



Flood Risk Management Plan

Tay Local Plan District

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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 Tay Local Plan District it is estimated there are around 9,000 homes and businesses at risk from flooding, and this may increase to 13,000 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 £11.4 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 Perth and Kinross 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 Perth and Kinross Council, Loch Lomond and the Trossachs National Park Authority, Cairngorm National Park Authority, 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

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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

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

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 group¹. 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.

¹ 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/

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: Tay Local Plan District (LPD 8)

Flood risk management plan 2022-2028

The Tay Local Plan District covers around 6,100km² and has a population of approximately 160,000 people. It spans from the southern part of the Cairngorms National Park all the way to the Firth of Tay. The Local Plan District includes a 74km stretch of the inner Firth of Tay coastline, where the River Tay and the River Earn meet. It includes the urban areas of Aberfeldy, Alyth Blairgowrie, Comrie, Dunkeld, Forfar, Perth and Pitlochry.

There are urban and agricultural areas to the east and more rural, mountainous and forested areas to the west. There are many large lochs and reservoirs, including Loch Ericht, Loch Rannoch and Loch Tay. The main rivers are the Earn and Tay. The River Tay is Scotland's longest river at 190km, and its main tributaries include the River Garry, River Tummel, River Lyon, River Braan, River Isla and River Almond.

There is a river, surface water and coastal flood risk. A number of large floods have affected this Local Plan District. Recently, intense rainfall in August 2020 caused extensive surface water flooding in Perth and many other towns. Further extensive surface water floods were recorded in July 2015 following intense rainfall. Storms Desmond and Frank in December 2015 caused river flooding, affecting many areas within the Local Plan District. Extensive flooding in the early 1990s, notably in 1993, resulted in the construction of the Perth Flood Protection Scheme. Other formal flood protection schemes have been constructed within the Local Plan District including in Almondbank, Bridge of Earn, Comrie, Kirriemuir, and Weem. Currently it is estimated that there are around 13,000 people and 9,000 homes and businesses at risk from flooding. This may increase to 21,000 people and 13,000 homes and businesses by 2080s due to climate change. The expected annual cost of flooding over a long period of time is around £11.4 million.

SEPA lead development of the flood risk management plans for Scotland and delivery of flood warning services. Local flood risk management planning in the Tay Local Plan District is led by Perth and Kinross Council, as the lead local authority.

Other responsible authorities include three more local authorities, Scottish Water, Loch Lomond and the Trossachs National Park Authority and Cairngorm National Park Authority. 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>

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

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

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

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

	Future flood risk management planning
Action	<p>The years covered by the lifetime of this plan are crucial. Radical progress is needed in how we reduce our impact on the climate and respond to the effects of climate change. How we plan to manage flooding to our communities is on the front line of the challenges of</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>
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	Guidance development
Action	<p>The Scottish Government and SEPA will develop and update guidance to inform flood risk management projects. This guidance will be produced in 2022 and will look at how best to adapt to the long-term impacts of climate change and the most appropriate methods of assessing the benefits of flood risk management actions.</p> <p>Technical guidance to support flood risk management partners will be reviewed and updated by SEPA where required.</p> <p>Scottish Forestry, in collaboration with its UK counterparts, will produce guidance on designing and managing forests to reduce flood risk.</p> <p>Guidance will be developed to help local authorities understand the requirements for mapping relevant bodies of water and sustainable urban drainage systems in their areas.</p>

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

	Land use planning
Action	<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. Locally determined planning policies may place further requirements within their area of operation to restrict inappropriate development and prevent unacceptable risk.</p>

	Maintenance
Action	<p>Local authorities have a duty to assess bodies of water and to carry out clearance and repair works where such works would substantially reduce flood risk. Local authorities are also responsible for the drainage of roads. In addition, local authorities may also be</p>

	<p>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>
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	Natural flood management mapping
Action	<p>SEPA will continue to support activities that improve our understanding of how to effectively target and deliver natural flood management. As part of this, SEPA will review and update the opportunities mapping for natural flood management. This will include linking blue-green infrastructure with the surrounding natural catchment and coastline. 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
Action	<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>

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

	Reservoirs
Action	SEPA will continue to develop its assessment of flood risk from dam failure and use these assessments to direct a proportionate regulatory approach to ensure reservoir safety. Over the next management cycle we will implement further developments of our flood warning capabilities in the unlikely event of reservoir failure.

	Scottish Flood Defence Asset Database
Action	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.

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

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

<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 (PVAs) will be reviewed every 6 years to take on board any new information. There are 14 potentially vulnerable areas (PVAs) within this Local Plan District. Following sections provide more information on these areas.

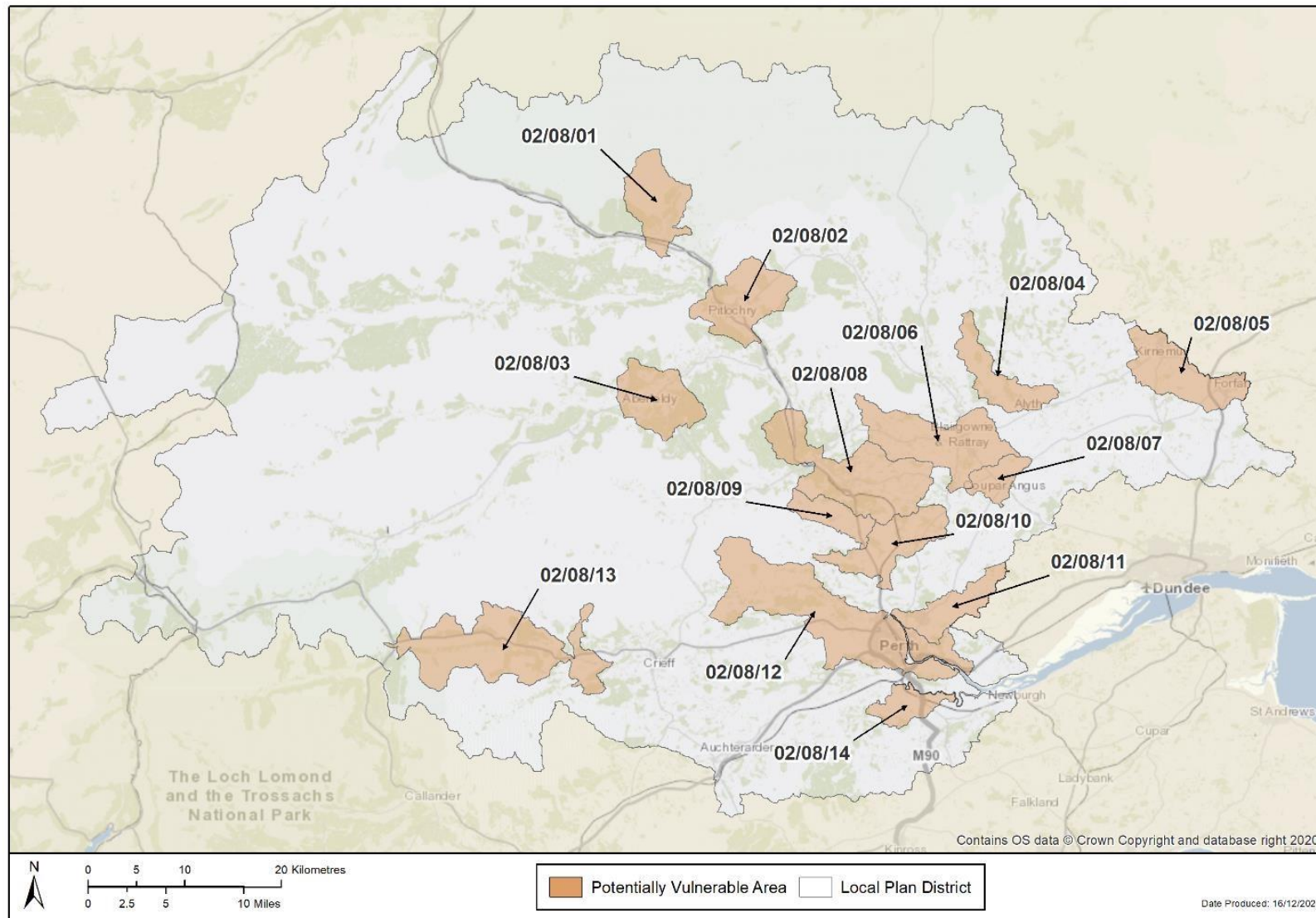


Figure 1. Potentially vulnerable areas in the Tay Local Plan District

LPD 8 Tay – List of PVAs

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

PVA Ref	PVA Name	Local authority area	Page number
02/08/01	Blair Atholl	Perth & Kinross	34
02/08/02	Pitlochry	Perth & Kinross	37
02/08/03	Aberfeldy and Weem	Perth & Kinross	41
02/08/04	Alyth	Perth & Kinross	47
02/08/05	Kirriemuir and Forfar	Angus	50
02/08/06	Blairgowrie and Rattray	Perth & Kinross	56
02/08/07	Coupar Angus	Perth & Kinross	59
02/08/08	Dunkeld and Birnam	Perth & Kinross	62
02/08/09	Bankfoot	Perth & Kinross	70
02/08/10	Luncarty	Perth & Kinross	73
02/08/11	Scone	Perth & Kinross	76
02/08/12	Perth and Almondbank	Perth & Kinross	80
02/08/13	Comrie	Perth & Kinross	89
02/08/14	Bridge of Earn	Perth & Kinross	93

02/08/01 (Blair Atholl)

This area is designated as a potentially vulnerable area due to flood risk to Blair Atholl. The main source of flooding is River Garry and small watercourses. There is a history of flooding in this area, with recent floods occurring as a result of river flooding from the River Garry.

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

Blair Atholl (target area 172)

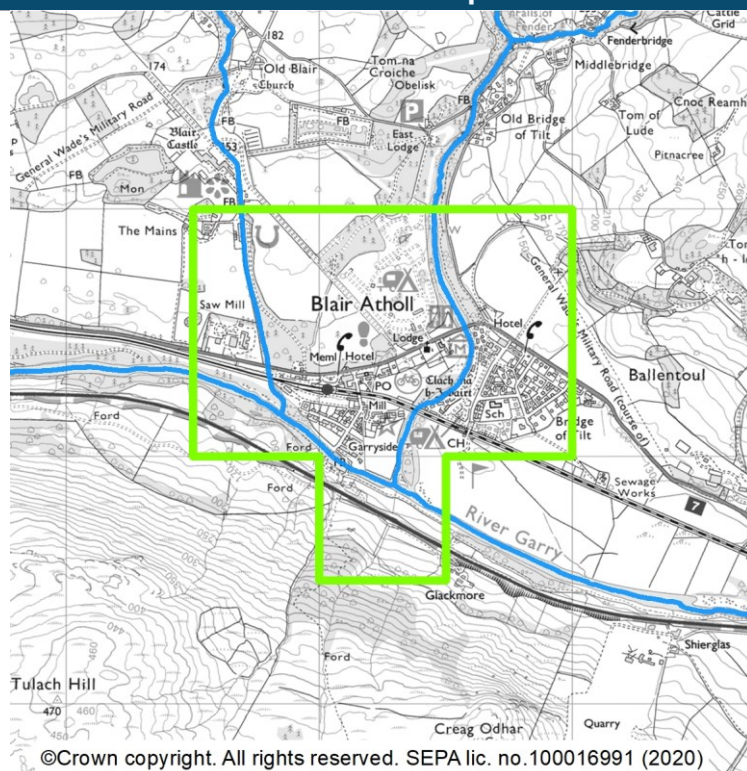
Flood risk management plan datasheet

Blair Atholl (target area 172)

Summary

Blair Atholl is a village in Perthshire located on the banks of the River Garry and River Tilt. The main source of flooding in Blair Atholl is river flooding. There are approximately 50 people and 70 homes and businesses currently at risk from flooding. This is likely to increase to 80 people and 100 homes and businesses by the 2080s due to climate change. There are roads and railways at risk of flooding, which may cause travel disruption.

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 assessments of flooding from rivers, surface water and coastal sources. The national assessment is improved for river flooding by a SEPA led modelling project that improved the existing flood maps.

There is a history of flooding in this area. Most recently, in December 2015, Storm Desmond caused the River Garry to flood, inundating 17 homes and businesses. Further flooding occurred in January 2016.

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
1721	Avoid flood risk	Avoid development that increases flood risk in Blair Atholl
1722	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Blair Atholl
1723	Reduce flood risk	Reduce the risk of river flooding in Blair Atholl

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: 17201)	
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Description	A flood study has been recommended for Blair Atholl. Perth and Kinross Council will engage a consulting engineer to investigate the fluvial flood risk and identify potential options for managing flood risk. The study will build on previous work carried out in the area and consider both current and long term flood risk and how the area will adapt to changes in flood risk through adaptive planning.
Community engagement (Ref: 17202)	
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	Community engagement will continue in connection with ongoing projects and activities. Ongoing Covid-19 restrictions may impact the format of this awareness raising.
Community resilience group (Ref: 17203)	
Action	The group of community volunteers work to prepare and put in practice their Community Resilience Plan and be supported by the local authority.
Description	The Blair Atholl and Struan Community Resilience Group forms part of the A9 Resilience Plan. Perth and Kinross Council will continue to communicate with and support the group on flood risk matters. The resilience plan should be reviewed and updated regularly by the group and this will be supported by the Council.

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

02/08/02 (Pitlochry)

This area is designated as a potentially vulnerable area due to flood risk to Pitlochry. The main source of flooding is the River Tummel and small watercourses. There is a long history of flooding in this area including recent flooding in August 2020.

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

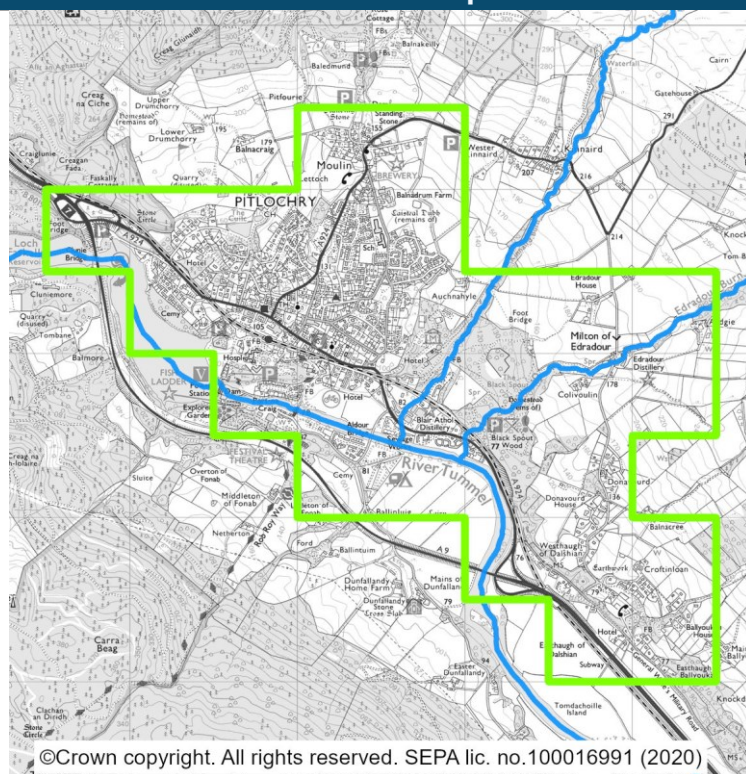
[Pitlochry](#) (target area 254)

Pitlochry (target area 254)

Summary

The town of Pitlochry is located on the banks of the River Tummel within the Perth and Kinross Council area. The main source of flooding is river flooding from the River Tummel and small watercourses. The local authority has carried out a flood study in this area which estimated that there are approximately 155 homes and 75 businesses currently at 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 assessments of flooding from rivers, surface water and coastal sources. The national assessment for river flooding is improved by the completion of the Pitlochry Flood Study in 2018. The national understanding of surface water flooding is improved by the sewer flood risk assessment.

There is a long history of flooding in the Pitlochry area. In January 1993, widespread flooding across the Tay catchment resulted in over £20 million of damage; the flood affected Pitlochry. In July 2002 torrential rain caused river flooding to several homes and the local distillery. A subsequent landslide caused further damage to roads and homes. The area was exposed to significant weather events including Storms Desmond and Frank in December 2015 and January 2016, which resulted in flooding in the Tay and Tummel catchments. In July 2016, the Moulin Burn flooded affecting shops, houses and roads. Most recently flooding in August 2020 affected a number of properties on Atholl Road.

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
2541	Avoid flood risk	Avoid development that increases flood risk in Pitlochry
2542	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Pitlochry
2543	Reduce flood risk	Reduce the risk of river flooding from the small watercourses in Pitlochry
2544	Reduce flood risk	Reduce the risk of flooding from the culverts on the A9 in the vicinity of Dalshian area in Pitlochry

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 protection scheme (Ref: 25401)	
Action	The selected preferred approach for managing flood risk is to be designed, including consideration of the long-term impacts of climate change. The flood scheme is to be built once statutory approval has been secured.
Description	<p>A flood protection scheme has been proposed for Pitlochry. A number of potential measures were identified for different locations, including flood defences, flood storage, managed diversions and natural flood management. The majority of these measures would provide a 1 in 200-year standard of protection (including a further allowance for climate change). However one flood storage measure would adopt a lower 1 in 100-year standard of protection. These measures would also mitigate flood risk to other properties in the area but not to the same design standard. The study recommends that Perth and Kinross Council should select a preferred scheme and develop the proposals further. This work will also include ongoing community engagement as the project progresses. The scheme will then progress to the statutory process set out under the Flood Risk Management (Scotland) Act 2009. The detailed design will be completed thereafter. Current and long term flood risk have been considered, including how the flood protection scheme and this area will adapt to changes in flood risk through development of an adaptation plan.</p> <p>The responsible authority proposes this action as the best option for managing flood risk in this community. The delivery of this action is subject to funding being made available. Following completion of the detailed design, the proposed scheme should be procured and will progress to construction. As built drawings should be made available to SEPA, for inclusion in the Scottish Flood Defence Asset Database, flood map updates and flood warning scheme updates. Routine inspections and maintenance of the Pitlochry Flood Protection Scheme should commence when the scheme is complete in accordance with the inspection and maintenance regime.</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 River Tay Special Area of Conservation.</p>

Flood protection works (Ref: 25402)	
Action	The flood scheme/works is to be built following agreement of the design, costs and timescales.
Description	Transport Scotland will continue to carry out civil engineering works in connection with the A9 dualling project which will reduce the risk of flooding on identified sections of the trunk road.

Community engagement (Ref: 25403)	
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	Community engagement will continue in connection with ongoing projects and activities. Perth and Kinross Council will continue to coordinate with the Pitlochry and Moulin Community Resilience Group on a priority needs basis where resources allow.

Community resilience group (Ref: 25404)	
Action	The group of community volunteers work to prepare and put in practice their Community Resilience Plan and be supported by the local authority.
Description	Perth and Kinross Council will continue to liaise with the Pitlochry and Moulin Community Resilience Group.

Flood warning maintenance (Ref: 25405)	
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 Tay 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 warning maintenance (Ref: 25406)	
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 investigate improvements to the River Tay 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.

02/08/03 (Aberfeldy and Weem)

This area is designated as a potentially vulnerable area due to flood risk to Aberfeldy and Weem. The main source of flooding is the River Tay and Moness Burn, and there is also risk from surface water. There is a history of flooding in this area, with recent floods being caused by surface water.

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

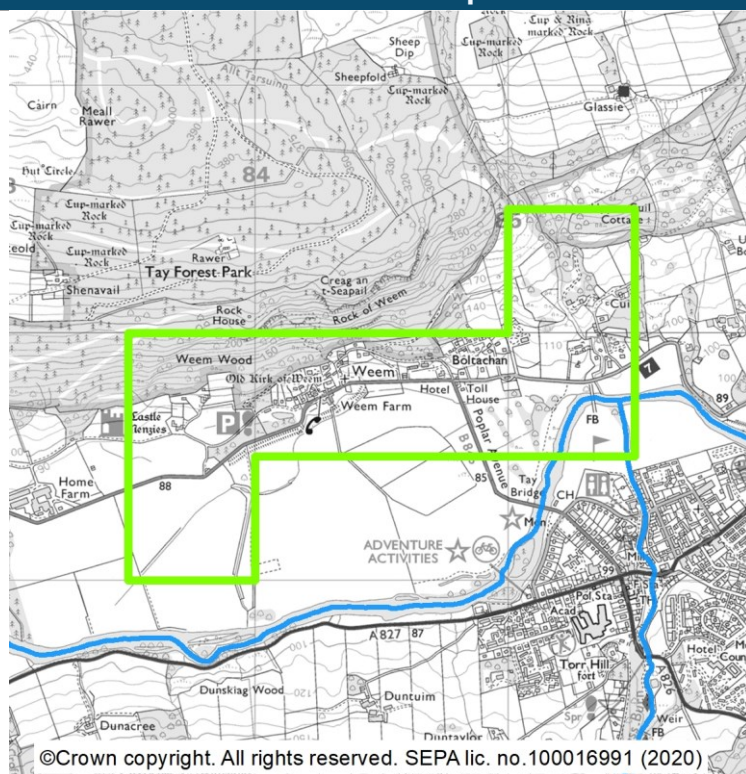
Weem	(target area 182)
Aberfeldy	(target area 183)

Weem (target area 182)

Summary

The village of Weem is located near the town of Aberfeldy within the Perth and Kinross Council area. The main source of flooding in Weem is river flooding with a small proportion of risk coming from surface water. A flood protection scheme is in place that offers protection to the community. There are approximately 40 people and 30 homes and businesses at risk from flooding. This is estimated 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 assessments of flooding from rivers, surface water and coastal sources. The national assessment for river flooding is improved by the Aberfeldy Flood Study completed in 2019 which also assessed flooding in Weem and reviewed the standard of protection offered by the existing flood scheme.

There is a long record of flooding in this area. Recent significant floods have occurred in January 1993, January 2005, December 2006 and in December 2015. The most recent flood was recorded in January 2020 when the Aberfeldy to Weem road was closed due to flooding caused by Storm Dennis.

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
1821	Avoid flood risk	Avoid development that increases flood risk in Weem
1822	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of Weem Flood Protection Scheme
1823	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Weem

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

Maintain flood protection scheme (Ref: 18201)	
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Description	Maintenance of the existing Weem Flood Protection Scheme will continue in accordance with the existing inspection and maintenance regime. Further maintenance work will also be carried out as identified by the recent review undertaken as part of the Aberfeldy flood study.

Flood warning maintenance (Ref: 18202)	
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 Tay 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 warning maintenance (Ref: 18203)	
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 investigate improvements to the River Tay flood warning scheme.

Adaptation plan (Ref: 18204)	
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	An adaptation plan will be developed to cover existing flood protection schemes in the Perth and Kinross Council area. The plan will aim to monitor the impacts of climate change on flood risk, including the impact on existing flood schemes, and to develop a long-term flood risk management approach.

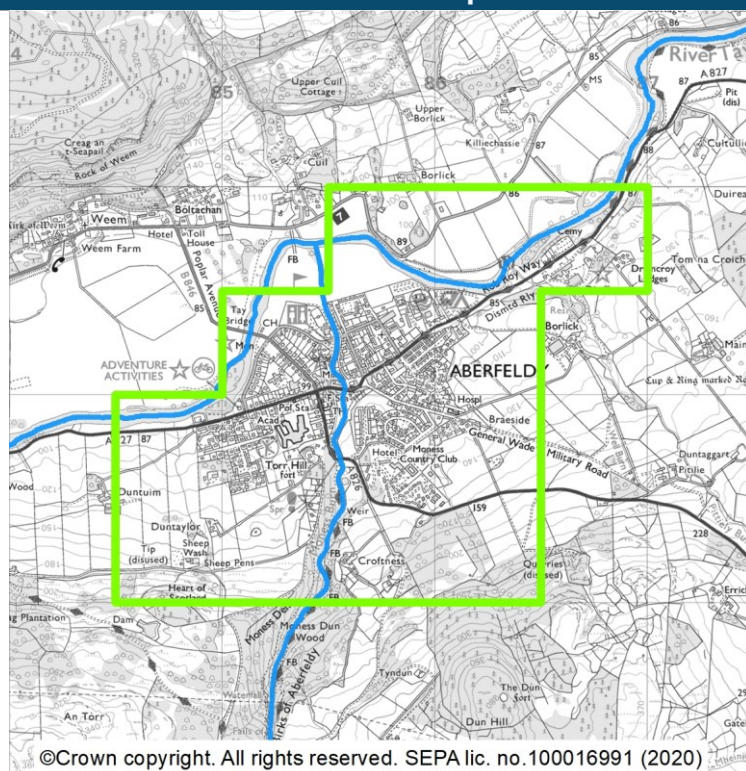
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places,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

Aberfeldy (target area 183)

Summary

Aberfeldy is located on the River Tay within the Perth and Kinross Council area. The main source of flooding in Aberfeldy is river flooding, however there is also a risk from surface water flooding. The local authority has carried out a flood study in this area which estimated that there are approximately 128 homes and 40 businesses are at 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 assessments of flooding from rivers, surface water and coastal sources. The national assessment for river flooding is improved by the Aberfeldy Flood Study completed in 2019. The national understanding of surface water flooding is improved by a sewer flood risk assessment.

There is a long record of flooding in this area. Significant floods have occurred in January 1993, January 2005, December 2006 and in December 2015. The most recent flood was recorded in February 2020 during Storm Dennis when surface water runoff from fields caused flooding to 2 properties as well as flooding to roads.

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
1831	Avoid flood risk	Avoid development that increases flood risk in Aberfeldy
1832	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Aberfeldy
1833	Reduce flood risk	Reduce the risk of surface water and river flooding from the River Tay and Moness Burn in Aberfeldy

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 protection scheme (Ref: 18301)	
Action	The selected preferred approach for managing flood risk is to be designed, including consideration of the long-term impacts of climate change. The flood scheme is to be built once statutory approval has been secured.
Description	<p>A flood protection scheme has been proposed in this area. The proposed scheme would consist of flood walls and embankments on the River Tay and the Moness Burn along with culvert improvements on the Tomchulan Burn. The proposed scheme would provide a 1 in 200 year standard of protection. Current and long term flood risk should be further considered at the design stage including the impacts of climate change and scheme adaptability. The outline design for the Aberfeldy Flood Protection Scheme is to be progressed, in line with the recommendations of the Aberfeldy flood study. The flood study recommendations also included an investigation of how natural flood management can assist in managing flood risk in this area. This work is to also include ongoing community engagement as the project progresses.</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 funding being made available. Once the flood protection scheme has been confirmed and the detailed design completed, the next stages are procurement then construction. As built drawings should be made available to SEPA, for inclusion in the Scottish Flood Defence Asset Database, flood map updates and flood warning scheme updates. Routine inspections and maintenance of the Aberfeldy Flood Protection Scheme would commence when the scheme is complete in accordance with the inspection and maintenance regime.</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 River Tay Special Area of Conservation.</p>
Surface water management plan (Ref: 18302)	
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	Perth and Kinross Council will engage consulting engineers to develop a surface water management plan for Aberfeldy. This will investigate the surface water flood risk and identify potential options for managing that risk. The results of the sewer flood risk assessment will be considered. Current and long term flood risk will be assessed and if climate change impacts are found to be significant, surface water management should include adaptive planning.

Community engagement (Ref: 18303)	
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	Awareness raising and community engagement will continue in connection with ongoing projects and activities. Perth and Kinross Council will continue to coordinate with the Aberfeldy Resilience Group and the Tayside Waders Group on a priority needs basis where resources allow.

Community resilience group (Ref: 18304)	
Action	The group of community volunteers work to prepare and put in practice their Community Resilience Plan and be supported by the local authority.
Description	Perth and Kinross Council will continue to liaise with the Aberfeldy Resilience Group and the Tayside Waders Group.

Flood warning maintenance (Ref: 18305)	
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 Tay 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 warning maintenance (Ref: 18306)	
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 investigate improvements to the River Tay 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.

02/08/04 (Alyth)

This area is designated as a potentially vulnerable area due to the flood risk at Alyth. The main source of flooding is the Alyth Burn. There is a history of flooding in this area, with recent flooding recorded in August 2020.

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

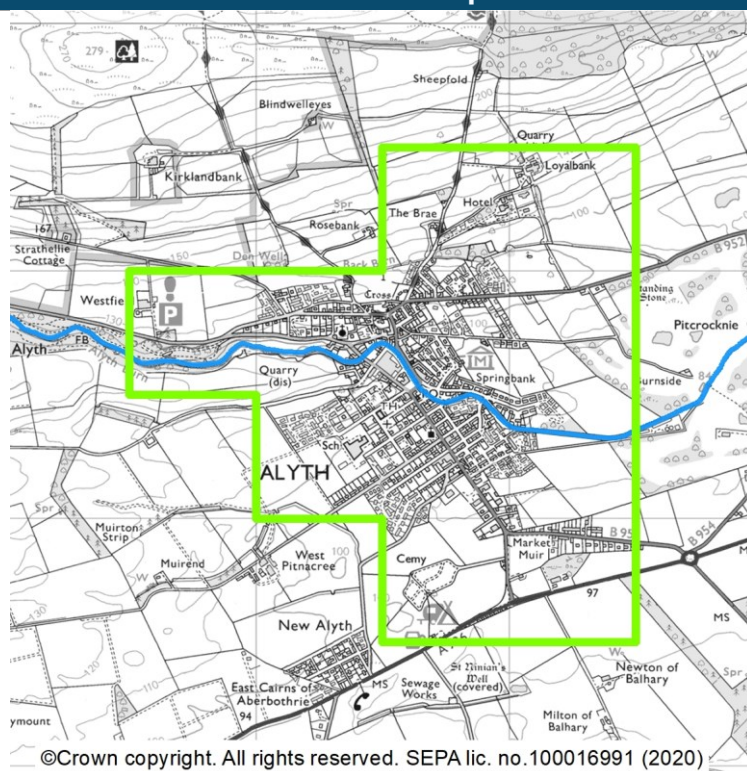
[Alyth](#) (target area 189)

Alyth (target area 189)

Summary

The town of Alyth is located 6km north east of Blairgowrie within the Perth and Kinross Council area. The main source of flooding is river flooding from the Alyth Burn. There are approximately 180 people and 120 homes and businesses currently at risk of flooding. This is likely to increase to 240 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 assessments of flooding from rivers, surface water and coastal sources. A previous flood study has underpinned the understanding of river flooding and the Joint Agency Report on the Flooding in Alyth of 17 July 2015 further improved the understanding of flooding mechanisms in this area.

There are records of frequent flooding in this area. A significant flood was recorded in July 2015 when the Alyth Burn burst its banks, affecting many homes and businesses. A further notable flood occurred in August 2020, when the Alyth Burn and other small watercourses overtopped resulting in flooding of properties.

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
1891	Avoid flood risk	Avoid development that increases flood risk in Alyth
1892	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Alyth
1893	Reduce flood risk	Reduce the risk of river flooding from the Alyth Burn in Alyth.

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: 18901)	
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	It is recommended that a natural flood management study is carried out for Alyth as identified in the published cycle 1 Tay Flood Risk Management Strategy and Local Flood Risk Management Plan. The study should consider both current and long term flood risk and how the area will adapt to changes in flood risk due to climate change.
Community engagement (Ref: 18902)	
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	Community engagement will continue in connection with ongoing projects and activities. This will include continuing to support the Alyth Community Support Group and updating the community on the outcomes of the natural flood management study. Ongoing Covid-19 restrictions may impact the format of this awareness raising activity.
Community resilience group (Ref: 18903)	
Action	The group of community volunteers work to prepare and put in practice their Community Resilience Plan and be supported by the local authority.
Description	The Alyth Community Support Group has been set up and has developed a community resilience plan, alongside other resilience work. 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.

02/08/05 (Kirriemuir and Forfar)

This area is designated as a potentially vulnerable area due to flood risk to Kirriemuir and Forfar. The main source of flooding is surface water. There is also risk of river flooding to Forfar from the Dean Water and to Kirriemuir from the Gairie Burn. There is a history of flooding in this area, with recent floods being caused by surface water.

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

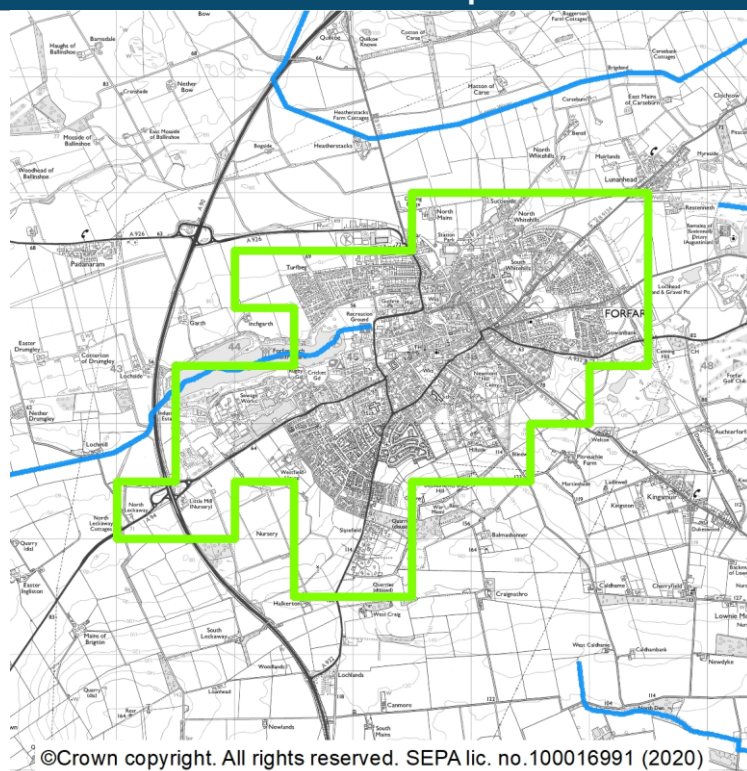
Forfar	(target area 230)
Kirriemuir	(target area 241)

Forfar (target area 230)

Summary

Forfar is a town located north of Dundee and within the Angus Council Area. The main source of flooding in Forfar is surface water flooding, however there is a risk of river flooding. There are approximately 870 people and 590 homes and businesses currently at risk from flooding. This is likely to increase to 1,100 people and 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 assessment has been improved by flood studies undertaken by Angus Council and Scottish Water. There is a history of localised flooding in this 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
2301	Avoid flood risk	Avoid inappropriate development that increases flood risk in Forfar
2302	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Forfar
2303	Reduce flood risk	Reduce the risk of river and surface water flooding in Forfar

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: 23001)	
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	Angus Council will review the 2019 flood study outcomes and consider whether an additional detailed study of Forfar Loch and Dean Water interaction will provide further opportunities for actions to reduce flood risk in the Forfar area. The additional detailed study will focus on the interaction of surface water flooding locations which discharge to Forfar Loch and the Forfar Loch to Dean Water interaction.
Adaptation plan (Ref: 23002)	
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	An adaptation master plan will be developed to cover the Angus Council area. As part of this, Angus Council will use best available knowledge on climate change predictions to assess the effect on flood risk infrastructure. From this a long term flood risk management approach will be developed. Any existing strategic initiatives will provide opportunities for adaptive actions to be implemented.
Community engagement (Ref: 23003)	
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	The community will have opportunities to get involved with the development of the adaptation plan and any flood related projects and initiatives being developed for Forfar. This will include the flood study and the adaptation plan.

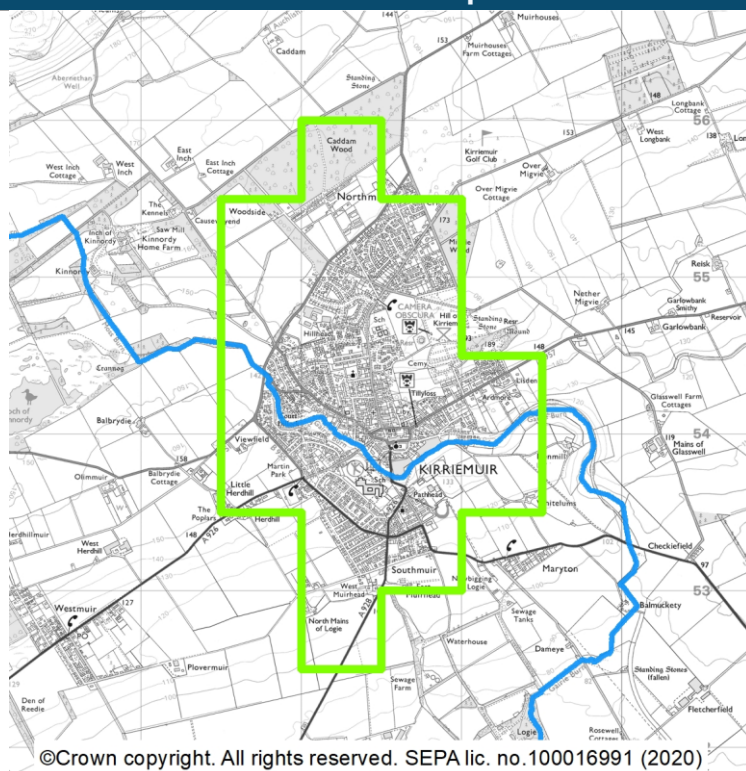
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places,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

Kirriemuir (target area 241)

Summary

The town of Kirriemuir is located north west of Forfar within the Angus Council area. The main sources of flooding in Kirriemuir are surface water and river flooding. There are approximately 140 people and 80 homes and businesses currently at risk from flooding. This is likely 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 assessment has been improved by flood studies undertaken by Angus Council and Scottish Water. There is a history of localised flooding in this 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
2411	Avoid flood risk	Avoid inappropriate development that increases flood risk in Kirriemuir
2412	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of Kirriemuir Flood Protection Scheme
2413	Improve data and understanding	Improve data and understanding of river flooding from the Gairie Burn in Kirriemuir
2414	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Kirriemuir
2415	Reduce flood risk	Reduce the risk of river flooding from the Gairie Burn in Kirriemuir

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: 24101)	
Action	The flood scheme/works is to be built following agreement of the design, costs and timescales.
Description	<p>A flood study carried out for this location recommended a short-term option to manage flood risk. The preferred option consists of property flood resilience and localised kerb raising. It will be used in conjunction with the installation of a river gauge on Gairie Burn to improve understanding of flood risk and support future work.</p> <p>In accordance with the flood risk management plan, as part of the scheme or works, the responsible authority should aim to ensure that the action will not have an adverse effect on the integrity of the Loch of Kinnordy Special Protection Area.</p>
Data collection (Ref: 24102)	
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	Angus Council will review the Kirriemuir flood study of 2019 and prepare a contract for installation of flow monitoring on the Gairie Burn to reduce the uncertainty around flow estimation identified in the 2019 study. This will improve confidence levels in the flood study findings and allow the impact of climate change to be assessed for Kirriemuir.
Adaptation plan (Ref: 24103)	
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	An adaptation master plan will be developed to cover the Angus Council area. As part of this, Angus Council will use best available knowledge on climate change predictions to assess the effect on flood risk infrastructure. From this a long term flood risk management approach will be developed. Any existing strategic initiatives will provide opportunities for adaptive actions to be implemented.

Community engagement (Ref: 24104)	
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	The community will have opportunities to get involved with the development of the adaptation plan and any flood related projects and initiatives being developed for Kirriemuir. Angus Council will consider whether there is potential for provision of a community flood warning system (such as River Track) as part of a wider flood resilience approach for Kirriemuir and will discuss this with partners.

Flood defence maintenance (Ref: 24105)	
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Description	Angus Council will continue to maintain the flood defences on the Gairie Burn and seek opportunities to work with partners to reduce flood risk to existing commercial property impacted by the burn.

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.

02/08/06 (Blairgowrie and Rattray)

This area is designated as a potentially vulnerable area due to flood risk to Blairgowrie and Rattray. The main source of flooding in Blairgowrie is surface water. There is a history of flooding in this area with recent flooding recorded in August 2020.

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

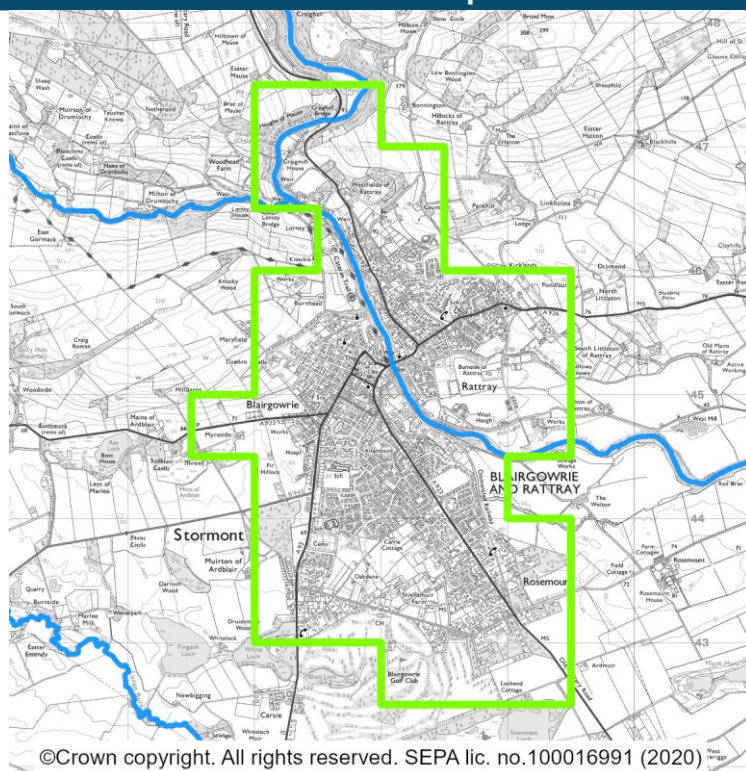
Blairgowrie and Rattray (target area 199)

Blairgowrie and Rattray (target area 199)

Summary

This community includes the towns of Blairgowrie and Rattray. The main source of flooding is surface water. There are approximately 750 people and 440 homes and businesses currently at risk from flooding. This is likely to increase to 1,100 people and 630 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 assessments of flooding from rivers, surface water and coastal sources. Scottish Water has delivered an assessment of flood risk within the Blairgowrie sewer catchment.

There is a long record of flooding in this target area. In July 2004 a road and 2 properties were affected by surface water flooding. In July, October and December 2015 heavy rainfall led to flooding of a number of properties as well as road flooding. The most recent flooding was recorded on 12 August 2020 when roads and properties flooded as a result of heavy rainfall in the 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
1991	Avoid flood risk	Avoid development that increases flood risk in Blairgowrie and Rattray
1992	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Blairgowrie and Rattray
1993	Reduce flood risk	Reduce the risk of surface water flooding in Blairgowrie and Rattray

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: 19901)	
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	Perth and Kinross Council will be working with Scottish Water to develop a surface water management plan for this area. A consulting engineer is to be appointed to develop this plan which will examine and identify potential options for reducing the risk of surface water flooding across Blairgowrie.
Community engagement (Ref: 19902)	
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	Community engagement will continue in connection with ongoing projects and activities, in particular the findings of the surface water management plan.
Community resilience group (Ref: 19903)	
Action	The group of community volunteers work to prepare and put in practice their Community Resilience Plan and be supported by the local authority.
Description	Blairgowrie Community Resilience Group is active in this area. The resilience group should continue to implement the community emergency plan.
Flood warning maintenance (Ref: 19904)	
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 Ericht 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.

02/08/07 (Coupar Angus)

This area is designated as a potentially vulnerable area due to flood risk to Coupar Angus. The main source of flooding is the Coupar Burn. There is history of flooding in this area with recent floods caused by river flooding.

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

List of target areas

Coupar Angus (target area 214)

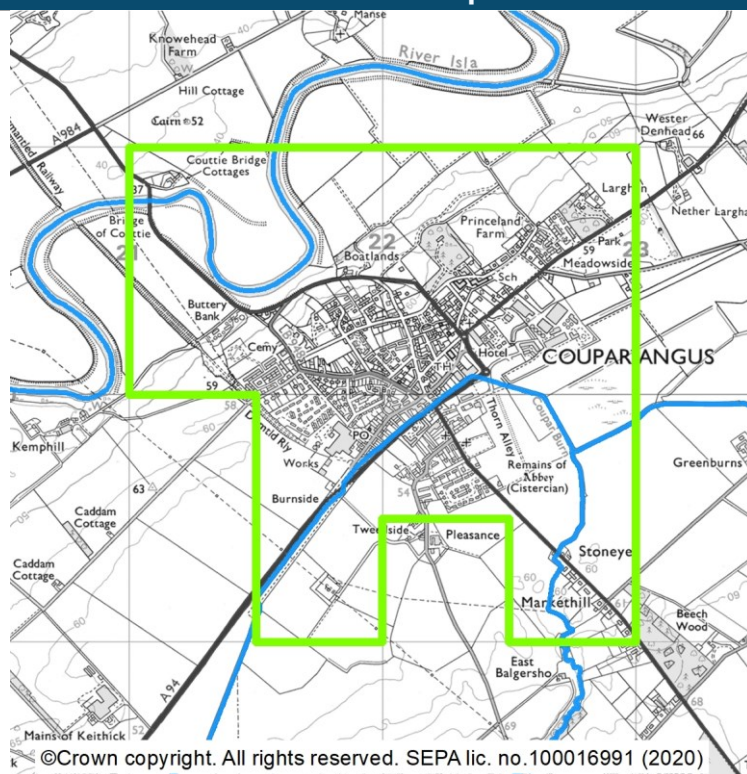
Flood risk management plan datasheet

Coupar Angus (target area 214)

Summary

Coupar Angus is located to the north east of Perth on the banks of the River Isla and within the Perth and Kinross Council area. The main source of flooding in Coupar Angus is river flooding from the Coupar Burn and small tributaries. A local detailed flood study undertaken by Perth and Kinross Council indicates that there are approximately 30 homes and businesses currently at risk of flooding, and that this may increase to 62 homes and businesses in the future 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 assessments of flooding from rivers, surface water and coastal sources. The national assessment for river flooding is improved by the Coupar Burn Flood Study completed in 2016 and the SEPA modelling study to improve flood maps in the area. The study concluded that structural actions such as a flood protection scheme were not viable.

There is a long history of flooding in this area from the Coupar Burn including flooding in August 2004 and December 2012, when several homes and businesses flooded from Coupar Burn.

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
2141	Avoid flood risk	Avoid development that increases flood risk in Coupar Angus
2142	Avoid flood risk	Avoid an increase in flood risk in Coupar Angus by the appropriate protection of the Kettins Burn natural flood storage area
2143	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Coupar Angus

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 warning maintenance (Ref: 21401)	
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 Isla flood warning scheme.
Community resilience group (Ref: 21402)	
Action	The group of community volunteers work to prepare and put in practice their Community Resilience Plan and be supported by the local authority.
Description	Perth and Kinross Council will continue to liaise with the Coupar Angus Community Resilience Group.
Land use planning (Ref: 21403)	
Action	Planning authority should ensure that their development plan and planning decision-making supports delivery of sustainable flood management.
Description	Perth and Kinross Council should introduce protection for the Kettins Burn natural flood storage area through the local development planning process.

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.

02/08/08 (Dunkeld and Birnam)

This area is designated as a potentially vulnerable area due to flood risk to Dunkeld and Birnam, Dalguise and Spittalfield. The main source of flood risk is the River Tay, the River Braan and small watercourses in Dunkeld and Birnam. The main source of flood risk in Dalguise and Spittalfield is the River Tay. There is history of flooding 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

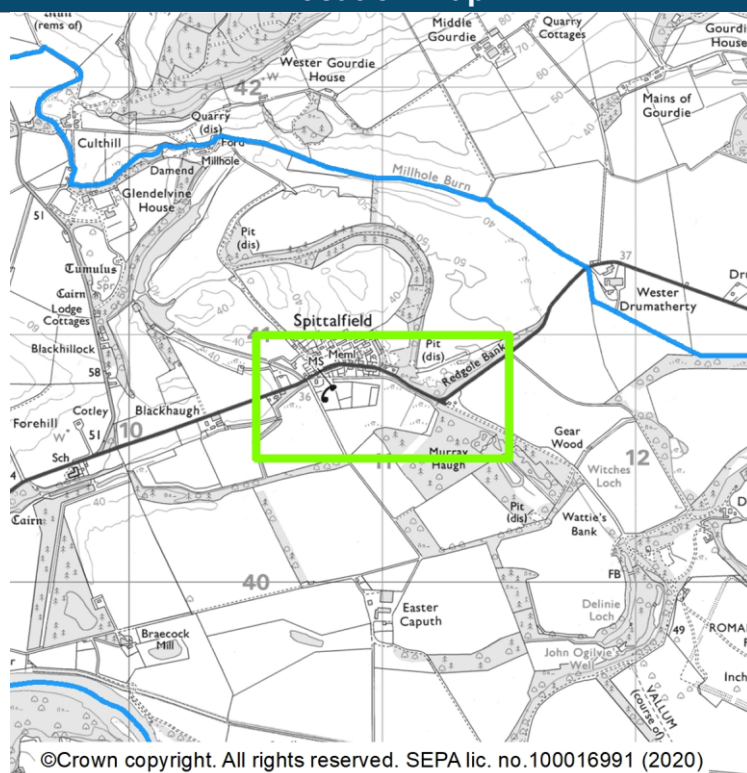
Spittalfield	(target area 179)
Dunkeld and Birnam	(target area 225)
Dalguise	(target area 273)

Spittalfield (target area 179)

Summary

The small settlement of Spittalfield is located near the River Tay in Perth and Kinross. The main concern is flooding from the River Tay to homes and the A984, and how this risk may change in future because of climate change. SEPA's flood maps indicate that currently there are approximately 6 homes and businesses at risk from flooding. This is estimated to increase to 40 homes and businesses by the 2080s due to climate change. However, the local authority has carried out a flood study in this area which predicts that this number is higher with an estimated 18 homes and businesses currently at risk, which is likely to increase to 50 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 assessments of flooding from rivers, surface water and coastal sources. The national assessment for river flooding is improved by a recent flood study. There is a record of periodic flooding in this area. The first flood recorded in the area occurred in January 1993 when heavy rain and snow melt inundated roads around the Green. Further flooding occurred in 2006 with property flooding and the A894 being affected. The most recent flood was recorded in December 2015 due to Storm Desmond, when roads and properties were inundated.

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
1791	Avoid flood risk	Avoid development that increases flood risk in Spittalfield
1792	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Spittalfield

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

Community resilience group (Ref: 17901)	
Action	The group of community volunteers work to prepare and put in practice their Community Resilience Plan and be supported by the local authority.
Description	Perth and Kinross Council will continue to liaise with the Spittalfield and Caputh Community Resilience Group.

Emergency plan (Ref: 17902)	
Action	The plan to coordinate responses to emergency incidents between organisations, including local authorities, the emergency services and SEPA, is to be maintained and executed as required.
Description	Perth and Kinross Council should include specific emergency planning arrangements for Spittalfield within its current Generic Emergency Plan and Flooding Emergency Response Plan.

Flood warning maintenance (Ref: 17903)	
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 Tay 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.

Adaptation plan (Ref: 17904)	
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	An adaptation plan will be developed to cover the Spittalfield area. The plan will aim to monitor the impacts of climate change on flood risk, and to develop a long-term flood risk management approach.

Flood warning maintenance (Ref: 17905)	
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 investigate improvements to the River Tay 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.

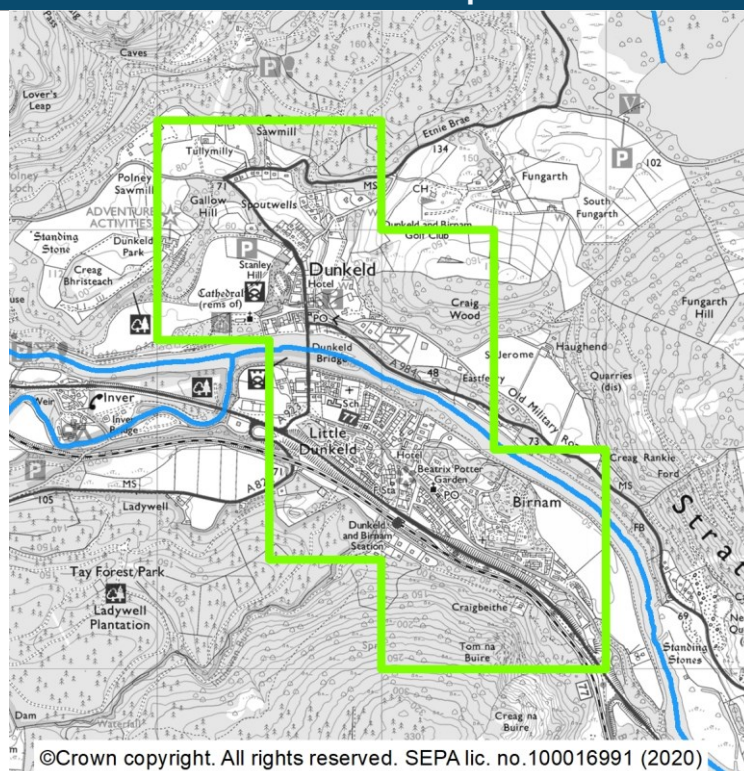
Flood risk management plan datasheet

Dunkeld and Birnam (target area 225)

Summary

The villages of Dunkeld, Little Dunkeld and Birnam are located on the River Tay and within the Perth and Kinross Council area. The main source of flooding in Dunkeld and Birnam is river flooding from the River Tay, the River Braan and other small watercourses. The on-going flood study undertaken by the local authority indicates that there are approximately 104 homes and businesses currently at risk of flooding. This is likely to increase to 149 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 assessments of flooding from rivers, surface water and coastal sources. The national assessment for river flooding is being improved by a current flood study in the area.

There is a long record of flooding in this area, including notable flooding in February 1990 and January 1993. Further localised flooding occurred on the Spoutwells Burn, at Burnmouth Road and at Inver in August 2004. In December 2015 and January 2016, Storms Desmond and Frank caused prolonged rainfall throughout Perth and Kinross and properties and roads were affected in the Dunkeld area. The most recent flooding occurred in February 2020, with properties on Atholl Gardens being threatened by flooding from the Sawmill Burn.

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
2251	Avoid flood risk	Avoid development that increases flood risk in Dunkeld and Birnam
2252	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Dunkeld and Birnam
2253	Reduce flood risk	Reduce the risk of river flooding from the River Tay, River Braan and small watercourses in Dunkeld

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: 22501)	
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Description	A flood protection study for Dunkeld was included in the current Tay Local Flood Risk Management Plan. The study is underway and is being carried out as planned. The study is considering current and future flood risk and the potential impacts of climate change.

Community engagement (Ref: 22502)	
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	Community engagement will continue in connection with ongoing projects and activities. Perth and Kinross will continue to coordinate with the Dunkeld Community Resilience Group on a priority needs basis where resources allow.

Community resilience group (Ref: 22503)	
Action	The group of community volunteers work to prepare and put in practice their Community Resilience Plan and be supported by the local authority.
Description	Perth and Kinross Council will continue to liaise with the Dunkeld Community Resilience Group.

Flood warning maintenance (Ref: 22504)	
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 Tay 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 implementation (Ref: 22505)	
Action	The flood scheme/works is to be built following agreement of the design, costs and timescales.
Description	Transport Scotland will continue to carry out civil engineering works which will reduce the risk of flooding on identified sections of the trunk road.

Flood warning maintenance (Ref: 22506)	
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 investigate improvements to the River Tay flood warning scheme.

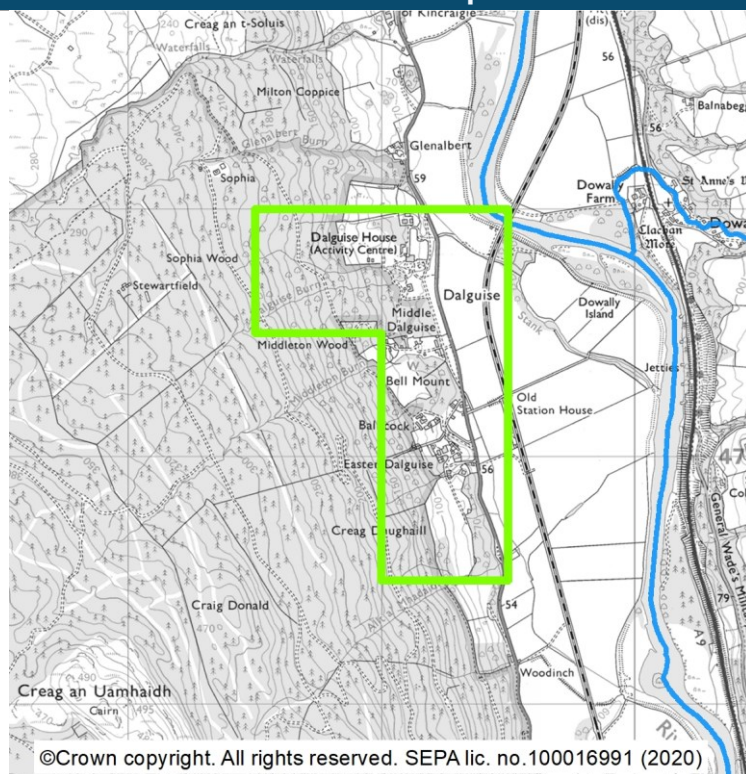
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places,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

Dalguise (target area 273)

Summary

The small settlement of Dalguise is located on the western side of the River Tay and within the Perth and Kinross Council area. The main source of flooding in Dalguise is river flooding. There are approximately 20 people at risk from flooding and approximately 20 homes and businesses. There is also risk to an activity centre, railway line and local roads that become inundated resulting in the community being cut off.

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 understanding of flooding is improved by a previous flood study. This study did not identify a viable structural flood management solution.

There is a long record of flooding in this area. In January 1993, a significant weather event flooded 6 properties and caused extensive damage to the Perth to Inverness railway line. In December 2006, 4 properties were flooded and again the railway line was closed. The most recent flood was recorded in December 2018 when the Dalguise Burn and River Tay inundated local roads.

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
2731	Avoid flood risk	Avoid development that increases flood risk in Dalguise
2732	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Dalguise

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

Emergency plan (Ref: 27301)	
Action	The plan to coordinate responses to emergency incidents between organisations, including local authorities, the emergency services and SEPA, is to be maintained and executed as required.
Description	Perth and Kinross Council should include specific emergency planning arrangements for Dalguise within its current Generic Emergency Plan and Flooding Emergency Response Plan.

Flood warning maintenance (Ref: 27302)	
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 Tay 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 warning maintenance (Ref: 27303)	
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 investigate improvements to the River Tay 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.

02/08/09 (Bankfoot)

This area is designated as a potentially vulnerable area due to flood risk to Bankfoot. The main source of flooding is the Garry Burn and Glenhauch Burn. There is a history of flooding in this area, with recent floods being caused by river flooding.

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

List of target areas

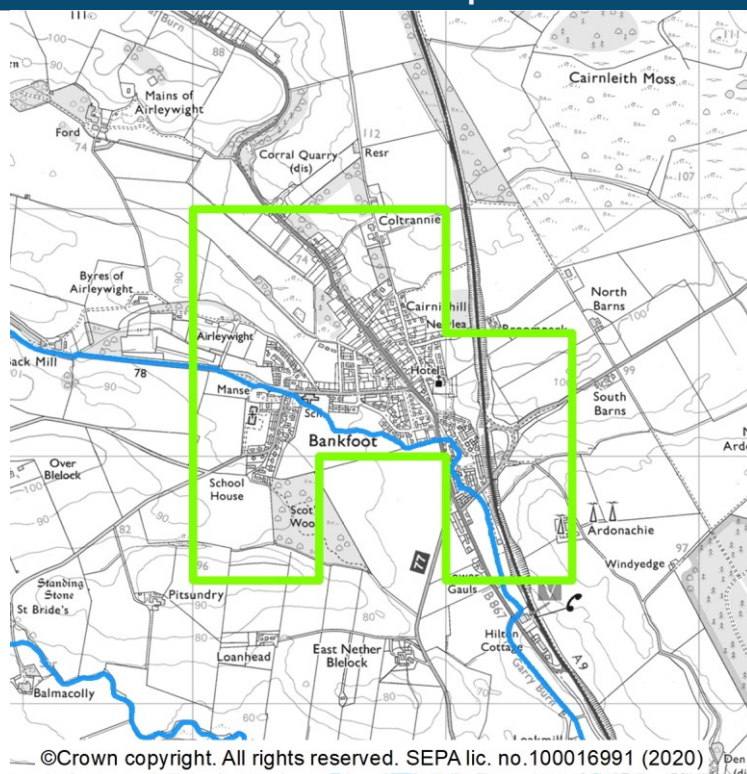
Bankfoot (target area 194)

Bankfoot (target area 194)

Summary

The village of Bankfoot lies approximately 13km north of Perth, within the Perth and Kinross Council area. The main source of flooding in Bankfoot is river flooding. The local authority has carried out a flood study in this area which estimated that there are approximately 154 homes and businesses at 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 assessments of flooding from rivers, surface water and coastal sources. The national assessment for river flooding is improved by a flood study completed for Bankfoot in 2015. The study concluded that a flood scheme was not viable. The study described how on-going flood risk would be managed by other actions.

There is a long history of flooding in this area, including notable flooding in January 1993, August 2004 and July 2015. The most recent flooding was in February 2020 during Storm Dennis when the Garry Burn burst its banks, inundating a number of roads. Further minor flooding occurred on the Garry Burn in February 2021.

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
1941	Avoid flood risk	Avoid development that increases flood risk in Bankfoot
1942	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Bankfoot

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

Community resilience group (Ref: 19401)	
Action	The group of community volunteers work to prepare and put in practice their Community Resilience Plan and be supported by the local authority.
Description	Perth and Kinross Council will continue to communicate with and support the Auchtergaven Community Council and Bankfoot Resilience Group on flood risk matters. The resilience plans should be updated regularly by these groups and this will be supported by the council.

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

02/08/10 (Luncarty)

This area is designated as a potentially vulnerable area due to flood risk to Luncarty. The main sources of flooding are surface water and the River Tay and its tributaries. River flood risk is likely to increase significantly because of climate change. A number of floods have been recorded in this area.

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

List of target areas

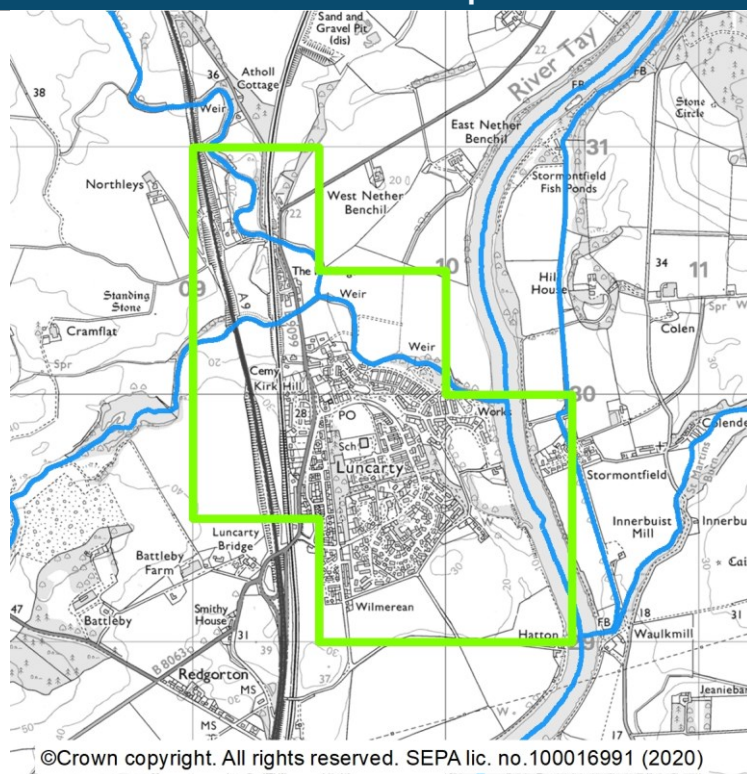
Luncarty (target area 247)

Luncarty (target area 247)

Summary

Luncarty lies 6km north of Perth, near the River Tay. It is within the Perth and Kinross Council area. The main sources of flooding in Luncarty are river flooding and surface water flooding. There are approximately 160 people and 90 homes and businesses currently at risk of flooding. This is likely to increase to 250 people and 130 homes and businesses by the 2080s due to climate change. River flood risk is likely to increase significantly because of climate change.

Location map



What is the current understanding of flood risk?

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

There are limited records of flooding in this area. Flooding occurred in January 1993 and further minor floods have been noted in February 2002, January 2005, July and November 2009 and in July 2015 in the Westfield area when surface water flooding affected roads. The most recent flood was recorded on 5 December 2015 from Storm Desmond which caused some flooding of gardens in the 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
2471	Avoid flood risk	Avoid development that increases flood risk in Luncarty
2472	Prepare for flooding	Prepare for future flooding as a result of climate change in Luncarty
2473	Reduce flood risk	Reduce the risk of river flooding in Luncarty

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: 24701)	
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	Perth and Kinross Council will progress a flood study to look at river flood risk in Luncarty. The flood risk from the River Tay, the Shochie Burn and the Ordie Burn will be assessed. The impacts of climate change on flood risk will be evaluated. The study will include flood modelling, and if flood risk is confirmed, an appraisal of potential future actions to manage flood risk and scoping of future work will be carried out.
Community engagement (Ref: 24702)	
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	Community engagement will continue in connection with ongoing projects and activities. This will include engaging with the community on the development of the flood study.
Sewer flood risk assessment (Ref: 24703)	
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 Perth City 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.

02/08/11 (Scone)

This area is designated as a potentially vulnerable area due to flood risk to Scone. The main source of flooding is the Annaty Burn and surface water. There is a history of flooding in this area, with recent floods caused by both river and surface water flooding.

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

List of target areas

[Scone](#) [\(target area 255\)](#)

Flood risk management plan datasheet

Scone (target area 255)

Summary

Scone is a town northeast of Perth located within the Perth and Kinross Council area. The main source of flooding is surface water and river flooding from the Annaty Burn. There are approximately 330 people and 180 homes and businesses currently at risk from flooding. This is likely to increase to 400 people and 220 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 assessments of flooding from rivers, surface water and coastal sources. The national assessment for river flooding is improved by a previous flood study for the Annaty Burn. The national understanding of surface water is improved by the sewer flood risk assessment. There has been a history of flooding in this area. In August 2004 high intensity rainfall resulted in flooding to a number of properties and the Annaty Burn overtopped. A series of small scale localised floods in Scone were recorded in 2010, 2013 and 2014. The most recent flood was recorded in May 2017 when heavy rainfall led to several roads in the area being flooded. Heavy rain on 11th and 12th August 2020 led to surface water flood water outside some properties to rise up to the level of airbricks.

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
2551	Avoid flood risk	Avoid development that increases flood risk in Scone
2552	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of Scone (Annaty Burn) Flood Protection Scheme
2553	Prepare for flooding	Prepare for current flood risk and future flooding in Scone as a result of climate change
2554	Reduce flood risk	Reduce the risk of surface water and river flooding from the Annaty Burn in Scone.

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 protection scheme (Ref: 25501)	
Action	The selected preferred approach for managing flood risk is to be designed, including consideration of the long-term impacts of climate change. The flood scheme is to be built once statutory approval has been secured.
Description	A flood protection scheme has been proposed to address the risk of river flooding to the Goshenbank Park and Burnside area in Scone from the Annaty Burn. The preferred option consists of raising existing footbridges and constructing riverside defences. The scheme would provide a 1 in 200 year standard of flood protection. The commencement of the work to develop the scheme has been delayed. The development of the proposals will be informed by community engagement. The scheme will then progress to the statutory process set out under the Flood Risk Management (Scotland) Act 2009. The detailed design will be completed thereafter. Following completion of the detailed design, the proposed scheme will be procured and will progress to construction. As built drawings will be made available to SEPA, for inclusion in the Scottish Flood Defence Asset Database, flood map updates and flood warning scheme updates.

Maintain flood protection scheme (Ref: 25502)	
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Description	Once built, Perth and Kinross Council will implement an inspection and maintenance regime for the Scone (Annaty Burn) Flood Protection Scheme.

Flood study (options appraisal) (Ref: 25503)	
Action	In areas where flood risk is confirmed, a range of possible options to manage flood risk are to be identified, including natural flood management actions where suitable, and a preferred approach is to be chosen. This should include adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Description	<p>A flood protection study was carried out by Perth and Kinross Council for the Annaty Burn, Scone in 2007. The study identified a viable flood protection scheme as a priority in the first flood risk management cycle. Further study was recommended to supplement the previous investigations, looking at natural flood management and surface water flooding. Natural flood management options that should be considered include river/ floodplain restoration and sediment management. The study will also investigate the viability of property level protection. The study will take a catchment approach and consider the potential benefits and disbenefits and interaction between actions upstream and downstream. The study is scheduled to commence in 2021/22.</p> <p>Perth and Kinross Council also carried out a flood protection study for the barrel drain in Scone in 2007 which did not identify a viable flood protection scheme. However the Perth and Kinross Council intends to re-examine this previous study following a small number of drain failures and this will be carried out in conjunction with the study identified above.</p>

Surface water management plan (Ref: 25504)	
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	<p>The area must be covered by a surface water management plan or plans that set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives.</p> <p>This surface water management plan will be delivered by Perth and Kinross Council as part of the Scone Flood Protection Study. Scottish Water will provide local knowledge and understanding of the sewer network. This includes Scottish Water corporate data (as applicable) and, where available, outputs of Section 16 or integrated catchment studies, to assist with the surface water management planning process.</p>

Community engagement (Ref: 25505)	
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	Community engagement will continue in connection with ongoing projects and activities. Perth and Kinross Council will continue to coordinate with Scone Community Council and local landowners on a priority needs basis where resources allow.

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.

02/08/12 (Perth and Almondbank)

This area is designated as a potentially vulnerable area due to flood risk to Almondbank, Methven and Perth. The main source of flooding in Almondbank and Methven is river flooding. The main sources of flooding in Perth are small watercourses and surface water. Perth and Almondbank benefit from flood protection schemes. There is a long history of flooding in these areas, with recent flooding from surface water and small watercourses recorded in August 2020.

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

Almondbank	(target area 187)
Methven	(target area 249)
Perth	(target area 253)

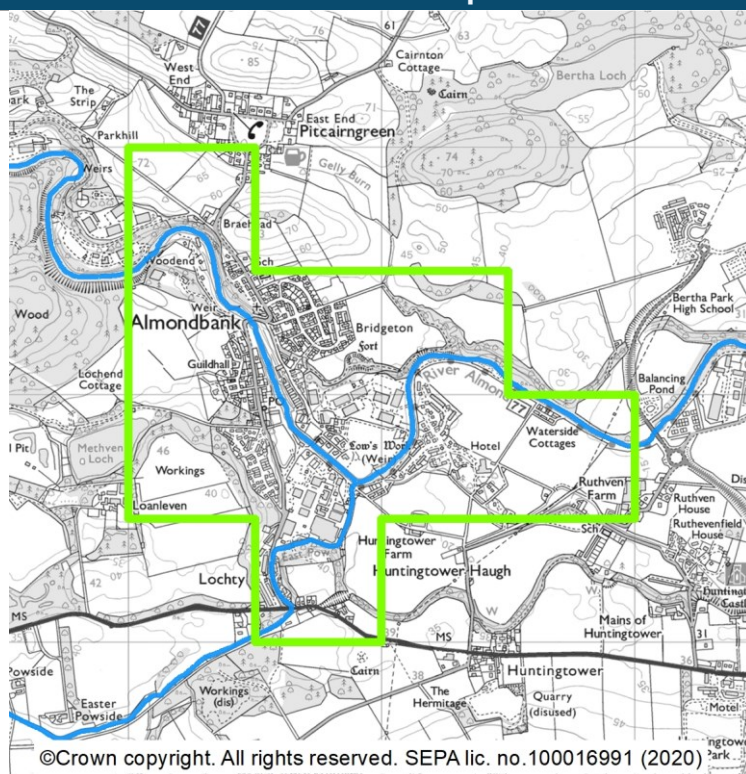
Flood risk management plan datasheet

Almondbank (target area 187)

Summary

Almondbank is located approximately 5km north west of Perth on the banks of the River Almond. It is within the Perth and Kinross Council area. The main source of flooding in Almondbank is river flooding. The recent Almondbank Flood Protection Scheme protects approximately 31 homes and 48 businesses on the River Almond and the East Pow Burn up to the 1 in 200 year flood.

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 assessments of flooding from rivers, surface water and coastal sources. The national assessment for river flooding is improved by previous flood study work for the Almondbank Flood Protection Scheme.

There is a long record of flooding in this area. Previous significant flooding occurred in January 1993, September and December 1999 and January 2011. The most recent flood was recorded in December 2015 due to Storm Desmond when the River Almond overflowed causing erosion to the riverbank. The Almondbank Flood Protection Scheme was substantially completed in 2018 and protects homes and businesses from flooding in the area. In August 2020, some minor surface water flooding was recorded at the Lochty Industrial Estate.

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
1871	Avoid flood risk	Avoid development that increases flood risk in Almondbank
1872	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of Almondbank and Perth flood protection schemes
1873	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Almondbank

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

Maintain flood protection scheme (Ref: 18701)	
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Description	Maintenance of the Almondbank Flood Protection Scheme on the River Almond and East Pow Burn will continue in accordance with the existing inspection and maintenance regime.

Flood warning maintenance (Ref: 18702)	
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 Almond 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.

Adaptation plan (Ref: 18703)	
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	An adaptation plan will be developed to cover existing flood protection schemes in the Perth and Kinross Council area. The plan will aim to monitor the impacts of climate change on flood risk, including the impact on existing flood schemes, and to develop a long-term flood risk management approach.

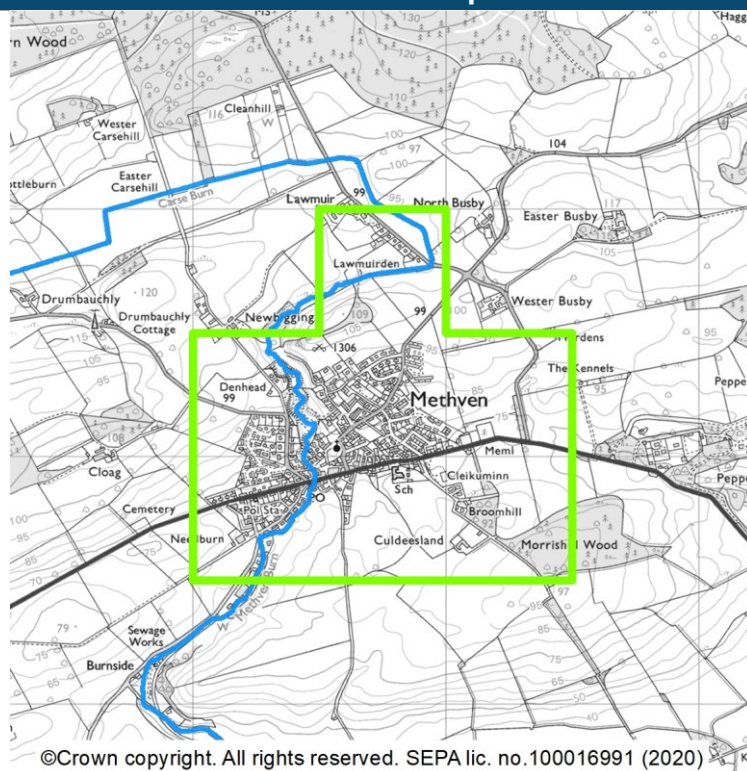
SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places,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

Methven (target area 249)

Summary

Methven is a village which lies due west of Perth within the Perth and Kinross Council area. The main source of flooding in Methven is river flooding, with some risk from surface water flooding. There are approximately 50 homes and businesses currently at risk of flooding. This is likely to increase to 60 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 assessments of flooding from rivers, surface water and coastal sources, and this information has highlighted the risk of flooding in this area.

There are records of flooding in this area. Flooding occurred in January and July 2002, July 2005, July 2010 and November 2012. The most recent flooding occurred in August 2020 when heavy rain led to flooding of properties and roads.

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
2491	Avoid flood risk	Avoid development that increases flood risk in Methven
2492	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Methven
2493	Reduce flood risk	Reduce the risk of river flooding from the Methven Burn in Methven

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: 24901)	
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Description	A flood study is required to improve understanding of river flood risk. The study will include flood modelling. If flood risk is confirmed, potential options to manage flood risk should be investigated. Current and long term flood risk should be considered and include the assessment of the potential impacts of climate change.

Community engagement (Ref: 24902)	
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	Community engagement will continue in connection with ongoing projects and activities. This will include engaging with the community on the development 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.

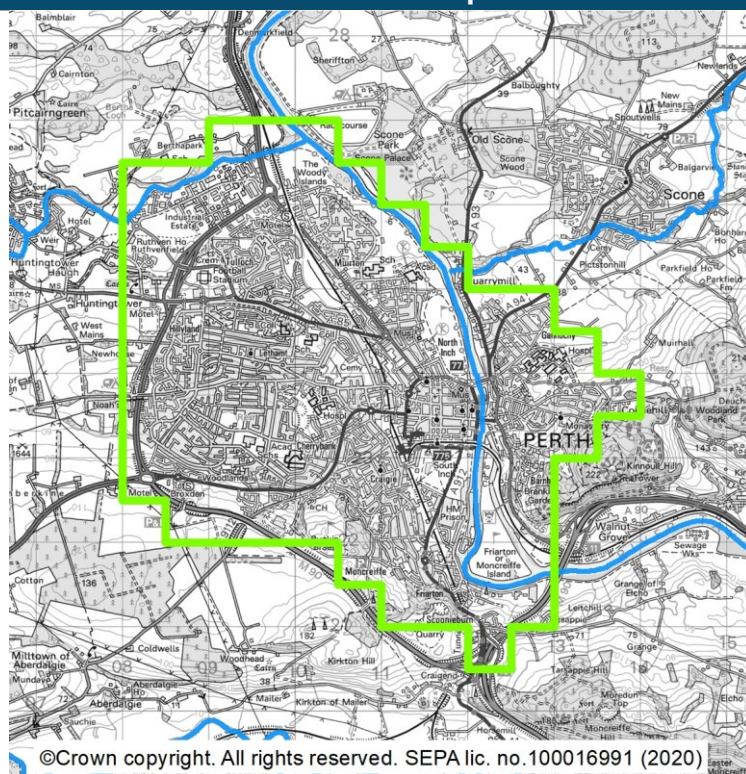
Flood risk management plan datasheet

Perth (target area 253)

Summary

The city of Perth is located on the River Tay within the Perth and Kinross Council area. The main source of flooding in Perth is river flooding, however there is also a risk from surface water. It should be noted that Perth Flood Protection Scheme reduces the risk of river and coastal flooding in Perth. There are approximately 4,000 people and 2,600 homes and businesses currently at risk of flooding. This is likely to increase to 9,300 people and 5,500 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 assessments of flooding from rivers, surface water and coastal sources. The national assessment for river flooding is improved by previous flood studies carried out by the local authority for the Perth Flood Protection Scheme and the on-going Craigie Burn flood study. Understanding of sewer, river and surface water flooding is also improved as a result of the Perth integrated catchment study which assessed the interactions between the different flood sources.

There is a long record of flooding in this area, and most recently from surface water. Significant damage occurred in 1993 when widespread flooding resulted in damage to communication networks, hundreds of properties and farmland in and around Perth, causing an estimated £20 million of damage. Residents were evacuated in the North Muirton housing estate after flood defences were breached. Numerous surface water floods were recorded in the area too, including on 21 July 2010 when extensive surface water flooding around Perth affected properties and roads and 16 July 2011 when heavy rain caused surface water flooding in Perth. Homes and businesses were affected. In June 2017 drains overflowed as a result of heavy rainfall, flooding properties and several gardens and roads. Recently, on 11 and 12 August 2020 heavy rainfall caused widespread flooding in Perth flooding approximately 155 homes and businesses across the city.

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
2531	Avoid flood risk	Avoid development that increases flood risk in Perth
2532	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of the Perth Flood Protection Scheme
2533	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Perth
2534	Reduce flood risk	Reduce the risk of river flooding from the Craigie Burn in Perth.
2535	Reduce flood risk	Reduce the risk of surface water flooding in Perth.

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 protection works (Ref: 25301)	
Action	The selected preferred approach for managing flood risk is to be designed, including consideration of the long-term impacts of climate change. The flood scheme is to be built once statutory approval has been secured.
Description	<p>The design of the proposed Bridgend surface water flood protection works has commenced. The proposed works include a high capacity drainage channel and outfall to the River Tay.</p> <p>The responsible authority proposes this action as the best option for managing flood risk in this community. The delivery of this action is subject to funding being made available. Following completion of the design, the Bridgend surface water flood protection works will be procured and constructed. As built drawings will be made available to SEPA, for inclusion in the Scottish Flood Defence Asset Database, flood map updates and flood warning scheme updates.</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 River Tay Special Area of Conservation.</p>
Flood study (options appraisal) (Ref: 25302)	
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	Perth and Kinross Council has engaged consulting engineers to complete the Craigie Burn Flood Protection Study as set out in the current Tay local flood risk management plan.

Sewer flood risk assessment (Ref: 25303)	
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 Perth City 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: 25304)	
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	Perth and Kinross Council has engaged consulting engineers to develop the Perth Surface Water Management Plan. They will further investigate the surface water flood risk and identify potential options for managing that risk. The results of the sewer flood risk assessment and the Perth Integrated Catchment Study will be considered. Current and long term flood risk will be considered and if climate change impacts are found to be significant, then an adaptation plan will be included. Perth is a Scottish Water priority area and opportunities to work jointly should be explored.
Flood study (options appraisal) (Ref: 25305)	
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 Perth Integrated Catchment Study identified a number of flooding hotspots in Perth. These areas include Feus Road, Cavendish Avenue, Marshall Place, South Street and Bells Sports Centre. Scottish Water and Perth and Kinross Council will continue to progress study work to identify options to manage flood risk in the future.
Flood study (options appraisal) (Ref: 25306)	
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 Perth Integrated Catchment Study identified a number of flooding hotspots in Perth. The highest priority areas are currently being studied under a joint project run by Scottish Water in partnership with Perth and Kinross Council. Scottish Water and Perth and Kinross Council should progress further study work for the remaining hotspots to identify options to manage flood risk in the future.
Community engagement (Ref: 25307)	
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	Community engagement will continue in connection with ongoing projects and activities. Perth and Kinross will continue to coordinate with the Local Resilience Partnership's Community and Business Resilience Group and other community resilience groups on a priority needs basis where resources allow.

Community resilience group (Ref: 25308)	
Action	The group of community volunteers work to prepare and put in practice their Community Resilience Plan and be supported by the local authority.
Description	Perth and Kinross Council will continue to liaise with the Local Resilience Partnership's Community and Business Resilience Group and the South Inch Flood Group.

Maintain flood protection scheme (Ref: 25309)	
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Description	Maintenance of the Perth Flood Protection Scheme on the River Tay and the Craigie Burn should continue in accordance with the existing inspection and maintenance regime.

Flood warning maintenance (Ref: 25310)	
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 Almond flood warning scheme.

Flood warning maintenance (Ref: 25311)	
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 Tay 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.

Adaptation plan (Ref: 25312)	
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	An adaptation plan will be developed to cover existing flood protection schemes in the Perth and Kinross Council area. The plan will aim to monitor the impacts of climate change on flood risk, including the impact on existing flood schemes, and to develop a long-term flood risk management approach.

Flood warning maintenance (Ref: 25313)	
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 investigate improvements to the River Tay 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.

This area is designated as a potentially vulnerable area due to flood risk to Comrie. The main source of flooding is the River Earn, River Lednock and the Water of Ruchill. There is also risk of flooding from surface water. There is a history of flooding with significant floods recorded in 2015 and 2016 during Storm Frank.

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

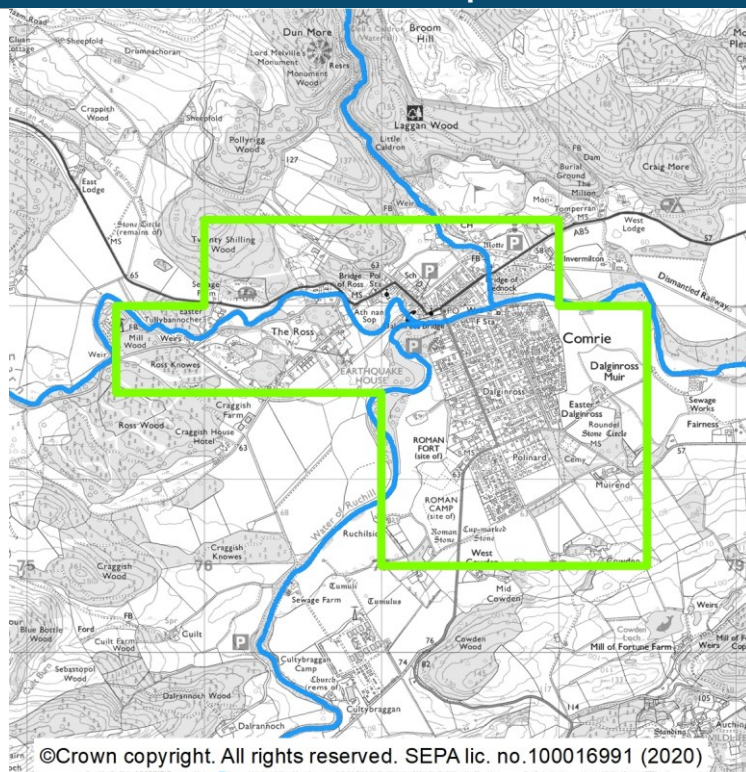
Comrie (target area 213)

Comrie (target area 213)

Summary

Comrie is located in the Perth and Kinross Council area. The main source of flooding in Comrie is river flooding from the Water of Ruchill, the River Earn and the River Lednock. There is also risk of surface water flooding. The local authority has carried out a flood study in this area which estimated that there are approximately 191 homes and 2 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 assessments of flooding from rivers, surface water and coastal sources. The national assessment for river flooding is improved by the studies supporting the on-going development of the proposed Comrie Flood Protection Scheme. The national understanding of surface water is also improved by the sewer flood risk assessment.

There is a long record of flooding in this area. In August 2012, approximately 60 properties were flooded in Dalginross from the Water of Ruchill. In November 2012 the Water of Ruchill flooded again, inundating approximately 150 homes. The most recent flood was recorded in January 2016 when the fire service was called to attend a localised flooding issue.

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
2131	Avoid flood risk	Avoid development that increases flood risk in Comrie
2132	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of the flood protection scheme in Comrie
2133	Prepare for flooding	Prepare for current flood risk and/or future flooding as a result of climate change in Comrie
2134	Reduce flood risk	Reduce the risk of river flooding from the River Earn, River Lednock and the Water of Ruchill in Comrie
2135	Reduce flood risk	Reduce the risk of surface water flooding in Comrie

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 protection scheme (Ref: 21301)	
Action	The selected preferred approach for managing flood risk is to be designed, including consideration of the long-term impacts of climate change. The flood scheme is to be built once statutory approval has been secured.
Description	<p>The Comrie Flood Protection Scheme was confirmed under the Flood Risk Management (Scotland) Act on 18 August 2021. The detailed design of the flood scheme is on-going and once complete, the flood scheme is to be built.</p> <p>The detailed design of the flood scheme is to be completed, followed by procurement and construction. The development of the proposals will continue to be informed by community engagement. As built drawings will be made available to SEPA, for inclusion in the Scottish Flood Defence Asset Database, flood map updates and flood warning scheme updates.</p>
Sewer flood risk assessment (Ref: 21302)	
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 Comrie 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: 21303)	
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	Residual surface water flood risk has been identified in Comrie. Perth and Kinross Council will develop a surface water management plan for the area. The plan will assess and analyse surface water flooding hotspots, identifying locations where further detailed studies or works are required. Short and long term flood risk will be considered and how the area may adapt to changes in risk due to climate change.

Community engagement (Ref: 21304)	
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	Community engagement will continue in connection with ongoing projects and activities. Perth and Kinross Council will continue to coordinate with the Comrie Community Resilience Group on a priority needs basis where resources allow.

Community resilience group (Ref: 21305)	
Action	The group of community volunteers work to prepare and put in practice their Community Resilience Plan and be supported by the local authority.
Description	Perth and Kinross Council will continue to liaise with the Comrie Community Resilience Group.

Maintain flood protection scheme (Ref: 21306)	
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Description	Perth and Kinross Council will continue to maintain existing flood defences and flood protection works in Comrie. These include the Water of Ruchill Flood Protection Scheme constructed in the 1960s and flood protection works carried out in 2013. Once built, Perth and Kinross Council will implement an inspection and maintenance regime for the Comrie Flood Protection Scheme.

Flood warning maintenance (Ref: 21307)	
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 Comrie 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 implementation (Ref: 21308)	
Action	The flood scheme/works is to be built following agreement of the design, costs and timescales.
Description	Transport Scotland will carry out civil engineering work which will reduce the risk of flooding on identified sections of the trunk road. Transport Scotland will manage the reduction through the operation of the trunk road via the routine and cyclic maintenance programme. Transport Scotland maintains an on-going review of areas of known historic flood locations and should areas such as Comrie be identified as such an area, Transport Scotland will seek funding in due course based on a prioritised criteria to support the routine and cyclic maintenance programme at these locations.

Adaptation plan (Ref: 21309)	
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	An adaptation plan will be developed to cover existing flood protection schemes in the Perth and Kinross Council area. The plan will aim to monitor the impacts of climate change on flood risk, including the impact on existing flood schemes, and to develop a long-term flood risk management approach.

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.

02/08/14 (Bridge of Earn)

This area is designated as a potentially vulnerable area due to flood risk to Bridge of Earn. The main source of flooding is river flooding from the River Earn, Deich Burn and Yellow Burn. A flood protection scheme offers some protection against flooding in this area. There is also risk of surface water flooding. There is history of flooding in this area, with recent flooding recorded in 2015, 2016, and 2020.

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

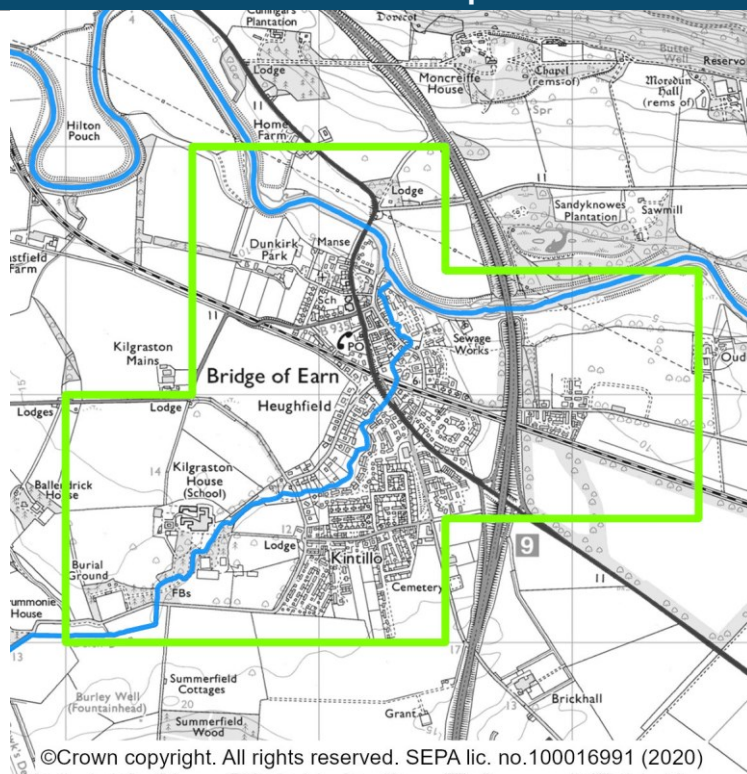
Bridge of Earn (target area 205)

Bridge of Earn (target area 205)

Summary

The town of Bridge of Earn is located on the River Earn and within the Perth and Kinross Council area. The main source of flooding in Bridge of Earn is river flooding, however there is also a risk of surface water flooding. There are approximately 290 people and 150 homes and businesses at risk from flooding. This is likely to increase to 340 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 assessments of flooding from rivers, surface water and coastal sources. The national assessment for river and surface water flooding is improved by the Perth integrated catchment study which has assessed the interactions between sewer, river and surface water flooding.

There is a long record of flooding in this area. The town was affected by flooding in February 1990 and January 1993. In June 2016 intense rainfall caused flooding to homes, roads and a local school. The most recent flood occurred in August 2020 when heavy rain flooded 1 property and some roads.

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
2051	Avoid flood risk	Avoid development that increases flood risk in Bridge of Earn
2052	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of the Bridge of Earn Flood Protection Scheme
2053	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Bridge of Earn
2054	Reduce flood risk	Reduce the risk of surface water flooding in Bridge of Earn.

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: 20501)	
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Description	A flood study should be carried out in order to better understand the integrated flooding mechanisms in Bridge of Earn. The study should initially include a high level assessment of actions and then consider the works required to reduce flood risk in the future. The results of the recent Perth Integrated Catchment Study should be incorporated. Current and long term flood risk should be considered.
Community engagement (Ref: 20502)	
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Description	Community engagement will continue in connection with projects in the area. Perth and Kinross Council will continue to coordinate with the local community council and other groups on a priority needs basis where resources allow.
Sewer flood risk assessment (Ref: 20503)	
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 Perth City 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.
Maintain flood protection scheme (Ref: 20504)	
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Description	Maintenance of the Bridge of Earn Flood Protection Scheme on the River Earn, the Deich Burn and the Yellow Burn will continue in accordance with the existing inspection and maintenance regime.
Flood warning maintenance (Ref: 20505)	
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 Earn 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.

Adaptation plan (Ref: 20506)	
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	An adaptation plan will be developed to cover existing flood protection schemes in the Perth and Kinross Council area. The plan will aim to monitor the impacts of climate change on flood risk, including the impact on existing flood schemes, and to develop a long-term flood risk management approach.

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.
The costs involved in the following actions are predominately from staff resource:		
Community engagement	N/A	Resources required are very specific for the individual action. It is currently not possible to estimate a resource cost.
Community flood alert	N/A	
Community resilience group	N/A	
Emergency plan	N/A	
Flood defence maintenance	N/A	Cost of maintenance is specific to the defence and is impacted by among other things age and type of the defences. It is not possible to provide indicative costs.
Flood risk management review	N/A	Resources required are very specific for the individual action. It is currently not possible to estimate a resource cost.
Flood warning maintenance	N/A	
Flood warning scoping	N/A	
Land Use Planning	N/A	
Maintain flood protection scheme	N/A	
New flood warning area	N/A	
Property flood resilience scheme	N/A	
Sewer flood risk assessment	N/A	
Site protection plan	N/A	
Strategic mapping improvements	N/A	

Annex 2: Flood risk management plans consultation summary

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:

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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/>