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
411	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
412	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of the White Cart Flood Protection Scheme 2002 in Auldhouse Burn and White Cart
413	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in in this target area
414	Reduce flood risk	Reduce the risk of surface water flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

<b>Flood study (Ref: 4101)</b>	
<b>Action</b>	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.
<b>Description</b>	This study is focused on investigating natural flood management options for the White Cart catchment that complements the protection offered by the flood protection schemes in the area. The study outputs will be used to develop a programme to take forward key recommendations where funding permits.

<b>Sewer flood risk assessment (Ref: 4102)</b>	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Shieldhall 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.

<b>Surface water management plan (Ref: 4103)</b>	
<b>Action</b>	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.
<b>Description</b>	Glasgow City Council to develop a surface water management plan for this area (including Newlands). This should consider the outputs of Scottish Water's sewer flood risk assessment. The potential for natural flood management should be investigated.

<b>Flood study (existing flood defences) (Ref: 4104)</b>	
<b>Action</b>	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.
<b>Description</b>	Glasgow City Council to develop a study of the White Cart Flood Protection Scheme 2002. This study should also include an investigation on the number of properties at risk of river flooding for a number of climate change scenarios. If flood risk is confirmed, scoping of the next steps should be completed. <span style="float: right;">231</span>

### **Flood defence maintenance (Ref: 4105)**

<b>Action</b>	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
<b>Description</b>	Maintenance to the White Cart Flood Protection Scheme 2002 in Auldhouse Burn and White Cart should continue and updates to the maintenance regime be made based on the findings of the flood study.

### **Flood warning maintenance (Ref: 4106)**

<b>Action</b>	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
<b>Description</b>	SEPA should maintain the White Cart flood warning scheme.

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

### **Coordination with the river basin management plan**

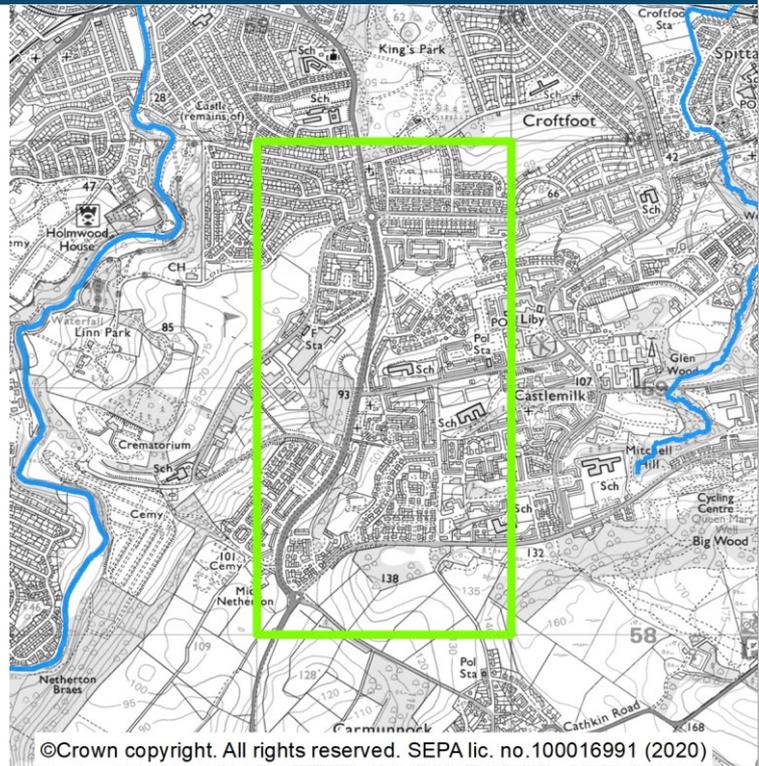
This area has been identified as having potential for restoration in Scotland's river basin management plan. Actions should be coordinated to deliver any potential joint objectives for restoration and flood risk management. This should be considered in the earliest stages of any projects.

## Castlemilk west (target area 42)

### Summary

Castlemilk West is a residential area of south Glasgow. It is in the Glasgow City Council area. The main source of flooding in Castlemilk West is surface water flooding. There are approximately 1,200 people and 600 homes and businesses currently at risk of flooding. This is estimated to increase to 1,300 people and 660 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 and Culverted Watercourses study. Since 2015 this target area has not experienced significant rainfall events and there are therefore no recent records of flooding. 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
421	Avoid flood risk	Avoid inappropriate development that increases flood risk in Castlemilk west
422	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Castlemilk west
423	Reduce flood risk	Reduce the risk of surface water flooding in Castlemilk west

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Flood scheme or works design (Ref: 4201)	
<b>Action</b>	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.
<b>Description</b>	Detail design of the preferred option identified for the Castlemilk surface water management plan to be developed. The detail design outputs will be used to develop a programme to take forward key recommendations where funding permits.

Community engagement (Ref: 4202)	
<b>Action</b>	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
<b>Description</b>	Detailed design for surface water management options 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.

Sewer flood risk assessment (Ref: 4203)	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Shieldhall 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.

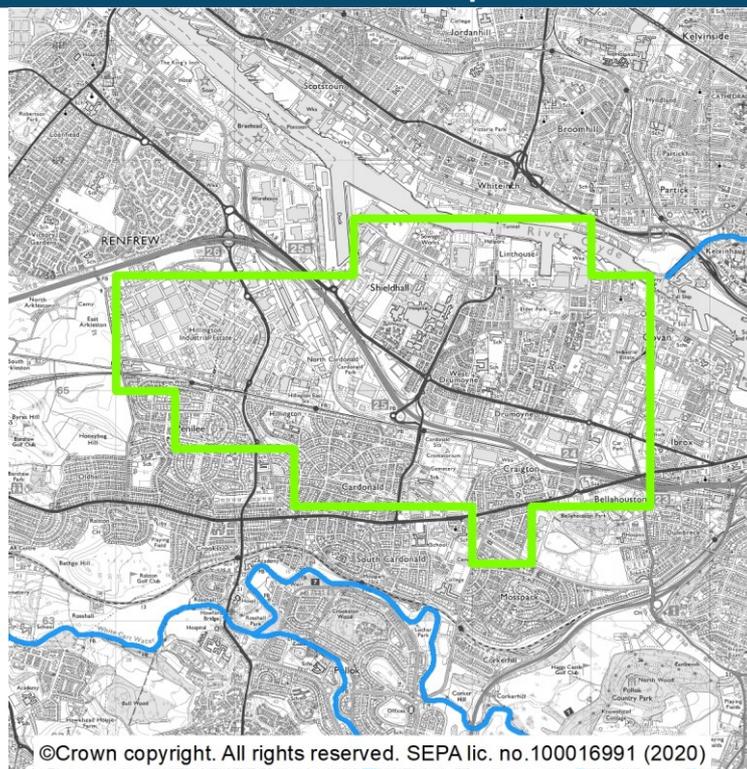
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, 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.

## Hillington and Cardonald (target area 55)

### Summary

The Hillington and Cardonald area covers a district of Glasgow located on the banks of the River Clyde in the west of the city. It is located within the Renfrewshire and Glasgow City Council areas. The main source of flooding in Hillington and Cardonald is surface water flooding. There are approximately 3,900 people and 2,200 homes and businesses currently at risk of flooding. This is likely to increase to 5,500 people and 3,100 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. The national level assessment is improved for surface water by the surface water management plan and sewer flood risk assessment. Since 2015 this target area has not experienced significant rainfall events and there are therefore no recent records of flooding. 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
551	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
552	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of surface water management measures
553	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
554	Reduce flood risk	Reduce the risk of surface water flooding in this target area

## What actions are proposed for this area?

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

### Actions proposed to start between 2022 and 2028

Flood scheme or works design (Ref: 5501)	
Action	The selected preferred approach for managing flood risk is to be designed following the completion of the flood study, including consideration of the long-term impacts of climate change. These can include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	Glasgow City Council to complete the Hillington and Cardonald surface water management preferred option detail design for Phase 3 of the works.

Flood scheme or works implementation (Ref: 5502)	
Action	The flood scheme/works is to be built following agreement of the design, costs and timescales.
Description	Glasgow City Council to implement surface water management phase 3 measures in Hillington and Cardonald.

Community engagement (Ref: 5503)	
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	Detailed design for surface water management options 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.

Sewer flood risk assessment (Ref: 5504)	
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Description	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Shieldhall 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.

**Flood defence maintenance (Ref: 5505)**

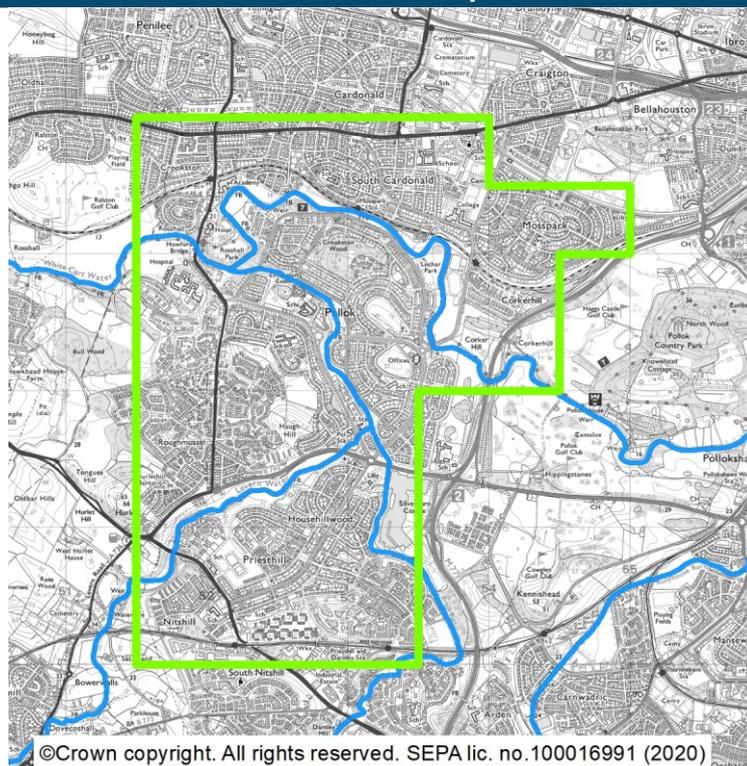
<b>Action</b>	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
<b>Description</b>	Maintenance to the surface water management measures should be carried out on an ongoing basis following construction. The performance of the surface water management measures should be monitored under any significant events.

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.

### Summary

The suburban area of Pollok is located in south-west Glasgow. It is primarily in the Glasgow City Council area. The main source of flooding in Pollok is surface water flooding, however there is also a risk of river flooding. There are approximately 3,100 people at risk from flooding and approximately 1,800 homes and businesses. This is likely to increase to 3,900 people and 2,200 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 development of phase 3 of the White Cart Flood Protection Scheme and for surface water by the sewer flood risk assessment. Since 2015 this target area has not experienced significant rainfall events and there are therefore no recent records of flooding. 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
561	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
562	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of the Brock Burn & Levern Water Flood Protection Scheme 1991 and White Cart Flood Protection Scheme 2002
563	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
564	Reduce flood risk	Reduce the risk of surface water flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Flood study (existing flood defences) (Ref: 5601)	
<b>Action</b>	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.
<b>Description</b>	Study of Brock Burn and Levern Water Flood Protection Scheme 1991 and White Cart Flood Protection Scheme 2002.

Flood defence maintenance (Ref: 5602)	
<b>Action</b>	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
<b>Description</b>	Maintenance to the Brock Burn and Levern Water Flood Protection Scheme 1991 and White Cart Flood Protection Scheme 2002 should continue and updates to the maintenance regime be made based on the findings of the flood study.

Sewer flood risk assessment (Ref: 5603)	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Shieldhall 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.

Surface water management plan (Ref: 5604)	
<b>Action</b>	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.
<b>Description</b>	Glasgow City Council to develop a surface water management plan for this target area (including Nitshill and Priesthill). This should consider the outputs of Scottish Water's sewer flood risk assessment. Areas where surface water flooding interacts with river flooding should be identified. The potential for natural flood management should be investigated.

## Flood warning maintenance (Ref: 5605)

### Action

The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.

### Description

SEPA should maintain the White Cart flood warning scheme.

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

## Coordination with the river basin management plan

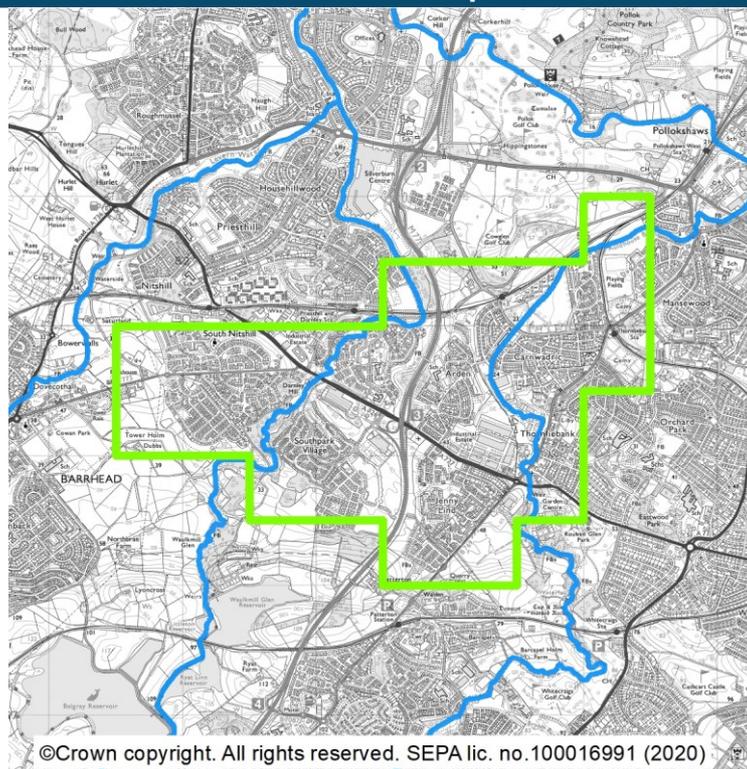
This area has been identified as having potential for restoration in Scotland's river basin management plan. Actions should be coordinated to deliver any potential joint objectives for restoration and flood risk management. This should be considered in the earliest stages of any projects.

## Thornliebank (target area 57)

### Summary

Thornliebank is a suburb in the south of Glasgow and located within the Glasgow City and East Renfrewshire Council areas. The main sources of flooding in Thornliebank are surface water and river flooding. There are approximately 2,100 people and 1,100 homes and businesses currently at risk from flooding. This is likely to increase to 2,900 people and 1,510 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 by the surface water management plan and the 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
571	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
572	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of the White Cart Flood Protection Scheme
573	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
574	Reduce flood risk	Reduce the risk of surface water flooding in this target area

## What actions are proposed for this area?

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

### Actions proposed to start between 2022 and 2028

<b>Flood study (Ref: 5701)</b>	
<b>Action</b>	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.
<b>Description</b>	Glasgow City Council to carry out a flood study to improve understanding of flood risk from the Brock Burn. If flood risk is confirmed, the study outputs will be used to develop a programme to take forward key recommendations where funding permits.
<b>Flood study (existing flood defences) (Ref: 5702)</b>	
<b>Action</b>	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.
<b>Description</b>	The study should focus primarily on reviewing the performance of the White Cart Flood Protection Scheme phase 1 and 2.
<b>Flood defence maintenance (Ref: 5703)</b>	
<b>Action</b>	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
<b>Description</b>	Maintenance to the White Cart Flood Protection Scheme should continue and updates to the maintenance regime be made based on the findings of the flood study.
<b>Sewer flood risk assessment (Ref: 5704)</b>	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Shieldhall 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.

### Surface water management plan (Ref: 5705)

<b>Action</b>	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system have been identified. Next steps in managing such water ponding or over-whelmed drainage systems have been identified and should be implemented. The plan is to be reviewed and updated as needed.
<b>Description</b>	The surface water management plan for Thornliebank, Scottish Water sewer flooding project should be reviewed to ascertain any more localised flood modelling requirements. The interactivity between surface water and river flooding should be assessed. If flood risk is confirmed, scoping of the next steps should be completed.

### Surface water management plan (Ref: 5706)

<b>Action</b>	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system have been identified. Next steps in managing such water ponding or over-whelmed drainage systems have been identified and should be implemented. The plan is to be reviewed and updated as needed.
<b>Description</b>	East Renfrewshire Council to review the outputs of the surface water management plan and Scottish Water sewer flooding project in the Thornliebank area. If flood risk is confirmed 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.

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

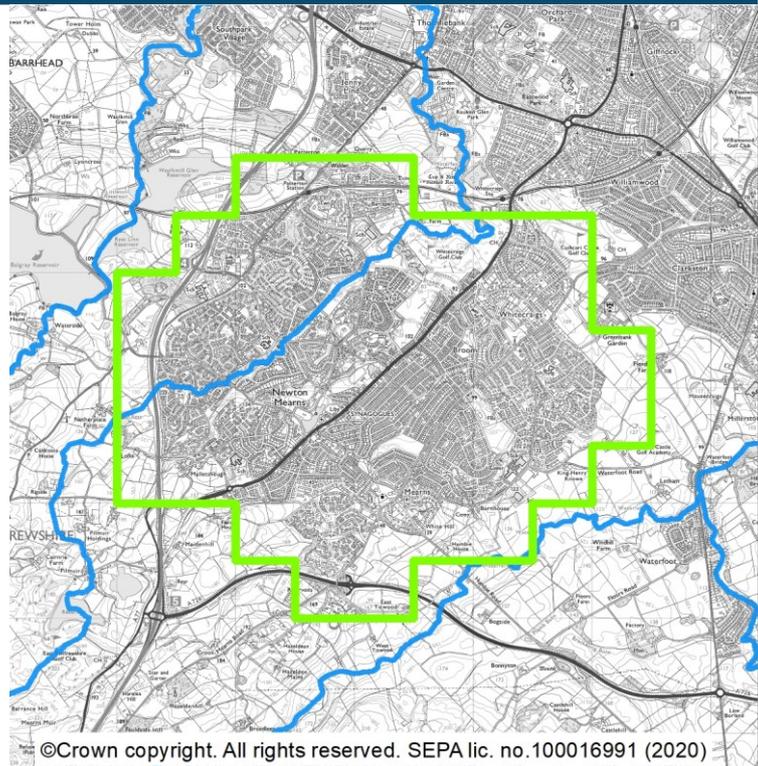
### Coordination with the river basin management plan

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

### Summary

The suburban town of Newton Mearns is located south of Glasgow and within the East Renfrewshire Council area. The main source of flooding in Newton Mearns is surface water flooding, however there is also risks from river flooding. There is approximately 2,000 people at risk from flooding and approximately 920 homes and businesses. This is estimated to increase to 2,200 people and 1,100 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. The national level assessment is improved for surface water flooding by a surface water management plan and sewer flood risk assessment. 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
581	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
582	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
583	Reduce flood risk	Reduce the risk of flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Sewer flood risk assessment (Ref: 5801)	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Shieldhall 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.

Flood study (Ref: 5802)	
<b>Action</b>	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.
<b>Description</b>	Building on from the surface water management plan and Scottish Water's sewer flood risk assessment, East Renfrewshire Council should develop the understanding of current and future flood risk, including any interaction with river flooding. If flood risk is confirmed 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.

Community engagement (Ref: 5803)	
<b>Action</b>	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
<b>Description</b>	Community engagement should be linked to the findings of the flood study.

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

## Coordination with the river basin management plan

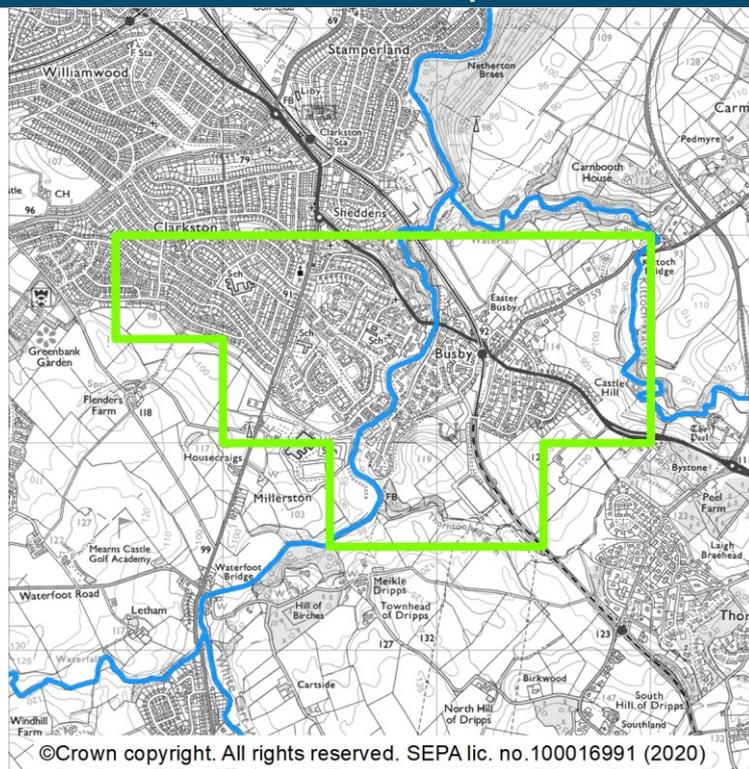
This area has been identified as having potential for restoration in Scotland's river basin management plan. Actions should be coordinated to deliver any potential joint objectives for restoration and flood risk management. This should be considered in the earliest stages of any projects.

## Busby (target area 59)

### Summary

Busby is located south of Glasgow on the White Cart Water. The area is located primarily within East Renfrewshire Council area with small areas of Glasgow City and South Lanarkshire Councils. The main source of flooding in Busby is surface water flooding, however there is also a risk from river flooding. There are approximately 270 people and 150 homes and businesses at risk from flooding. This is estimated to increase to 300 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 surface water flooding by a sewer flood risk assessment. Together, this information has highlighted the risk of flooding in this area. Busby 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
591	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
592	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
593	Reduce flood risk	Reduce the risk of flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Sewer flood risk assessment (Ref: 5901)	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Shieldhall 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.

## 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: 5902)	
<b>Action</b>	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.
<b>Description</b>	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.

Flood study (Ref: 5903)	
<b>Action</b>	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.
<b>Description</b>	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.

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

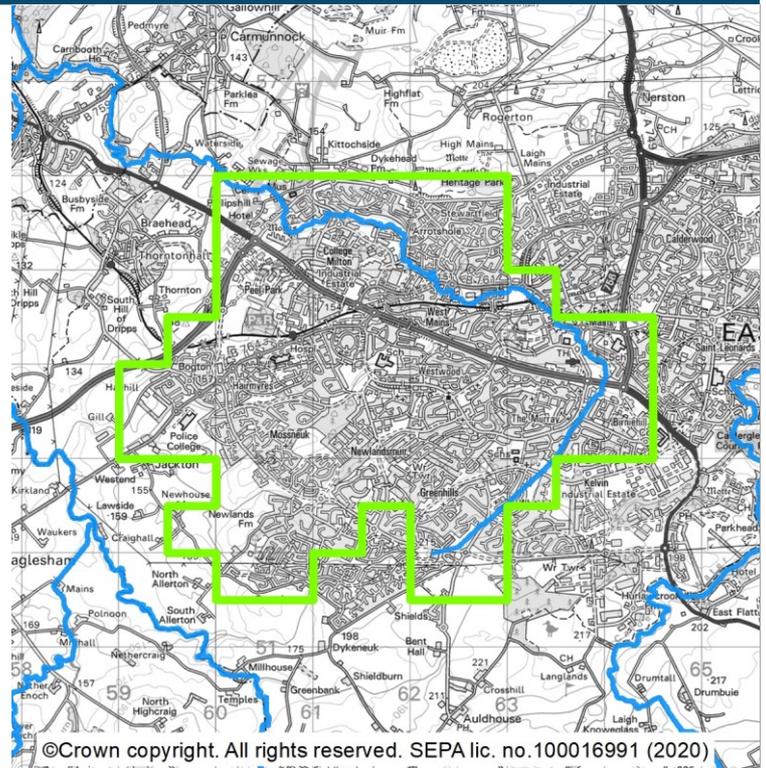
## Coordination with the river basin management plan

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

### Summary

This covers the western area of East Kilbride, which is located south of Glasgow, within the South Lanarkshire Council area. The main source of flooding in East Kilbride west is surface water flooding, however there is also a risk from river flooding. There are approximately 1,600 people and 1,400 homes and businesses currently at risk from flooding. This is likely to increase to 2,200 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 surface water flooding and the interactions between different flood sources by an integrated catchment study. 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
1091	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
1092	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
1093	Reduce flood risk	Reduce the risk of flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Sewer flood risk assessment (Ref: 10901)	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Philipshill 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.
Surface water management plan (Ref: 10902)	
<b>Action</b>	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.
<b>Description</b>	South Lanarkshire Council to develop a surface water management plan working with Scottish Water as appropriate, to gain an understanding of the hotspots of flooding and potential interaction with river flooding. The impacts of climate change on surface water flood risk should be considered. Where flood risk is confirmed, scoping of the flood protection options should be completed.

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

## Coordination with the river basin management plan

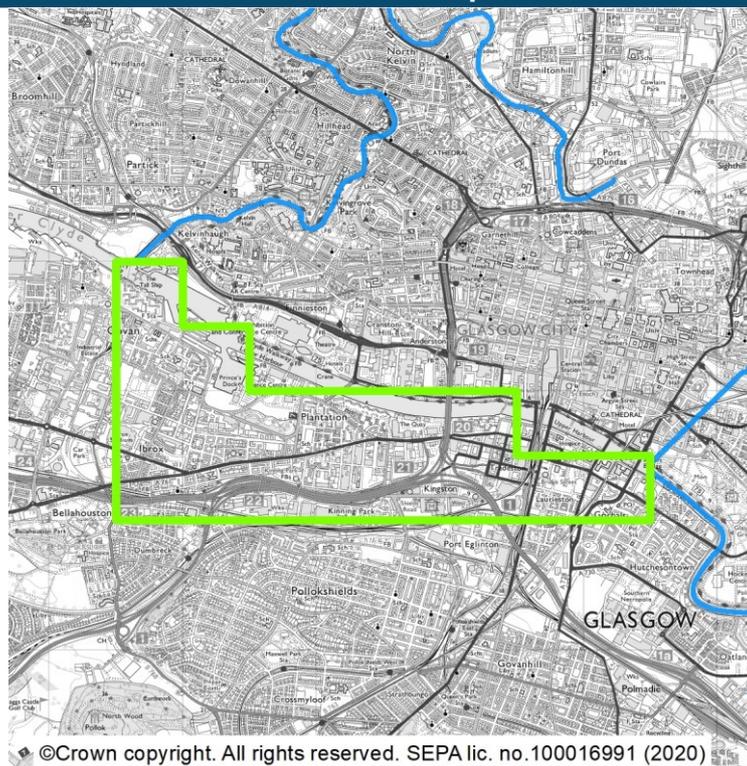
This area has been identified as having potential for restoration in Scotland's river basin management plan. Actions should be coordinated to deliver any potential joint objectives for restoration and flood risk management. This should be considered in the earliest stages of any projects.

## Plantation (target area 44001)

### Summary

Plantation is located in Glasgow, along the south bank of the River Clyde. It is in the Glasgow City Council area. The main source of flooding in the Plantation is surface water flooding, however there is also a risk of coastal flooding. There are approximately 3,400 people and 2,000 homes and businesses currently at risk from flooding. This is likely to increase to 5,000 people and 2,900 homes and businesses by 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 tidal Clyde model (December 2020) and surface water flooding by the 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
440011	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
440012	Improve data and understanding	Improve data and understanding of coastal flooding in this target area
440013	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
440014	Reduce flood risk	Reduce the risk of surface water flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

<b>Flood study (Ref: 4400101)</b>	
<b>Action</b>	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.
<b>Description</b>	Glasgow City Council and South Lanarkshire Council to develop an updated full flood model of the River Clyde following the outputs from the tidal Clyde and River Clyde models. The tidal Clyde model update outputs will be used to develop a programme to take forward key recommendations where funding permits.
<b>Sewer flood risk assessment (Ref: 4400102)</b>	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Dalmuir and Shieldhall sewer catchments 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.
<b>Surface water management plan (Ref: 4400103)</b>	
<b>Action</b>	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.
<b>Description</b>	The local flood risk management plans published in December 2022 will establish further detail on the actions.
<b>Flood warning maintenance (Ref: 4400104)</b>	
<b>Action</b>	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
<b>Description</b>	SEPA should maintain the Firth of Clyde coastal flood warning scheme.

**Strategic mapping improvements (Ref: 4400105)**

<b>Action</b>	SEPA will continue to update flood maps based on new information.
<b>Description</b>	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.

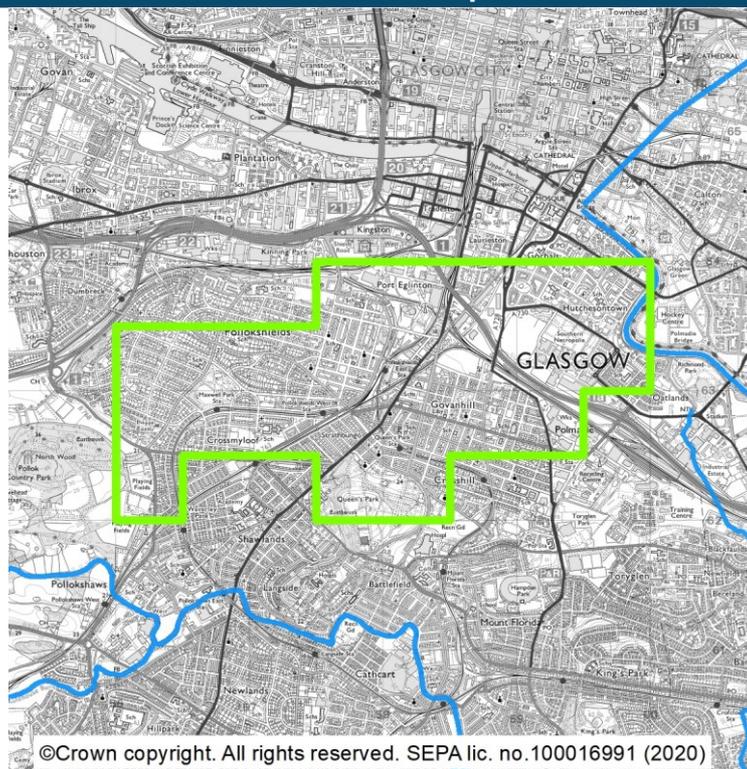
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, 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.

## Pollokshields (target area 44002)

### Summary

Pollokshields is an area of south Glasgow and is within the Glasgow City Council area. The main source of flooding in Pollokshields is from surface water flooding, however there is also a risk of river flooding. There are approximately 5,300 people and 2,800 homes and businesses currently at risk from flooding. This is likely to increase to 8,500 people and 4,500 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 for river flooding by the tidal Clyde model (December 2020). Since 2015 this target area has not experienced significant rainfall events and there are therefore no recent records of flooding. 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
440021	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
440022	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
440023	Reduce flood risk	Reduce the risk of flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Flood study (Ref: 4400201)	
<b>Action</b>	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.
<b>Description</b>	Glasgow City Council and South Lanarkshire Council to develop an updated full flood model of the River Clyde following the outputs from the tidal Clyde and River Clyde models. The tidal Clyde model update outputs will be used to develop a programme to take forward key recommendations where funding permits.

Sewer flood risk assessment (Ref: 4400202)	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Shieldhall 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.

Surface water management plan (Ref: 4400203)	
<b>Action</b>	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.
<b>Description</b>	The local flood risk management plans published in December 2022 will establish further detail on the actions.

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

## Coordination with the river basin management plan

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

## 02/11/18 (Black Cart Water catchment - Lochwinnoch to Johnstone)

This area is designated as a potentially vulnerable area due to flood risk to Howwood, Kilbarchan and Paisley west. There is flooding from river, coastal and surface water. Recent flooding from surface and river water has occurred in the area.

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

### List of target areas

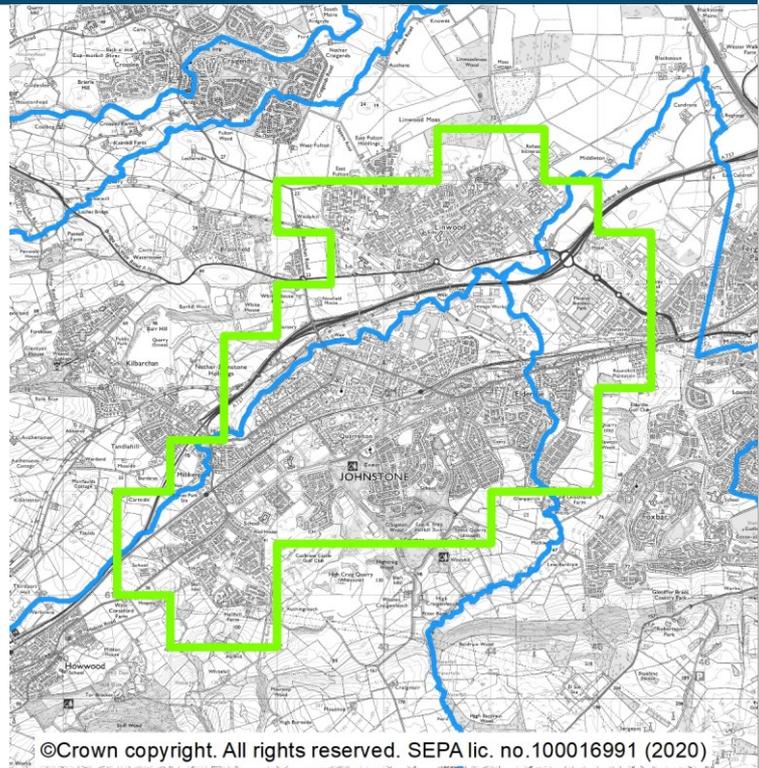
Johnstone and Linwood	(target area 11)
Kilbarchan	(target area 15)
Howwood	(target area 40)
Lochwinnoch	(target area 83)
Paisley west	(target area 165)

## Johnstone and Linwood (target area 11)

### Summary

The towns of Johnstone and Linwood are located on Black Cart Water, within the Renfrewshire Council area. The main source of flooding in the area is surface water flooding, however there is also a risk from river flooding. Flooding from the Black Cart Water is managed by the Collier Street Flood Prevention Scheme. There are approximately 3,400 people at risk from flooding and approximately 2,000 homes and businesses. This is likely to increase to 4,100 people and 2,400 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 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
111	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
112	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of Collier Street Flood Protection Scheme 1999
113	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
114	Reduce flood risk	Reduce the risk of flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

<b>Flood study (Ref: 1101)</b>	
<b>Action</b>	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.
<b>Description</b>	Renfrewshire Council to carry out a flood study in Johnstone to address flood risk from the Black Cart Water and tributaries. This should include a review of the performance of the Collier Street Flood Protection Scheme 1999.
<b>Flood study (options appraisal) (Ref: 1102)</b>	
<b>Action</b>	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.
<b>Description</b>	Following on the outputs of Johnstone flood study and surface water management plan, Renfrewshire Council should identify options to manage flood risk in Johnstone.
<b>Sewer flood risk assessment (Ref: 1103)</b>	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Erskine 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.

#### Surface water management plan (Ref: 1104)

<b>Action</b>	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.
<b>Description</b>	Renfrewshire Council should develop a surface water management plan in Jonhstone. The results of the integrated catchment study and sewer flood risk assessment should be considered. The surface water management plan should identify the future studies and works required to manage current and future flood risk and be reviewed regularly.

#### Surface water management plan (Ref: 1105)

<b>Action</b>	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.
<b>Description</b>	Renfrewshire Council should develop a surface water management plan in Linwood. The surface water management plan should identify the future studies and works required to manage current and future flood risk and be reviewed regularly.

#### Flood defence maintenance (Ref: 1106)

<b>Action</b>	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
<b>Description</b>	Maintenance to the Collier Street Flood Protection Scheme 1999 should continue and updates to the maintenance regime made based on the findings of the flood study.

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

#### Coordination with the river basin management plan

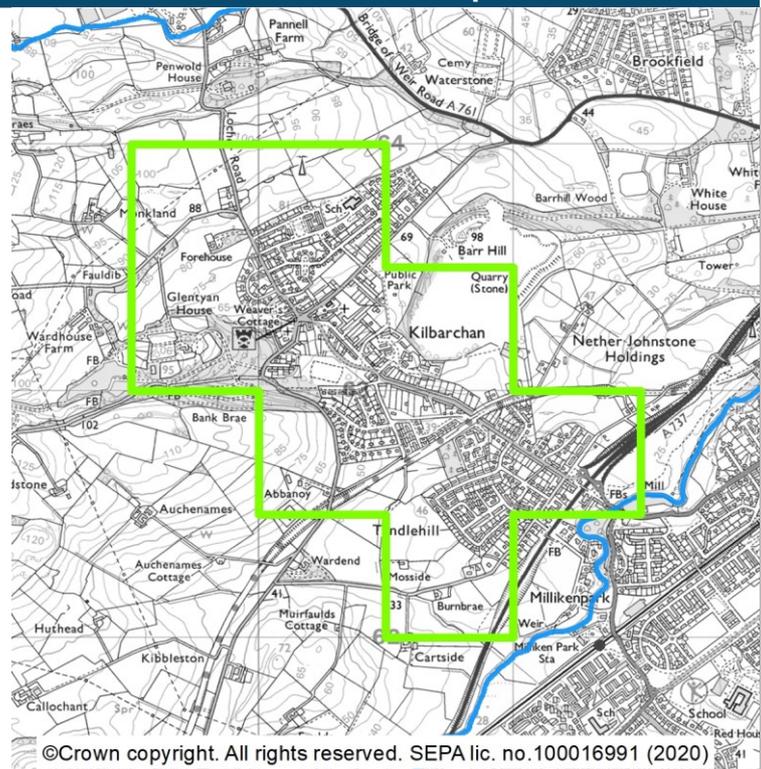
This area has been identified as having potential for restoration in Scotland's river basin management plan. Actions should be coordinated to deliver any potential joint objectives for restoration and flood risk management. This should be considered in the earliest stages of any projects.

## Kilbarchan (target area 15)

### Summary

The village of Kilbarchan is located west of Glasgow. The area is located within the Renfrewshire Council area. The main sources of flooding in the area are river and surface water flooding. There are approximately 220 people at risk of flooding and around 120 homes and businesses. This is likely to increase to 270 people and 150 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 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
151	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
152	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
153	Reduce flood risk	Reduce the risk of flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

<b>Sewer flood risk assessment (Ref: 1501)</b>	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Erskine 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.

<b>Surface water management plan (Ref: 1502)</b>	
<b>Action</b>	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.
<b>Description</b>	Renfrewshire Council should develop a surface water management plan in this target area. The results of the integrated catchment study and sewer flood risk assessment should be considered. The surface water management plan should identify the future studies and works required to manage current and future flood risk and be reviewed regularly.

<b>Flood study (Ref: 1503)</b>	
<b>Action</b>	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. An understanding of opportunities for catchment management is to be developed.
<b>Description</b>	Renfrewshire Council to carry out a natural flood management study to further investigate the potential benefit for sediment management at Kilbarchan.

<b>Flood study (Ref: 1504)</b>	
<b>Action</b>	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.
<b>Description</b>	Renfrewshire Council to carry out a flood study to address risk from the Kilbarchan Burn.

**Flood study (options appraisal) (Ref: 1505)****Action**

In areas where flood risk is confirmed, a range of possible options to manage flood risk are to be identified, including natural flood management actions where suitable, and a preferred approach is to be chosen. This should include adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.

**Description**

Following on the outputs of Kilbarchan Burn flood study, natural flood management study and surface water management plan, Renfrewshire Council should identify options to manage flood risk in Kilbarchan.

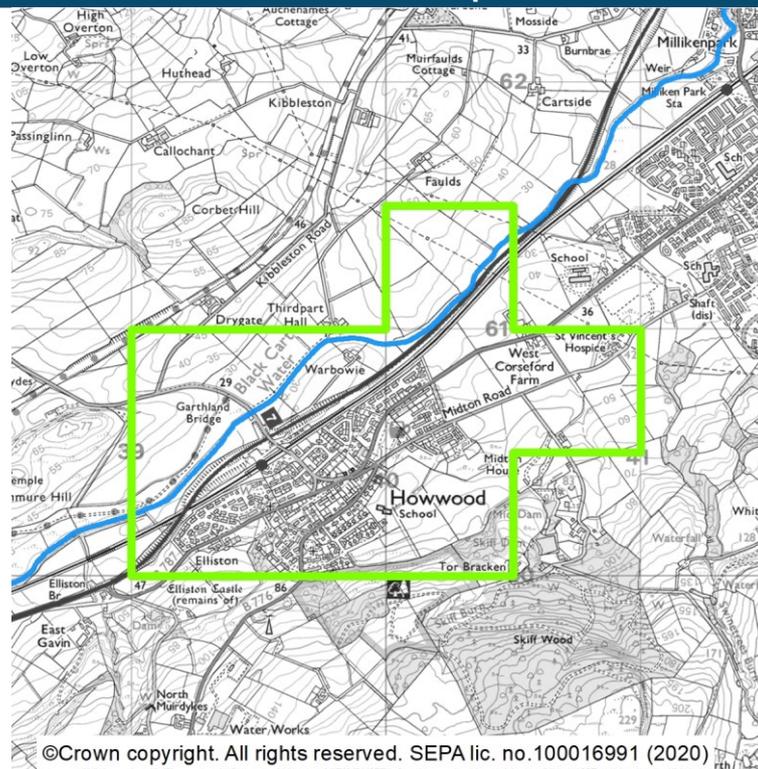
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, 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.

## Howwood (target area 40)

### Summary

The village of Howwood is situated on the banks of Black Cart Water and located within the Renfrewshire Council area. The main source of flooding in Howwood is surface water flooding. There is approximately 110 people and 60 homes and businesses currently at risk of flooding. This is likely to increase to 130 people and 70 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. Howwood 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
401	Avoid flood risk	Avoid inappropriate development that increases flood risk in Howwood
402	Improve data and understanding	Improve data and understanding of surface water flooding in Howwood

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Data collection (Ref: 4001)	
<b>Action</b>	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.
<b>Description</b>	On completion of the integrated catchment study and assessment of sewer flood risk, Renfrewshire Council should review the findings to ascertain if further action is required to improve understanding of risk from both river and surface water. This may include data collection and monitoring to improve the confidence in flood sources, mechanisms and risk.

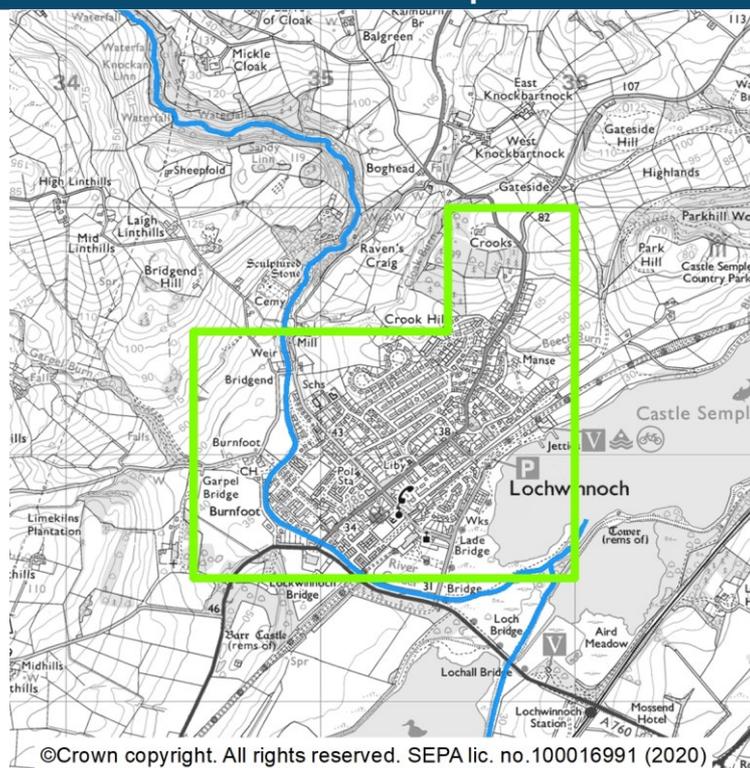
Sewer flood risk assessment (Ref: 4002)	
<b>Action</b>	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Erskine 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.

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.

### Summary

Lochwinnoch is a village located on the banks of the Castle Semple Loch and Barr Loch and the River Calder within the Renfrewshire Council area. The main source of flooding in Lochwinnoch is river flooding, however there is also risk from surface water flooding. There are approximately 380 people and 220 properties currently at risk from flooding. This is likely to increase to 610 people and 340 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. There is a long record of flooding in this target area with impacts to the A760.

### 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
831	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
832	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
833	Reduce flood risk	Reduce the risk of flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Flood study (Ref: 8301)	
<b>Action</b>	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.
<b>Description</b>	Renfrewshire Council to carry out a flood study to address risk from the River Calder and tributaries.

Flood study (Ref: 8302)	
<b>Action</b>	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. An understanding of opportunities for catchment management is to be developed.
<b>Description</b>	Renfrewshire Council to carry out a natural flood management study that will focus on the potential benefit natural flood management actions may have on the River Calder Burn catchment.

Flood study (options appraisal) (Ref: 8303)	
<b>Action</b>	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.
<b>Description</b>	Following on the outputs of River Calder flood study and natural flood management study, Renfrewshire Council should identify options to manage flood risk in Lochwinnoch.

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

## Coordination with the river basin management plan

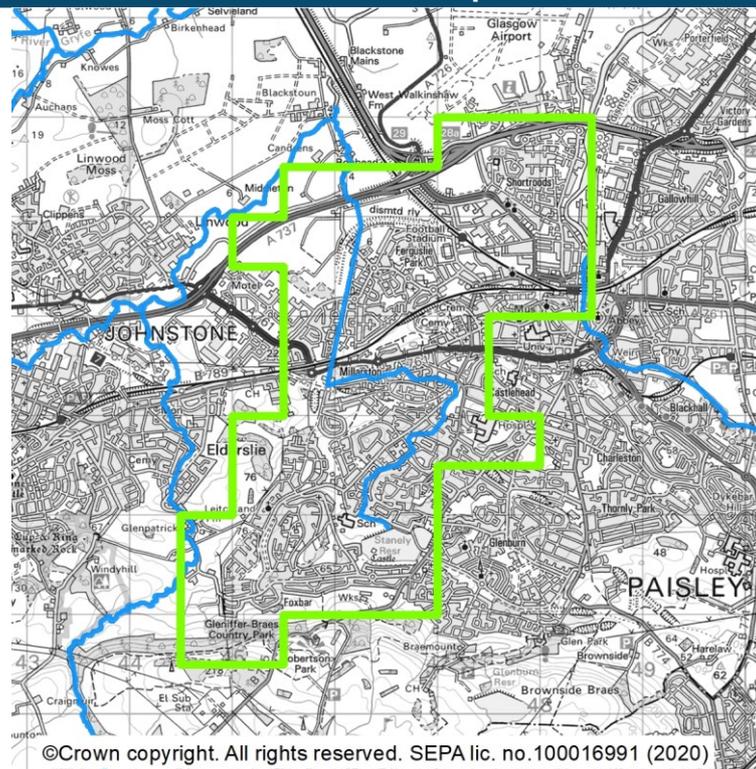
This area has been identified as having potential for restoration in Scotland's river basin management plan. Actions should be coordinated to deliver any potential joint objectives for restoration and flood risk management. This should be considered in the earliest stages of any projects.

## Paisley west (target area 165)

### Summary

Paisley west covers the western area of the town of Paisley, which is located to the west of Glasgow and is within the Renfrewshire Council area. The main source of flooding in Paisley west is river flooding, however there is also a risk of surface water flooding. There are around 4,500 people and 2,500 homes and businesses at risk from flooding. This is likely to increase to 5,400 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. 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
1651	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
1652	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
1653	Reduce flood risk	Reduce the risk of flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

<b>Sewer flood risk assessment (Ref: 16501)</b>	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Laighpark Paisley 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.
<b>Surface water management plan (Ref: 16502)</b>	
<b>Action</b>	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.
<b>Description</b>	Renfrewshire Council should develop a surface water management plan in this target area. The results of the integrated catchment study and sewer flood risk assessment should be considered. The surface water management plan should identify the future studies and works required to manage current and future flood risk and be reviewed regularly.
<b>Flood study (Ref: 16503)</b>	
<b>Action</b>	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.
<b>Description</b>	Renfrewshire Council to carry out a flood study to address risk from the Candren Burn and interactivity with surface water flooding.
<b>Flood warning maintenance (Ref: 16504)</b>	
<b>Action</b>	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
<b>Description</b>	SEPA should investigate a potential extension to the White Cart flood warning scheme to include 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.

## Coordination with the river basin management plan

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

## 02/11/19 (Gryfe catchment)

This area is designated as a potentially vulnerable area due to flood risk to Bridge of Weir, Houston and Crosslee, Kilmacolm and Quarrier's Village. The main sources of flooding are from surface water and from the River Gryfe and tributaries. Recent flooding has occurred in the area.

There are 4 target areas in this potentially vulnerable area, which have been the focus of further assessment, these are listed below. Further information on the objectives and actions to manage flood risk within this area is provided below.

### List of target areas

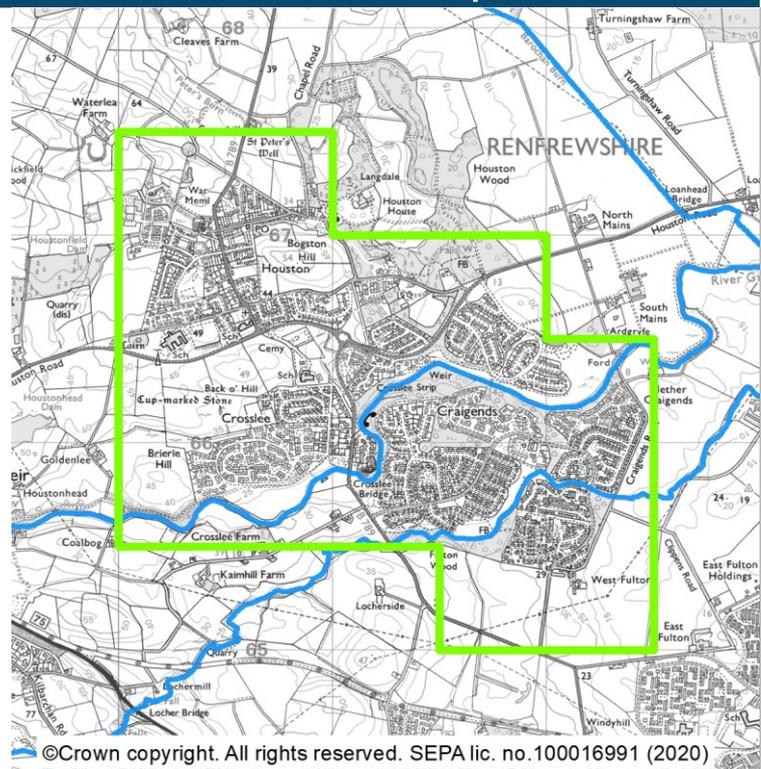
Houston and Crosslee	(target area 65)
Quarrier's Village	(target area 99)
Kilmacolm	(target area 113)
Bridge of Weir	(target area 65001)

## Houston and Crosslee (target area 65)

### Summary

Houston, Crosslee and Craighends are villages located on the banks of the River Gryfe. They are located within the Renfrewshire Council area. The main source of flooding in Houston and Crosslee is river flooding, however there is also risk from surface water flooding. Flooding from the River Gryfe is managed by the Crosslee Flood Prevention Scheme (2001). There are approximately 390 people and 210 homes and businesses currently at risk from flooding. This is likely to increase to 490 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, and this information has highlighted the risk of flooding in this area. Houston and Crosslee 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
651	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
652	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of Crosslee Flood Protection Scheme 2001
653	Improve data and understanding	Improve data and understanding of surface water and river flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Sewer flood risk assessment (Ref: 6501)	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Erskine 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.
Data collection (Ref: 6502)	
<b>Action</b>	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.
<b>Description</b>	On completion of the assessment of sewer flood risk, Renfrewshire Council should review the findings to ascertain if further action is required to improve understanding of risk from both river and surface water. This may include data collection and monitoring to improve the confidence in flood sources, mechanisms and risk.
Adaptation plan (Ref: 6503)	
<b>Action</b>	Information on climate change is to be used to develop an adaptation plan to allow for the impacts of climate change to be monitored, understood and managed.
<b>Description</b>	Crosslee Flood Protection Scheme 2001 adaptation plan.
Flood defence maintenance (Ref: 6504)	
<b>Action</b>	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
<b>Description</b>	Maintenance to the Crosslee Flood Protection Scheme 2001 should continue and updates to the maintenance regime made based on the adaptation plan.

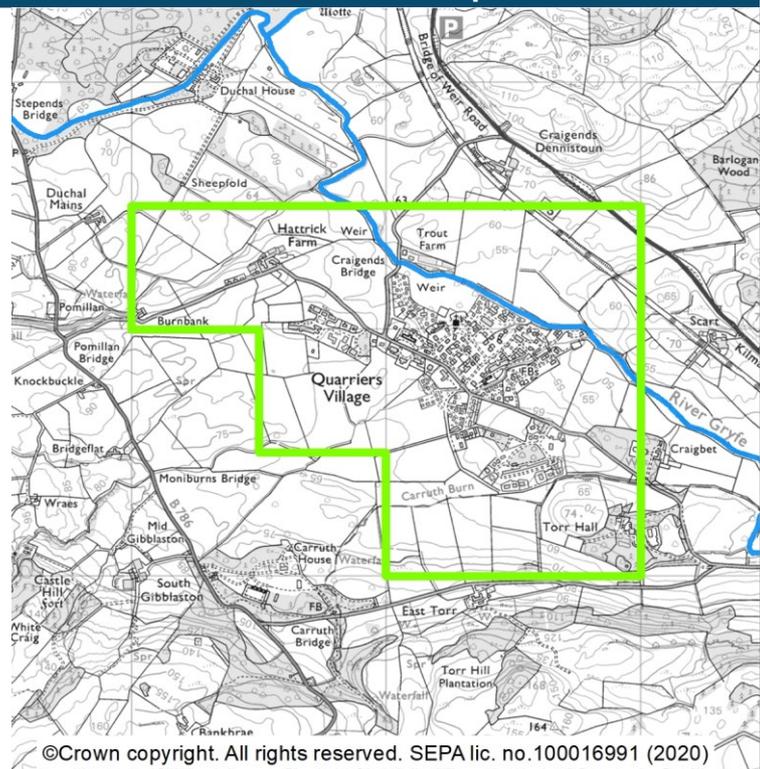
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, 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.

## Quarrier's Village (target area 99)

### Summary

Quarrier's Village is a small village, which lies just west of Glasgow on the River Gryfe. The area is located within the Inverclyde Council area. The main source of flooding in Quarrier's Village is surface water flooding, however there is also a risk of river flooding. There are approximately 170 people and 120 homes and businesses currently at risk from flooding. This is likely to increase to 200 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. The national level assessment is improved for river flood risk by the Inverclyde Flood Management Study (2013) and the development of the Inverclyde Flood Protection Works (2016). Understanding is also improving for surface water as a result of 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
991	Avoid flood risk	Avoid inappropriate development that increases flood risk in Quarrier's Village
992	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Quarrier's Village
993	Reduce flood risk	Reduce the risk of flooding from the Gotter Water in Quarrier's Village

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Flood scheme or works design (Ref: 9901)	
Action	The selected preferred approach for managing flood risk is to be designed following the completion of the flood study, including consideration of the long-term impacts of climate change. These can include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	The development of the Gotter Water Flood Protection Scheme should continue to the detailed design stage.

Community engagement (Ref: 9902)	
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	Detailed design for the Gotter Water Flood Protection Scheme 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.

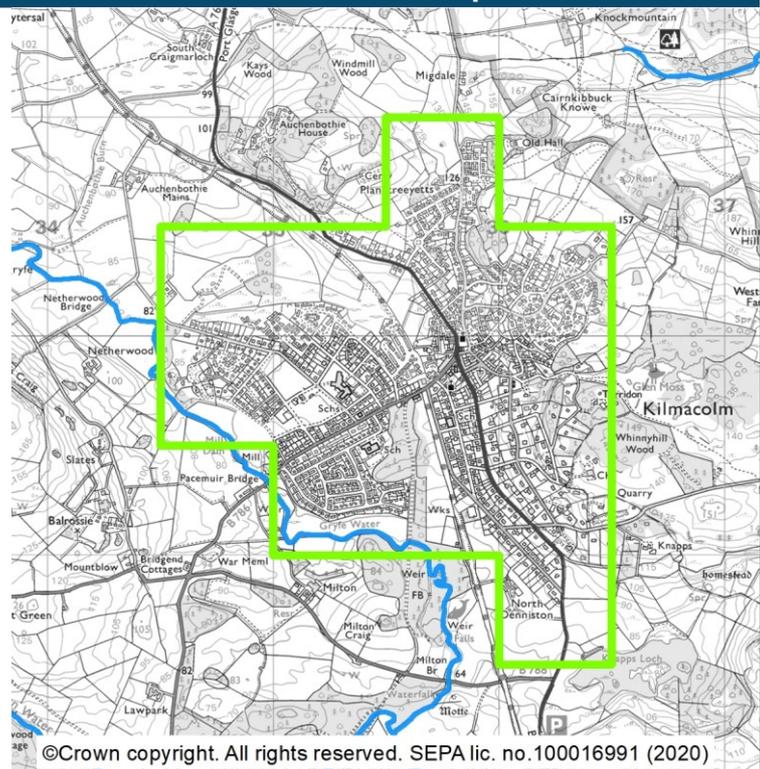
Sewer flood risk assessment (Ref: 9903)	
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Description	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Erskine 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 strategic planning commitments.

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.

### Summary

Kilmacolm is a village located in Inverclyde Council area, located west of Glasgow. The main source of flooding in Kilmacolm is surface water flooding, however there is also risk from river flooding. There are approximately 270 people and 160 homes and businesses currently at risk from flooding. This is likely to increase to 350 people and 200 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 flood risk by the Inverclyde Flood Management Study (2013) and the development of the Inverclyde Flood Protection Works (2016). Understanding is also improving for surface water as a result of the sewer flood risk assessment. 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
1131	Avoid flood risk	Avoid inappropriate development that increases flood risk in Kilmacolm
1132	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Kilmacolm
1133	Reduce flood risk	Reduce the risk of surface water flooding in Kilmacolm
1134	Reduce flood risk	Reduce the risk of flooding from the Glenmosston Burn in Kilmacolm

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

<b>Flood study (options appraisal) (Ref: 11301)</b>	
<b>Action</b>	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.
<b>Description</b>	The local authority to develop a surface water management plan working with Scottish Water as appropriate, to gain an understanding of the hotspots of flooding and potential interaction with river flooding.

<b>Sewer flood risk assessment (Ref: 11302)</b>	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Erskine 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.

## 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.

<b>Flood scheme or works design (Ref: 11303)</b>	
<b>Action</b>	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.
<b>Description</b>	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.

<b>Community engagement (Ref: 11304)</b>	
<b>Action</b>	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
<b>Description</b>	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.

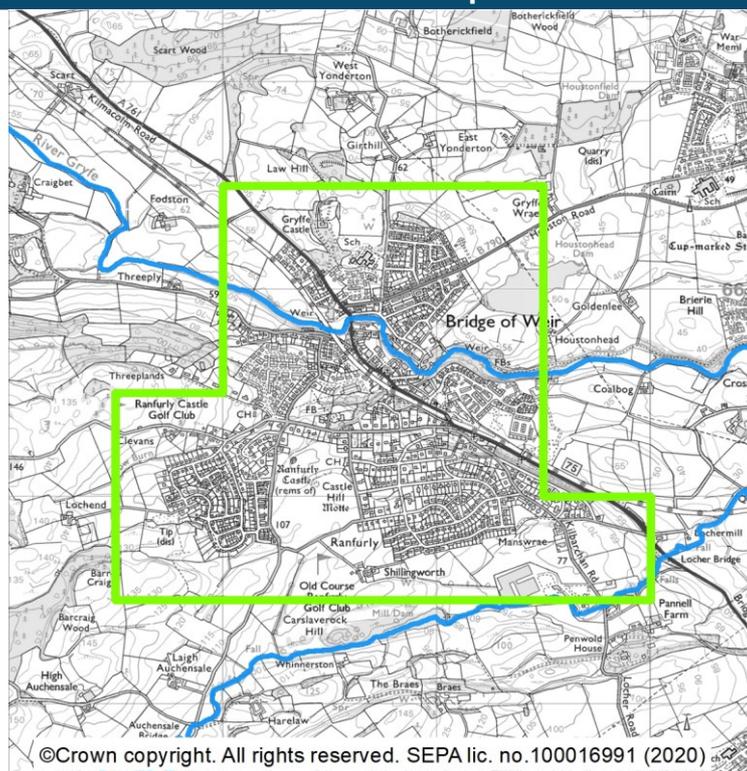
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places,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

## Bridge of Weir (target area 65001)

### Summary

Bridge of Weir is a village located within the Renfrewshire Council area, just west of Glasgow on the banks of the River Gryfe. The main source of flooding in Bridge of Weir is surface water flooding, however there is also a river flood risk. There are approximately 170 people and 100 homes and businesses currently at risk from flooding. This is likely to increase to 200 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. Bridge of Weir 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
650011	Avoid flood risk	Avoid inappropriate development that increases flood risk in Bridge of Weir
650012	Improve data and understanding	Improve data and understanding of surface water flooding in Bridge of Weir

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Data collection (Ref: 6500101)	
<b>Action</b>	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.
<b>Description</b>	On completion of the assessment of sewer flood risk, Renfrewshire Council should review the findings to ascertain if further action is required to improve understanding of risk from both river and surface water. This may include data collection and monitoring to improve the confidence in flood sources, mechanisms and risk.

Sewer flood risk assessment (Ref: 6500102)	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Erskine 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.

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

## 02/11/20 (Clyde South and Bishopton)

This area is designated as a potentially vulnerable area due to flood risk to Bishopton, Erskine, Inchinnan and Port Glasgow east. The main sources of flooding are from river and surface water. Recent flooding has occurred in the area.

There are 4 target areas in this potentially vulnerable area, which have been the focus of further assessment, these are listed below. Further information on the objectives and actions to manage flood risk within this area is provided below.

### List of target areas

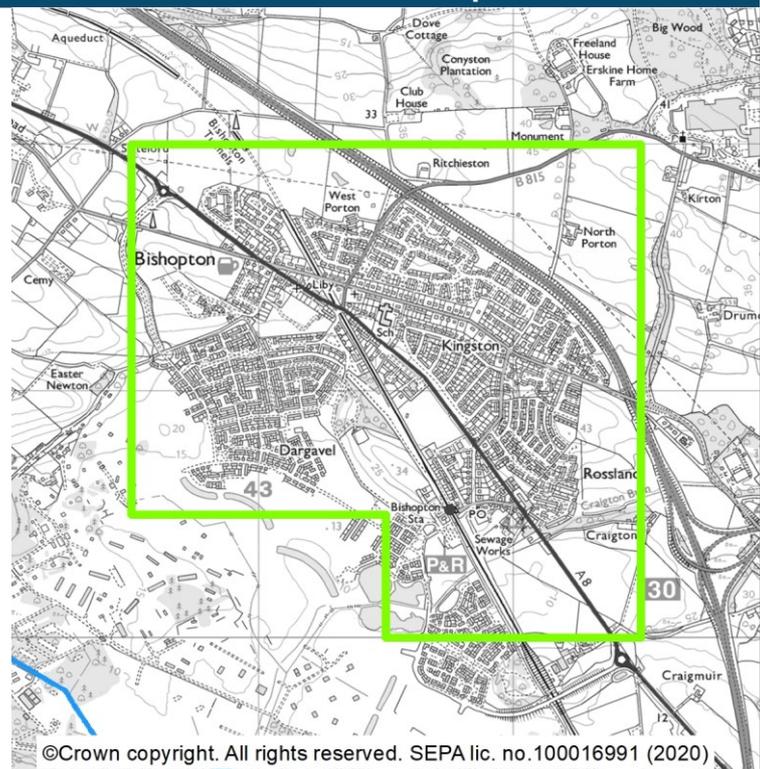
Bishopton	(target area 6)
Inchinnan	(target area 66)
Port Glasgow east	(target area 89)
Erskine	(target area 110)

## Bishopton (target area 6)

### Summary

The village of Bishopton is located within the Renfrewshire Council area. The main source of flooding is surface water flooding, however there is also a risk of river flooding. There are approximately 400 people at risk from flooding and approximately 220 homes and businesses. This is likely to increase to 530 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. 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
61	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
62	Improve data and understanding	Improve data and understanding of surface water and river flooding in this target area

## What actions are proposed for this area?

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

### Actions proposed to start between 2022 and 2028

Data collection (Ref: 601)	
<b>Action</b>	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.
<b>Description</b>	On completion of the integrated catchment study and assessment of sewer flood risk, Renfrewshire Council should review the findings to ascertain if further action is required to improve understanding of risk from both river and surface water. This may include data collection and monitoring to improve the confidence in flood sources, mechanisms and risk.

Sewer flood risk assessment (Ref: 602)	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Erskine 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.

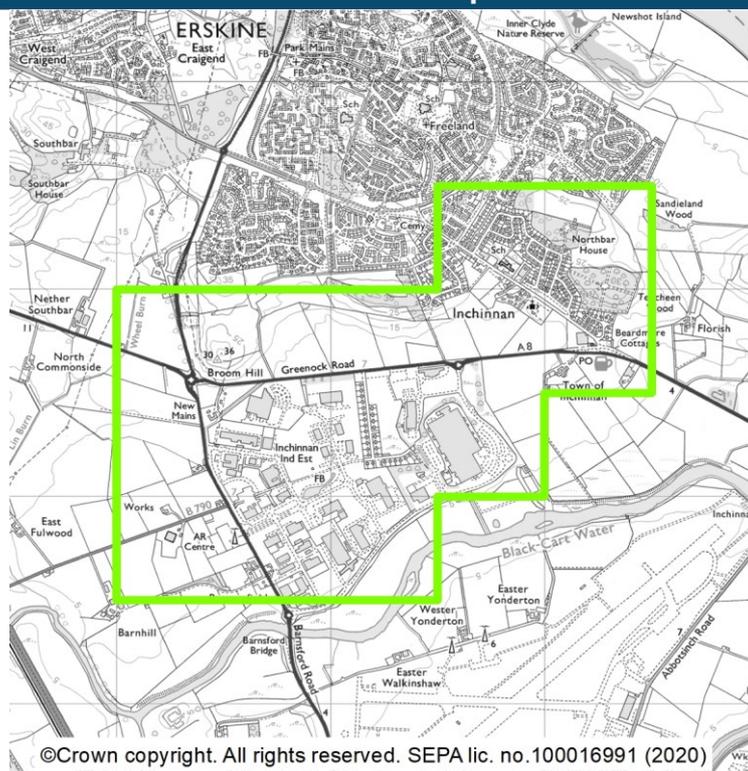
Surface water management plan (Ref: 603)	
<b>Action</b>	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in 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.
<b>Description</b>	Renfrewshire Council should develop a surface water management plan in this target area. The results of the integrated catchment study and sewer flood risk assessment should be considered. The surface water management plan should identify the future studies and works required to manage current and future flood risk and be reviewed regularly.

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.

### Summary

The village of Inchinnan is located west of Glasgow, near to the banks of the Black Cart Water within the Renfrewshire Council area. The main source of flooding in Inchinnan is surface water flooding. There are approximately 70 people and 70 homes and businesses currently at risk of flooding. This is likely to increase to 80 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 surface water flooding by the sewer flood risk assessment and integrated catchment study, which also assesses the interactions between the different flood sources. 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
661	Avoid flood risk	Avoid inappropriate development that increases flood risk in Inchinnan
662	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Inchinnan
663	Reduce flood risk	Reduce the risk of surface water flooding in Inchinnan

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

<b>Sewer flood risk assessment (Ref: 6601)</b>	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Erskine 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.
<b>Surface water management plan (Ref: 6602)</b>	
<b>Action</b>	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.
<b>Description</b>	Renfrewshire Council should develop a surface water management plan in this target area. The results of sewer flood risk assessment should be considered. The surface water management plan should identify the future studies and works required to manage current and future flood risk and be reviewed regularly.

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.

## Port Glasgow east (target area 89)

### Summary

Port Glasgow east is located on the south bank of the River Clyde. The area is located within the Inverclyde Council area. The main source of flooding in Port Glasgow East is surface water flooding. There are approximately 760 people and 430 homes and businesses currently at risk of flooding. This is likely to increase to 990 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 understanding of flood risk is improving as a result of the integrated catchment study which assesses the interactions between the different flood sources. There are limited records 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
891	Avoid flood risk	Avoid inappropriate development that increases flood risk in Port Glasgow
892	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Port Glasgow
893	Reduce flood risk	Reduce the risk of surface water flooding in Port Glasgow

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Flood study (options appraisal) (Ref: 8901)	
Action	In areas where flood risk is confirmed, a range of possible options to manage flood risk are to be identified, including natural flood management actions where suitable, and a preferred approach is to be chosen. This should include adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	The hotspot areas identified from the integrated catchment study should be considered with options developed to look at reducing the flood risk. This will form part of a surface water management plan which would investigate the long term flood management in key areas.

Sewer flood risk assessment (Ref: 8902)	
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Description	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Inverclyde 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.

Flood warning maintenance (Ref: 8903)	
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Description	SEPA should maintain the Firth of Clyde coastal flood warning scheme.

## 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: 8904)	
Action	The selected preferred approach for managing flood risk is to be designed following the completion of the flood study, including consideration of the long-term impacts of climate change. These can include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.

**Flood scheme or works implementation (Ref: 8905)**

<b>Action</b>	The flood scheme/works is to be built following agreement of the design, costs and timescales.
<b>Description</b>	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.

**Community engagement (Ref: 8906)**

<b>Action</b>	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
<b>Description</b>	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.

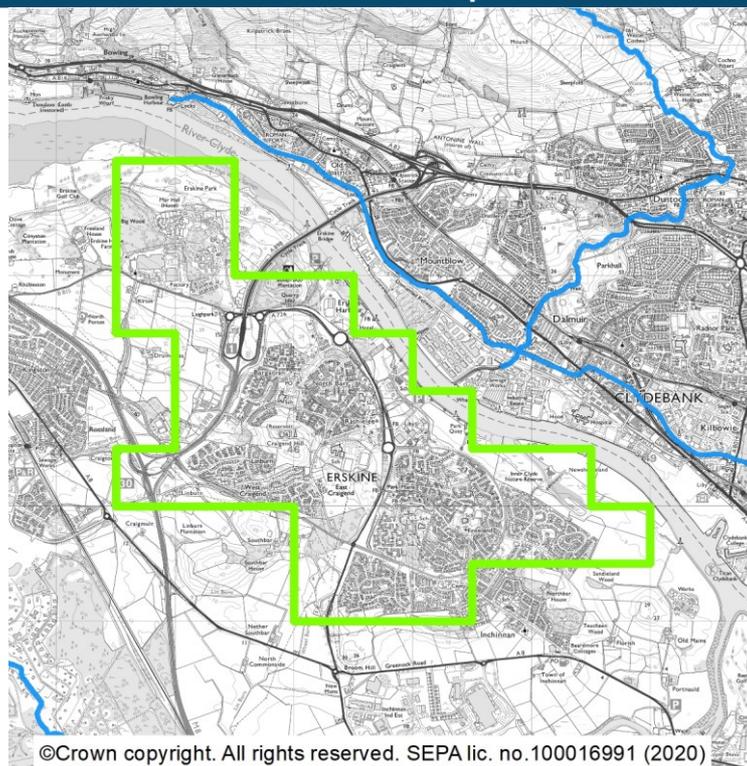
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places,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

## Erskine (target area 110)

### Summary

Erskine is a town located west of Glasgow on the banks of the River Clyde within the Renfrewshire Council area. The main source of flooding in Erskine is surface water flooding. There are approximately 1,100 people and 560 homes and businesses currently at risk of flooding. This is likely to increase to 1,300 people and 670 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 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
1101	Avoid flood risk	Avoid inappropriate development that increases flood risk in this target area
1102	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this target area
1103	Reduce flood risk	Reduce the risk of surface water flooding in this target area

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Sewer flood risk assessment (Ref: 11001)	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Erskine 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.
Surface water management plan (Ref: 11002)	
<b>Action</b>	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.
<b>Description</b>	Renfrewshire Council should develop a surface water management plan in this target area. The results of the integrated catchment study and sewer flood risk assessment should be considered. The surface water management plan should identify the future studies and works required to manage current and future flood risk and be reviewed regularly.

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

## 02/11/21 (Greenock and Gourock)

This area is designated as a potentially vulnerable area due to flood risk to Gourock, Greenock, Inverkip and Port Glasgow west. There is flooding from coastal, river and surface water. Recent flooding has occurred as a result of surface water.

There are 4 target areas in this potentially vulnerable area, which have been the focus of further assessment, these are listed below. Further information on the objectives and actions to manage flood risk within this area is provided below.

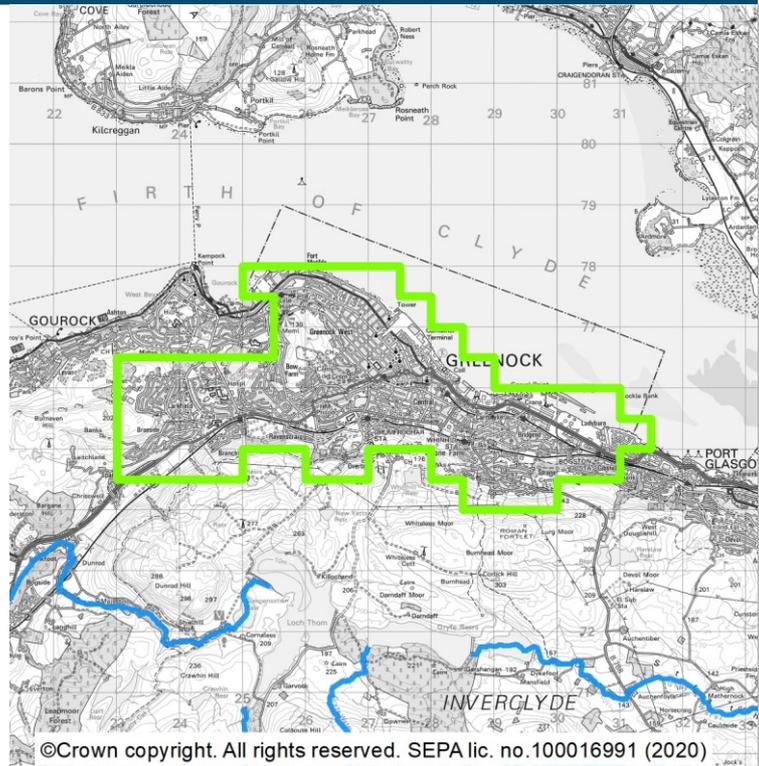
### List of target areas

Greenock	(target area 64)
Port Glasgow west	(target area 90)
Gourock	(target area 117)
Inverkip	(target area 146)

### Summary

The town of Greenock is located on the south bank of the Firth of Clyde, within Inverclyde Council area. The main source of flooding in the town of Greenock is surface water flooding, however there are also risks of river and coastal flooding. There are around 4,300 people and 2,700 homes and businesses currently at risk of flooding. This is likely to increase to 5,300 people and 3,200 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 flood risk by the Inverclyde Flood Management Study (2013) and the development of the Inverclyde Flood Protection Scheme (2015). Understanding is also improving as a result of the integrated catchment study which assesses the interactions between the different flood sources and is improved for coastal 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
641	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of Greenock Reservoirs flood protection scheme
642	Avoid flood risk	Avoid inappropriate development that increases flood risk in Greenock
643	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Greenock
644	Reduce flood risk	Reduce the risk of flooding in Greenock

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

<b>Flood study (options appraisal) (Ref: 6401)</b>	
<b>Action</b>	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.
<b>Description</b>	The hotspot areas identified from the integrated catchment study should be considered with options developed to look at reducing the flood risk. The impacts of climate change on flood risk should be assessed. This will form part of a surface water management plan which should investigate the long term flood management in key areas.
<b>Flood study (existing flood defences) (Ref: 6402)</b>	
<b>Action</b>	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.
<b>Description</b>	Study of Greenock Reservoirs flood protection scheme to be developed following the outcomes of the surface water management plan.
<b>Flood defence maintenance (Ref: 6403)</b>	
<b>Action</b>	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
<b>Description</b>	Maintenance to the Greenock Reservoirs flood protection scheme should continue and updates to the maintenance regime be made based on the findings of the flood study.
<b>Sewer flood risk assessment (Ref: 6404)</b>	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Inverclyde 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.

**Flood warning maintenance (Ref: 6405)**

<b>Action</b>	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
<b>Description</b>	SEPA should maintain the Firth of Clyde coastal flood warning scheme.

**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: 6406)**

<b>Action</b>	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.
<b>Description</b>	Further detail will be developed based on the outcome of preceding actions.

**Flood scheme or works implementation (Ref: 6407)**

<b>Action</b>	The flood scheme/works is to be built following agreement of the design, costs and timescales.
<b>Description</b>	Further detail will be developed based on the outcome of preceding actions.

**Community engagement (Ref: 6408)**

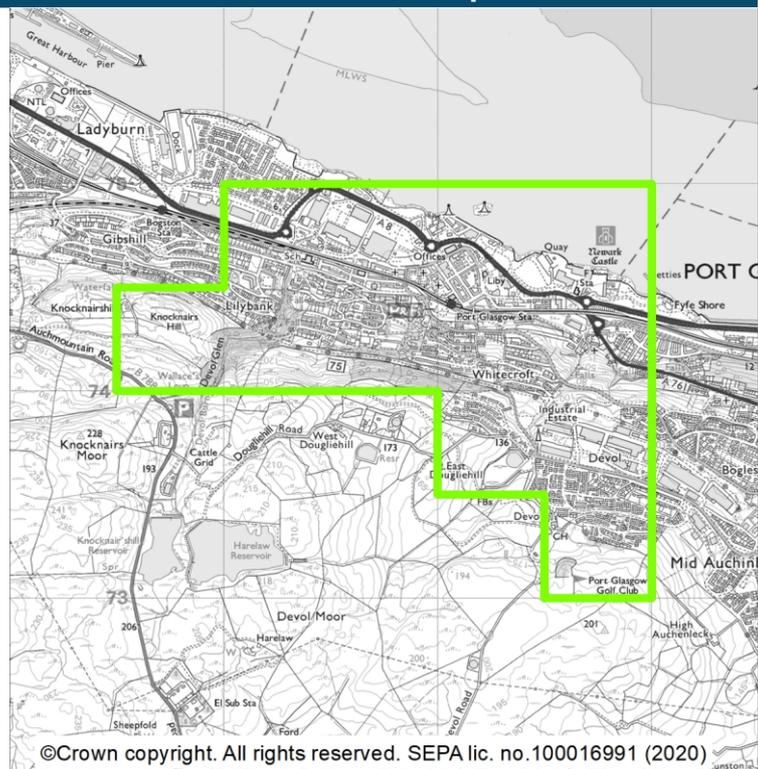
<b>Action</b>	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
<b>Description</b>	Further detail will be developed based on the outcome of preceding actions.

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.

### Summary

The western area of Port Glasgow is located on the south bank of the River Clyde. The area is located within the Inverclyde Council area. The main source of flooding in Port Glasgow west is surface water flooding, however there are also risks from river and coastal flooding. There are approximately 1,200 people and 660 homes and businesses currently at risk of flooding. This is likely to increase to 1,400 people and 790 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 flood risk by the Inverclyde Flood Management Study (2013) and the development of the Inverclyde Flood Protection Works (2016). Understanding is also improving as a result of the integrated catchment study which assesses the interactions between the different flood sources. Understanding is also improved for coastal 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
901	Avoid flood risk	Avoid inappropriate development that increases flood risk in Port Glasgow
902	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Port Glasgow
903	Reduce flood risk	Reduce the risk of flooding in Port Glasgow

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

<b>Flood scheme or works design (Ref: 9001)</b>	
<b>Action</b>	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.
<b>Description</b>	Inverclyde Council to develop detail design for Phase 2 of the Bouverie Burn Flood Protection Scheme.  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.
<b>Flood scheme or works implementation (Ref: 9002)</b>	
<b>Action</b>	The flood scheme/works is to be built following agreement of the design, costs and timescales.
<b>Description</b>	The local flood risk management plans published in December 2022 will establish further detail on the actions.
<b>Community engagement (Ref: 9003)</b>	
<b>Action</b>	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
<b>Description</b>	Detailed design and implementation of the Bouverie Burn Flood Protection Scheme 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.
<b>Flood study (options appraisal) (Ref: 9004)</b>	
<b>Action</b>	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.
<b>Description</b>	The hotspot areas identified from the integrated catchment study should be considered with options developed to look at reducing the flood risk.

<b>Sewer flood risk assessment (Ref: 9005)</b>	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Inverclyde 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.

<b>Flood defence maintenance (Ref: 9006)</b>	
<b>Action</b>	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
<b>Description</b>	Maintenance of the coastal flood defences in the area.

<b>Strategic mapping improvements (Ref: 9007)</b>	
<b>Action</b>	SEPA will continue to update flood maps based on new information.
<b>Description</b>	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.

### **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.

<b>Flood study (existing flood defences) (Ref: 9008)</b>	
<b>Action</b>	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.
<b>Description</b>	To develop a long term understanding of the coastal flood protection in the area.

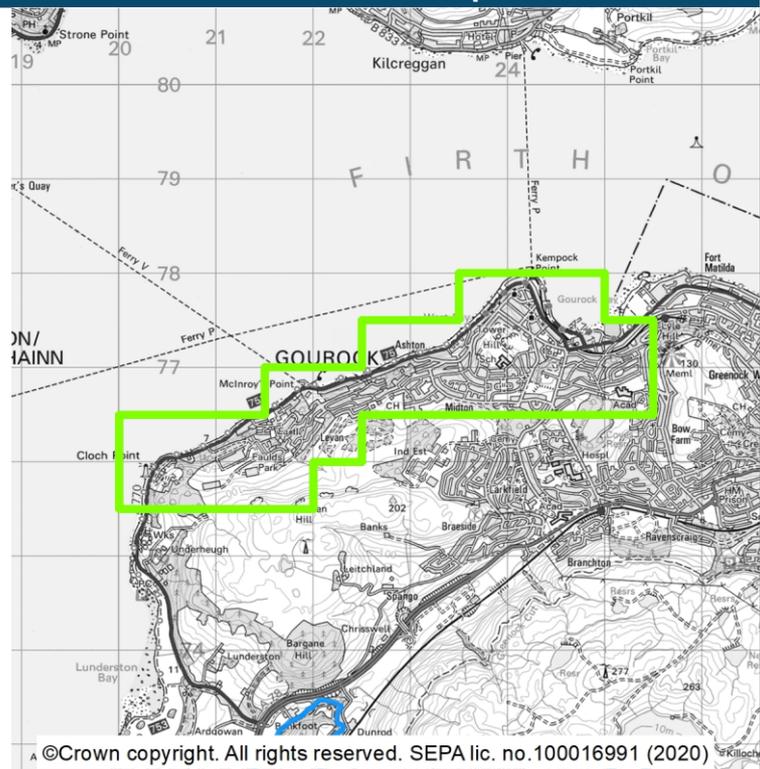
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, 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.

## Gourock (target area 117)

### Summary

Gourock is located on the south bank of the Firth of Clyde and is within the Inverclyde Council area. The main sources of flooding associated with Gourock are coastal and surface water flooding, however there is also a risk from river flooding. There are approximately 1,200 people and 630 homes and businesses currently at risk from flooding. 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 Cove Road, Gourock Flood Protection Feasibility Study (2004) has underpinned the understanding of coastal flood risk in this area and the national level assessment is also improved for river flood risk by the Inverclyde Flood Management Study (2013) and the development of the Inverclyde Flood Protection Works (2016). Understanding is also improving as a result of the integrated catchment study which assesses the interactions between the different flood sources. Understanding is also improved for coastal 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
1171	Avoid flood risk	Avoid inappropriate development that increases flood risk in Gourrock
1172	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Gourrock
1173	Reduce flood risk	Reduce the risk of flooding in Gourrock

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

<b>Flood scheme or works design (Ref: 11701)</b>	
<b>Action</b>	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.
<b>Description</b>	Inverclyde Council to develop detail design of preferred option for managing coastal flood risk in Coves Road.  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.
<b>Community engagement (Ref: 11702)</b>	
<b>Action</b>	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
<b>Description</b>	Detailed design for Coves Road 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.
<b>Flood study (Ref: 11703)</b>	
<b>Action</b>	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.
<b>Description</b>	Inverclyde Council to carry out a flood study to address risk from the Coves Burn. The potential for catchment management should be assessed incorporating Natural Flood Management actions where suitable.
<b>Flood study (options appraisal) (Ref: 11704)</b>	
<b>Action</b>	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.
<b>Description</b>	Inverclyde Council to continue developing the surface water management plan for Gourrock and the wider area. The hotspot areas identified from the integrated catchment study should be considered with options developed to look at reducing the flood risk.

**Sewer flood risk assessment (Ref: 11705)**

<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Inverclyde 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.

**Flood warning maintenance (Ref: 11706)**

<b>Action</b>	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
<b>Description</b>	SEPA should maintain the Firth of Clyde coastal flood warning scheme.

**Strategic mapping improvements (Ref: 11707)**

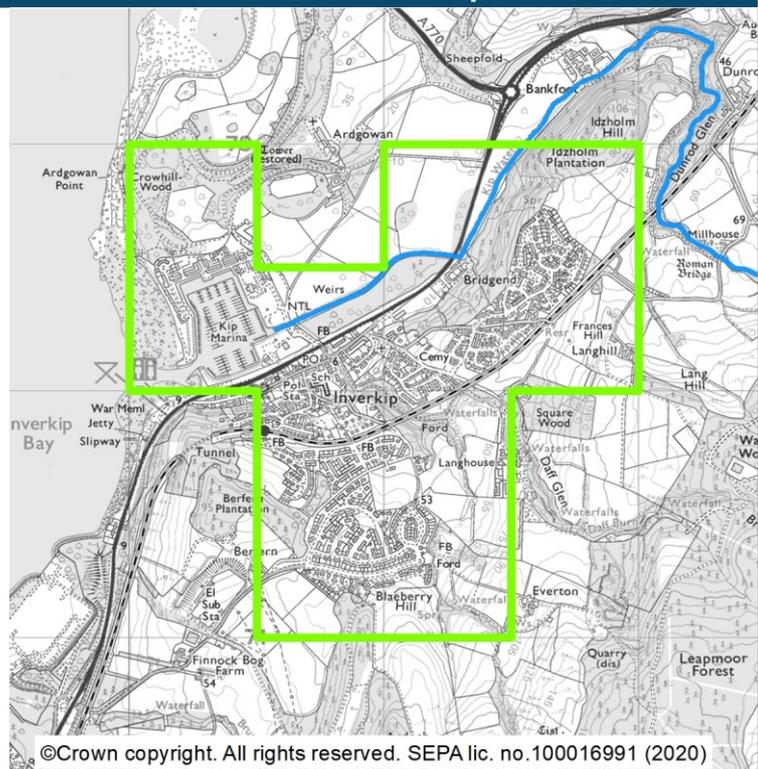
<b>Action</b>	SEPA will continue to update flood maps based on new information.
<b>Description</b>	SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.

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.

### Summary

Inverkip is a village located on the east shore of the Firth of Clyde. The area is located within the Inverclyde Council area. The main source of flooding in Inverkip is surface water flooding, however there are also risks from river and coastal flooding. There are approximately 140 people and 100 homes and businesses currently at risk from flooding. This is likely to increase to 180 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, and this information has highlighted the risk of flooding in this target area. There are no records of flooding in the Inverkip area but this does not confirm that there is no flood risk.

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
1461	Avoid flood risk	Avoid inappropriate development that increases flood risk in Inverkip
1462	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Inverkip
1463	Reduce flood risk	Reduce the risk of flooding in Inverkip

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Sewer flood risk assessment (Ref: 14601)	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Inverclyde 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.

Strategic mapping improvements (Ref: 14602)	
<b>Action</b>	SEPA will continue to update flood maps based on new information.
<b>Description</b>	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.

## 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 (options appraisal) (Ref: 14603)	
<b>Action</b>	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.
<b>Description</b>	Further details of this action will be informed by developments in flood risk management planning between 2022-2028.

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

## 02/11/22 (Dunoon)

This area is designated as a potentially vulnerable area principally due to flood risk to Dunoon and Sandbank. There is flooding from coastal, river and surface water. Coastal flood risk is likely to increase due to sea level rise caused by climate change. Recent coastal flooding has occurred in the area.

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

### List of target areas

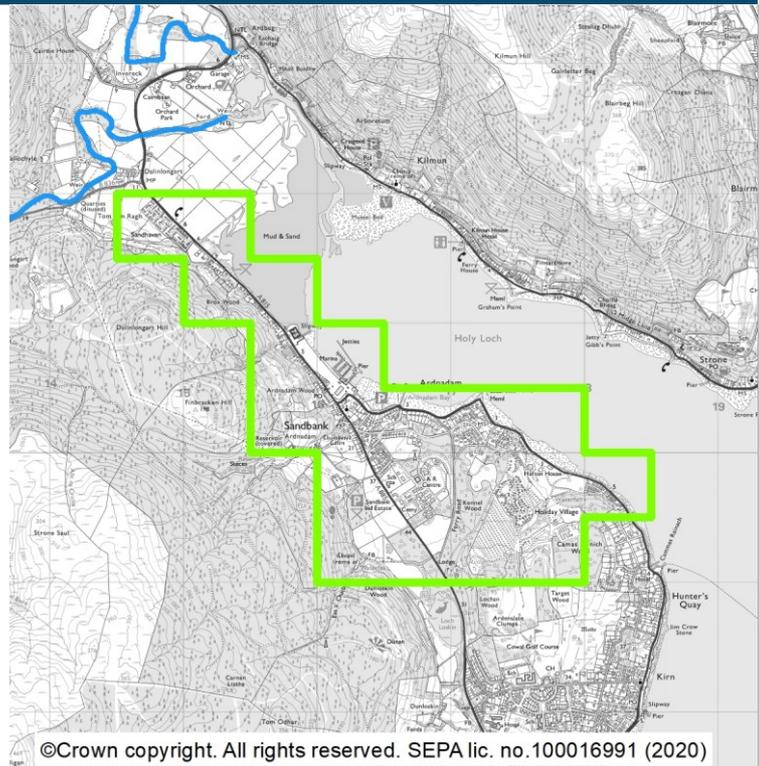
Sandbank	(target area 100)
Dunoon	(target area 107)

## Sandbank (target area 100)

### Summary

Sandbank is situated on the Cowal Peninsula and is within the Argyll and Bute Council area. The main source of flooding in Sandbank is coastal flooding, however there is also risk of surface water flooding. There are approximately 160 people and 110 homes and businesses currently at risk from flooding. This is likely to increase to 260 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 surface water flooding by the Dunoon Surface Water Management Plan which identified a number of different areas for mitigating flood risk including Sandhaven, Sandbank. There are records of periodic coastal and surface water flooding in Sandbank.

### 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
1001	Avoid flood risk	Avoid inappropriate development that increases flood risk in Sandbank
1002	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Sandbank
1003	Reduce flood risk	Reduce the risk of surface water flooding in Sandbank

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Flood scheme or works design (Ref: 10001)	
<b>Action</b>	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.
<b>Description</b>	Further development of the preferred option may be required prior to commencing with the detailed design. Argyll and Bute Council to develop the detailed design of the flood protection works in Sandhaven, Sandbank based on the preferred option from the surface water management plan. The preferred option identified to mitigate surface water flooding is a small embankment with discharge to open channel.  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.

Flood scheme or works implementation (Ref: 10002)	
<b>Action</b>	The flood scheme/works is to be built following agreement of the design, costs and timescales.
<b>Description</b>	Progress the flood works based on the detailed design.  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.

Community engagement (Ref: 10003)	
<b>Action</b>	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
<b>Description</b>	The responsible authorities to continue to engage with the community, with particular focus on the detailed design of the flood protection works.

Sewer flood risk assessment (Ref: 10004)	
<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Dunoon 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.

**Surface water management plan (Ref: 10005)**

<b>Action</b>	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system have been identified. Next steps in managing such water ponding or over-whelmed drainage systems have been identified and should be implemented. The plan is to be reviewed and updated as needed.
<b>Description</b>	Implement the surface water management plan. The plan should be reviewed and updated regularly.

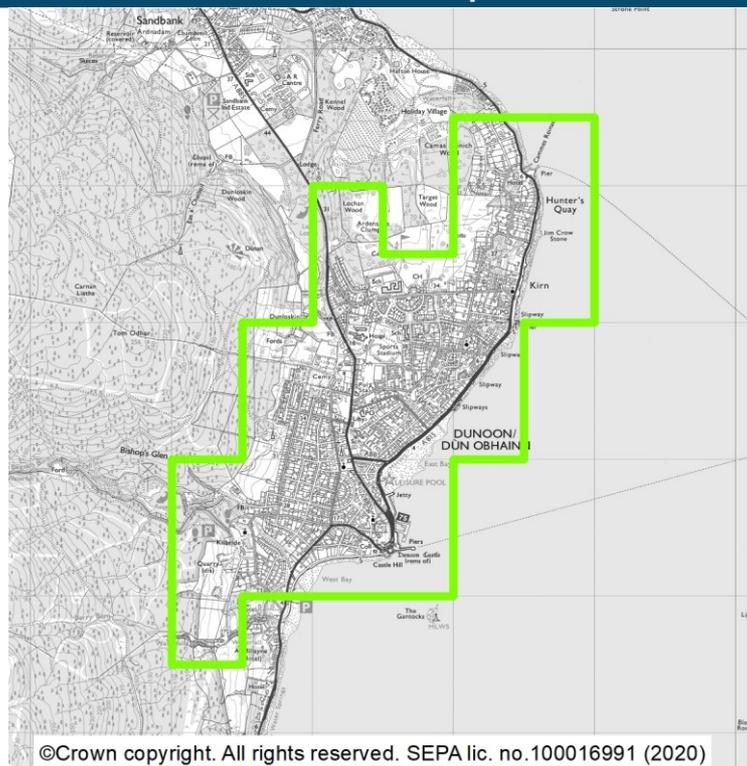
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, 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.

## Dunoon (target area 107)

### Summary

Dunoon is located on the Cowal Peninsula and is within the Argyll and Bute Council area. The main sources of flooding in Dunoon are surface water and river flooding. There are approximately 700 people and 430 homes and businesses at risk from flooding. This is estimated to increase to 970 people and 590 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 by the Dunoon Surface Water Management Plan. A sewer flood risk assessment has also been completed. The national level assessment is underpinned by the various studies to develop the Milton Burn Flood Protection Scheme (2012) and the Kilbride Road, Dunoon Flood Protection Scheme (2007). There is a long history of surface water flooding in Dunoon. There are also records of flooding from the Milton Burn prior to the completion of the Milton Burn Flood Protection Scheme including flooding in November 2001 and August 2004.

## 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
1071	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of the Kilbride Road, Dunoon Flood Prevention Scheme 2007 and the Milton Burn scheme
1072	Avoid flood risk	Avoid inappropriate development that increases flood risk in Dunoon
1073	Improve data and understanding	Improve data and understanding of the performance of the flood protection asset in Dunoon
1074	Improve data and understanding	Improve data and understanding of the risk of flooding from the Milton Burn in Dunoon
1075	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Dunoon
1076	Reduce flood risk	Reduce the risk of surface water flooding in Dunoon

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Flood scheme or works design (Ref: 10701)	
<b>Action</b>	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.
<b>Description</b>	Further development of the preferred option may be required prior to commencing with the detailed design. Argyll and Bute Council to develop the detailed design of the flood protection works in Black Park (Ash Park), Dunoon based on the preferred option from the surface water management plan. The preferred option identified to mitigate flooding is a filtration trench discharging to the combined sewer.  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.

Flood scheme or works implementation (Ref: 10702)	
<b>Action</b>	The flood scheme/works is to be built following agreement of the design, costs and timescales.
<b>Description</b>	Argyll and Bute Council to progress the flood works based on the detailed design.  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.

Community engagement (Ref: 10703)	
<b>Action</b>	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
<b>Description</b>	The responsible authorities to continue to engage with the community, with particular focus on the detailed design of the flood protection works.

**Flood study (Ref: 10704)**

<b>Action</b>	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. 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.
<b>Description</b>	Argyll and Bute Council to carry out a flood study to address flood risk from the Milton Burn in Dunoon. This includes a review of the Milton Burn Flood Protection Scheme (2012) and Kilbride Road, Dunoon Flood Prevention Scheme (2007). The impacts of climate change on flood risk should be evaluated. If flood risk is confirmed, scoping of the next steps should be completed.

**Flood defence maintenance (Ref: 10705)**

<b>Action</b>	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
<b>Description</b>	Continue to maintain the Milton Burn Flood Protection Scheme (2012), Kilbride Road, Dunoon Flood Prevention Scheme (2007) and other existing flood defences in Dunoon.

**Sewer flood risk assessment (Ref: 10706)**

<b>Action</b>	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
<b>Description</b>	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Dunoon 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.

**Surface water management plan (Ref: 10707)**

<b>Action</b>	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system have been identified. Next steps in managing such water ponding or over-whelmed drainage systems have been identified and should be implemented. The plan is to be reviewed and updated as needed.
<b>Description</b>	Argyll and Bute Council to implement the surface water management plan. The plan should be reviewed and updated regularly.

**Flood warning maintenance (Ref: 10708)**

<b>Action</b>	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
<b>Description</b>	SEPA should maintain the Firth of Clyde coastal flood warning scheme.

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

## 02/11/23 (Isle of Bute)

This area is designated as a potentially vulnerable area due to flood risk to Kilchattan Bay, Rothesay and Port Bannatyne. There is flooding from coastal, river and surface water. This area has a history of flooding, with recent floods being caused by both river and surface water flooding.

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

### List of target areas

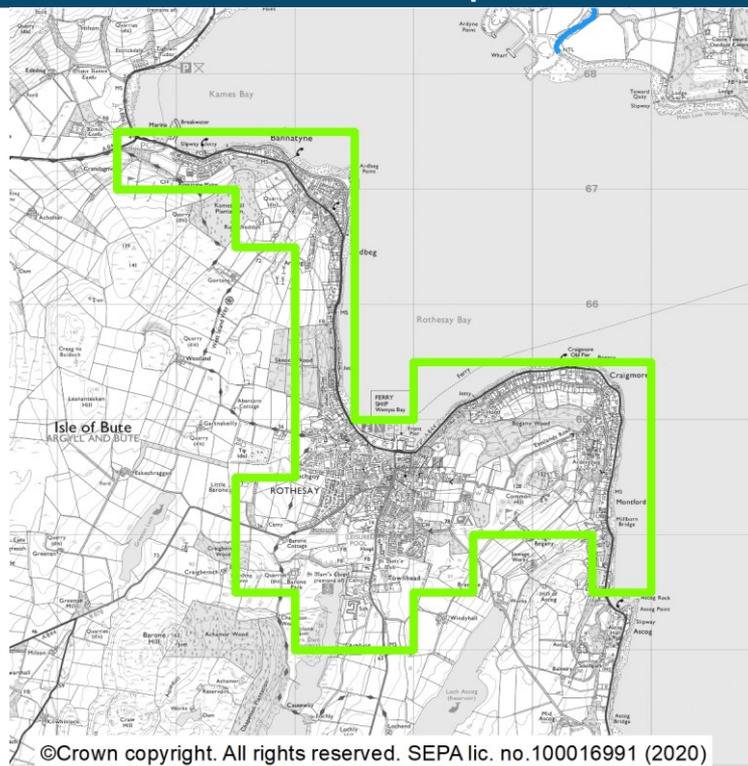
Rothesay and Port Bannatyne	(target area 88)
Kilchattan Bay	(target area 116)

## Rothesay and Port Bannatyne (target area 88)

### Summary

Rothesay and Port Bannatyne are located on the east of the Isle of Bute in the Argyll and Bute Council area. The main source of flooding is coastal, however there are also risks from river and surface water. The national level assessment estimates that there are approximately 1,500 people and 1,000 homes and businesses at risk from flooding. This does not take account of the Rothesay Flood Protection Scheme and as a result the numbers could be overestimated. The number of people, homes and businesses at risk is expected to increase by approximately 30% 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 underpinned for coastal flood risk in Rothesay through the previous studies to support the development of the Rothesay Flood Protection Scheme which was constructed in 2004. The understanding of coastal flooding is also improved by the development and operation of the Firth of Clyde flood warning scheme and the Rothesay and Port Bannatyne communities benefit from the Kames Bay to Rothesay flood warning area. The understanding of surface water flood risk in Rothesay is improved by a sewer flood risk assessment. Prior to the completion of the Rothesay Flood Protection Scheme there were records of periodic coastal flooding in Rothesay including notable flooding in January 1991. There are records of coastal flooding in the wider target area too. Records show that flooding can be exacerbated when heavy rainfall coincides with a high tide, as seen during the flooding of October 2018.

### 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
881	Avoid flood risk	Avoid inappropriate development that increases flood risk in Rothesay and Port Bannatyne
882	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of the Rothesay Flood Prevention Scheme 2002
883	Improve data and understanding	Improve data and understanding of coastal and surface water flooding in Rothesay and Port Bannatyne including the Rothesay Flood Protection Scheme
884	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Rothesay and Port Bannatyne

## What actions are proposed for this area?

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

## Actions proposed to start between 2022 and 2028

Flood study (Ref: 8801)	
<b>Action</b>	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. 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.
<b>Description</b>	A flood study should be carried out to address coastal and surface water flood risk in Rothesay and Port Bannatyne. Using the best understanding of current coastal processes and anticipated changes due to climate change, flood modelling should be undertaken to review the standard of protection offered by the coastal defences. Surface water flood modelling should also be progressed and include the Lade area. The impacts of climate change on flood risk should be evaluated. The interactivity between coastal flooding and surface water flooding should be assessed. If flood risk is confirmed, scoping of the next steps should be completed.
Flood defence maintenance (Ref: 8802)	
<b>Action</b>	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
<b>Description</b>	Maintenance to the Rothesay Flood Protection Scheme should continue and updates to the maintenance regime be made based on the findings of the flood study.
Strategic mapping improvements (Ref: 8803)	
<b>Action</b>	SEPA will continue to update flood maps based on new information.
<b>Description</b>	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.

**Flood warning maintenance (Ref: 8804)****Action**

The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.

**Description**

SEPA should maintain the Firth of Clyde coastal flood warning scheme.

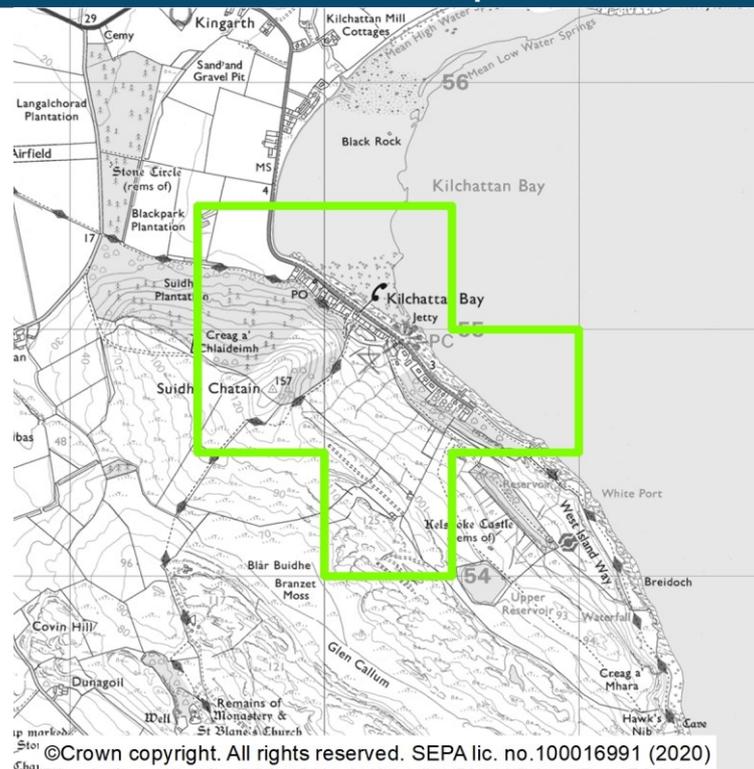
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, 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.

## Kilchattan Bay (target area 116)

### Summary

Kilchattan Bay is located on the southern end of the Isle of Bute in the Argyll and Bute Council area. The only source of flooding in Kilchattan Bay is coastal flooding. There are approximately 110 people and 60 homes and businesses currently at risk from flooding, which is a significant proportion of the community. This is likely to increase to 120 people and 70 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 national assessment has highlighted the risk of coastal flooding in this target area. The risk is also expected to increase due to climate change. Kilchattan Bay has therefore been identified as a new target area for the 2021 flood risk management plans. There are no records of flooding in the Kilchattan Bay target area but this does not confirm that there is no flood risk.

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
1161	Avoid flood risk	Avoid inappropriate development that increases flood risk in Kilchattan Bay
1162	Improve data and understanding	Improve data and understanding of coastal flooding and the impacts of climate change in Kilchattan Bay
1163	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Kilchattan Bay

## What actions are proposed for this area?

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

### Actions proposed to start between 2022 and 2028

Strategic mapping improvements (Ref: 11601)	
<b>Action</b>	SEPA will continue to update flood maps based on new information.
<b>Description</b>	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.

### 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: 11602)	
<b>Action</b>	An assessment of coastal flood and erosion risk is to be carried out. 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.
<b>Description</b>	Progress the development of the shoreline management plan for the Argyll and Bute coastline.

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

## Annex 1: Costs of actions

Action	Indicative capital cost (£)	Notes
Adaptation plan	30,000	Costs can vary greatly depending on the scale and complexity of flooding
Data collection	20,000	
Flood scheme or works design	300,000	Costs can vary greatly depending on the scale and complexity of flooding, along with the ground conditions
Flood study	50,000	Costs can vary greatly depending on the scale and complexity of flooding
Flood study (existing flood defences)	80,000	
Flood study (options appraisal)	40,000	
Shoreline Management Plan (Coastal Adaptive Plan)	100,000	
Surface water management plan	30,000	
Flood scheme or works implementation	N/A	Schemes are very individual and it is not possible to provide an indicative cost.
<b>The costs involved in the following actions are predominately from staff resource:</b>		
Community engagement	N/A	Resources required are very specific for the individual action. It is currently not possible to estimate a resource cost.
Community flood alert	N/A	
Community resilience group	N/A	
Emergency plan	N/A	
Flood defence maintenance	N/A	Cost of maintenance is specific to the defence and is impacted by among other things age and type of the defences. It is not possible to provide indicative costs.
Flood risk management review	N/A	Resources required are very specific for the individual action. It is currently not possible to estimate a resource cost.
Flood warning maintenance	N/A	
Flood warning scoping	N/A	
Land Use Planning	N/A	
Maintain flood protection scheme	N/A	
New flood warning area	N/A	
Property flood resilience scheme	N/A	
Sewer flood risk assessment	N/A	
Site protection plan	N/A	
Strategic mapping improvements	N/A	

## Annex 2: Flood risk management plans consultation summary

Asking for and listening to input from stakeholders and the public is a key part of flood risk management in Scotland. SEPA and the local authorities undertook a joint consultation, which ran in 2 phases between December 2020 and October 2021. Phase 1, opened in December 2020 and included a summary of flooding in each Local Plan District, a description of the potentially vulnerable areas and the identified local target areas. Phase 2 opened for responses on 30th July 2021 and closed on 31st October 2021. Phase 2 identified the objectives for each target area and the actions needed to achieve these objectives. It also included prioritisation of the actions by 6 year cycle. Local authorities provided more detail in the draft local flood risk management plans, which included an expanded description of the actions, and who would lead and coordinate delivery.

The consultation was open to everyone with an interest in flood risk management.

The communications campaign to publicise the consultation aimed to encourage anyone with an interest in flooding to have their say on how flood risk is managed across Scotland.

Communication activities included:

- A public notice in the Edinburgh Gazette and The Herald
- A national press release
- Social media posts on Facebook, Twitter, LinkedIn, Instagram
- A national targeted, paid social media campaign on Facebook, Twitter, and Instagram.

An animation and graphics were created to promote the consultation. These were shared with all responsible authorities in advance of the consultation and were regularly publicised via social media. The consultation was picked up by many local media outlets including local newspapers.

SEPA staff also supported several national events aimed at raising awareness of the consultation.

Demonstration of the consultation platform was provided to ensure that stakeholders were able to navigate the Citizen Space platform and answer the consultation questions.

Local authority flooding teams were provided with briefing packs with access to draft article templates and social media messages which they could use to promote the consultation within their own organisation and local area. Many local authorities used their network of community councils to promote the consultation.

In total SEPA received 677 responses. These included 654 online responses via the consultation platform Citizen Space and 23 e-mail responses received via SEPA's consultation mailbox. Compared to the first consultation on the flood risk management strategies in 2014, there has been a welcome three-fold increase in the number of responses. The majority of the responses (520) were from members of the public. This reflects increased public awareness of flooding and flood risk management, and the increasing risk due to climate change.

SEPA is grateful to individuals and organisations for considering the proposals and providing feedback. Responses varied from detailed comments on the actions proposed in individual target areas, to general comments on flooding and flood risk management. The sections below provide a brief outline of the responses received and changes made as a result.

Many of the aspects raised relate to the underlying requirements of the Flood Risk Management (Scotland) 2009 Act, to activities which are the responsibility of other organisations, or to the content of the local flood risk management plans. Working within safe data sharing practices, SEPA will ensure the feedback received is passed to other responsible authorities to consider and act on.

This summary is a factual statement of the responses provided. All responses received have been read and considered, resulting in a number of changes to the plans. Further detail on the analysis of responses will be published by SEPA in Spring 2022.

## **Identifying communities and infrastructure at risk**

In the consultation SEPA asked whether all the main communities and infrastructure at significant risk of flooding were identified. 45% of respondents agreed that the main communities and infrastructure were identified and 29% stated they were not sure. 21% of respondents felt that some communities were missing from the plans.

Some respondents who had recently flooded were concerned that their communities were not identified as target areas. Some respondents suggested additional areas for SEPA to consider where flooding has occurred in the past. Concerns were also expressed about the method used to identify the main communities at risk.

## **Proposed objectives**

34% of respondents supported the proposals for objectives to manage flood risk in target areas and 30% were not sure. 25% did not agree and 10% did not answer this question.

The main concerns of those who did not agree with the proposed objectives were that timescales were long-term and would not result in immediate action, objectives did not cover wider issues such as sewerage flooding, objectives were not detailed enough, and that objectives did not limit new development. There were concerns that there was no evidence being provided to show that the objectives were being met by the authorities, and that objectives were not leading to actions on the ground.

## **Proposed actions to manage flood risk**

43% of respondents were not sure whether the actions would work towards achieving the objectives. 25% of respondents did not agree with the proposed actions to manage flood risk. 20% agreed with the proposed actions and 12% did not answer this question.

Those who did not agree expressed concerns that flood studies were not resulting in actions on the ground, that actions were not detailed enough, some stressed the need for other actions such as drain clearance being done now and some emphasised the need for a catchment-based approach and natural flood management.

Others asked for more watercourse clearing and river management and more transparency from the local authority in publicising the maintenance plan for flood defences. Concerns were also expressed that new development is not being controlled and is contributing to increased surface water flooding and that there were no actions to address sewerage flooding. Concerns were also raised about funding for actions.

NatureScot provided feedback on specific target areas and the impacts on biodiversity and designated sites.

### **Timescales for implementing actions**

In terms of the proposed timescales, 36% of respondents did not agree and 32% were not sure of the identified timescales. 17% agreed and 15% did not respond to this question.

Those who disagreed were concerned that actions were taking too long and that more urgent action is needed in light of climate change. Respondents also commented that timescales were too vague and should be more detailed.

### **What can individuals, communities and organisations do to help manage flood risk?**

SEPA also asked whether individuals, communities or organisations were able to help with flood risk management in Scotland. There was a range of responses to this question, with 39% of respondents agreeing that there is something they could do to help manage flood risk and 26% of respondents not sure that there are things they could do.

Those who were not sure asked for more guidance from the authorities. However, many felt that there was something that communities or individuals can do. Suggestions included less paving of gardens to help attenuate rainwater, authorities developing information to help the public make more informed decisions, community organised clearance of watercourses where it is safe to do so, reporting blockages and flooding to the authorities, planting trees and greening of cities.

## Acting on consultation feedback

Several changes were made to the final flood risk management plans as a result of the input received during the consultation. A summary of those changes is provided in the table below, and full details will be provided in the consultation digest to be published by SEPA in Spring 2022.

Summary of changes made to the plans following the consultation
1. Further actions were added to manage flood risk in several target areas.
2. Additional Local Plan District actions were added.
3. Some actions were removed from the flood risk management plans at the request of local authorities responsible for their delivery due to completion in the time between consultation and publication.
4. Further information was included on how climate change was assessed in the preparation of the plans.
5. Further information was included on how potentially vulnerable areas were identified, and when they will be reviewed again.
6. Information was included on the progress made in implementing actions and working towards objectives in the 2015 strategies.
7. A target area boundary was amended based on new information provided.
8. A description of the importance of community actions, recognising the work that communities do to manage flooding was included, along with further information on where support is available to help people reduce their own flood risk.
9. A description of the catchment-based approach SEPA has taken, and the role it plays in delivering flood risk management actions was provided.
10. The link between flood risk management plans and land use planning was clarified.
11. Habitats Regulations Appraisal statements were added to each relevant action.
12. Some other changes were made to the way information is presented to try to make it clearer e.g., on the timing of actions being carried out.
13. Further information was provided on the uncertainty associated with funding of flood risk management actions.

## Annex 3: Acknowledgements

SEPA acknowledges the cooperation and input provided in preparing these plans, including the following:

**Ordnance Survey** Maps are based upon Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown Copyright. Any unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. SEPA Licence number 100016991 (2020).

**The Centre for Ecology and Hydrology** Some of the plan development is based upon digital spatial data licensed from the Centre for Ecology and Hydrology © NERC (CEH) and third party licensors.

**Local authorities** SEPA acknowledges the provision of flood models and other supporting data and information from local authorities in Scotland and their collaboration in the production of flood risk management information.

**Scottish Water** SEPA acknowledges the inclusion of surface water flooding data generated by Scottish Water in preparation of flood risk information.

**The Flood Hazard Research Centre** Multi-coloured Manual and Multi-coloured Handbook 2016.

All contributors to the **2018 NFRA**, more information on which can be found at <https://www.sepa.org.uk/data-visualisation/nfra2018/>