The Highland Council
Comhairle na Gàidhealtachd

Highland and Argyll Local Plan District

Sgìre plana ionadail na Gàidhealtachd agus Earra-Ghàidheal

Local Flood Risk Management Plan
Plana Riaghladh Cunnart Thuiltean Ionadail
2016-2022

Delivering sustainable flood risk management is important for Scotland's continued economic success and well-being. It is essential that we avoid and reduce the risk of flooding, and prepare and protect ourselves and our communities.

This is first Local Flood Risk Management Plan for the Highland and Argyll Local Plan District, describing the actions which will make a real difference to managing the risk of flooding and recovering from any future flood events.

The task now for us – local authorities, Scottish Water, the Scottish Environment Protection Agency (SEPA), the Scottish Government and all other responsible authorities and public bodies – is to turn our plan into action.

0.1 Foreword

The impacts of flooding experienced by individuals, communities and businesses can be devastating and long lasting. It is vital that we continue to reduce the risk of any such future events and improve Scotland's ability to manage and recover from any events which do occur.

The publication of this Plan is an important milestone in implementing the Flood Risk Management (Scotland) Act 2009 and improving our understanding of flood risk and how we will manage floods in the Highland and Argyll Local Plan District (see Section 2.1 for map). The Plan translates this legislation into actions to reduce the damage and distress caused by flooding over the first planning cycle from 2016 to 2022 and beyond.

Whilst it is individuals that are the first line of defence against flooding and are primarily responsible for their own protection, the following responsible authorities have a duty to adopt a strategic, plan-led approach to dealing with flooding.

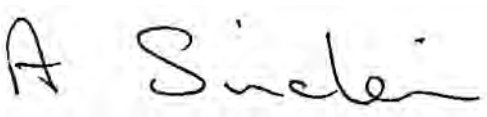
The Highland and Argyll Local Flood Risk Management Plan is led and published by The Highland Council. The partnership includes:

- Argyll and Bute Council
- Scottish Water
- Scottish Environment Protection Agency (SEPA)
- Forestry Commission Scotland
- Loch Lomond and the Trossachs National Park Authority
- Cairngorms National Park Authority.

This Plan provides the blueprint upon which these bodies will deliver their flood risk management responsibilities in a sustainable manner.

Within the Local Plan District areas with the greatest risk of flooding have been identified and are referred to as Potentially Vulnerable Areas (PVAs). Flooding within Potentially Vulnerable Areas is estimated to account for some 62% of the total number of properties at risk of flooding within the Highland and Argyll Local Plan District. The Potentially Vulnerable Areas identified in this Plan (40 in total) were designated as part of the National Flood Risk Assessment using the best information available at the time. We are committed to constantly reviewing and updating our knowledge of flood risk and this will influence the development of future plans.

The publication of this Plan shows that the coordinated and collaborative effort of public bodies can deliver actions to reduce flooding, but this can only be done with the support of you and your communities.



Councillor Audrey Sinclair

Chair of Planning, Development and Infrastructure Committee

0.2 Contents

0.1 Foreword 2
0.2 Contents 3

Section 1: Flood Risk Management in the Highland and Argyll Local Plan District 5
1.1 What is a Local Flood Risk Management Plan? 5
1.2 How to read this plan 6
1.3 How we have developed the Plan 8
1.4 Consultation, engagement and advice 9
1.5 Strategic Environmental Assessment and Habitats Regulations Assessment 9
1.6 Identification of Objectives, appraisal and prioritisation of Actions 10
1.7 Links with other plans, policies, strategies and legislative requirements 12

Section 2: Managing Flood Risk in the Highland and Argyll Local Plan District 15
2.1 Background on the Highland and Argyll Local Plan District 16
2.2 Flood risk in the Highland and Argyll Local Plan District 18
2.3 Summary of Actions in Highland and Argyll 19
2.4 Objectives and Actions in the Highland and Argyll Local Plan District 20

Section 3: Potentially Vulnerable Area (PVA) Summary 27
3.1 Thurso (Potentially Vulnerable Area 01/01) 29
3.2 Wick Airport (Potentially Vulnerable Area 01/02) 33
3.3 Wick – Burn of Newton (Potentially Vulnerable Area 01/03) 37
3.4 Wick Coastal (Potentially Vulnerable Area 01/04) 41
3.5 Lochinver (Potentially Vulnerable Area 01/05) 45
3.6 Golspie (Potentially Vulnerable Area 01/06) 49
3.7 Dornoch (Potentially Vulnerable Area 01/07) 55
3.8 Tarbat Ness (Potentially Vulnerable Area 01/08) 59
3.9 Invergordon (Potentially Vulnerable Area 01/09) 63
3.10 Alness (Potentially Vulnerable Area 01/10) 67
3.11 Uig, Isle of Skye (Potentially Vulnerable Area 01/11) 71
3.12 Poolewe (Potentially Vulnerable Area 01/12) 73
3.13 Kinlochewe (Potentially Vulnerable Area 01/13) 75
3.14 Dingwall and Strathpeffer (Potentially Vulnerable Area 01/14) 79
3.15 Contin and Garve (Potentially Vulnerable Area 01/15) 85
3.16 Conon Bridge and Muir of Ord (Potentially Vulnerable Area 01/16) 89
3.17 Nairn West and Ardersier (Potentially Vulnerable Area 01/17) 93
3.18 Nairn Central (Potentially Vulnerable Area 01/18) 97

3.19 Inverness Airport (Potentially Vulnerable Area 01/19) 101
3.20 Smithton and Culloden (Potentially Vulnerable Area 01/20) 105
3.21 Inverness and the Great Glen (Potentially Vulnerable Area 01/21) 111
3.22 Lochailort (Potentially Vulnerable Area 01/22) 121
3.23 Corpach (Potentially Vulnerable Area 01/23) 123
3.24 Caol and Inverlochy (Potentially Vulnerable Area 01/24) 127
3.25 Fort William (Potentially Vulnerable Area 01/25) 131
3.26 Sunart and Moidart (Potentially Vulnerable Area 01/26) 135
3.27 South Ballachulish (Potentially Vulnerable Area 01/27) 137
3.28 Ballachulish and Glencoe (Potentially Vulnerable Area 01/28) 139
3.29 Isle of Mull, Craignure (Potentially Vulnerable Area 01/29) 143
3.30 Ross of Mull (Potentially Vulnerable Area 01/30) 145
3.31 Oban (Potentially Vulnerable Area 01/31) 147
3.32 Loch Feochan (Potentially Vulnerable Area 01/32) 151
3.33 Taynuilt (Potentially Vulnerable Area 01/33) 153
3.34 Loch Awe (Potentially Vulnerable Area 01/34) 157
3.35 Craignish (Potentially Vulnerable Area 01/35) 161
3.36 Kilmartin (Potentially Vulnerable Area 01/36) 163
3.37 Inveraray (Potentially Vulnerable Area 01/37) 165
3.38 Lochgilphead (Potentially Vulnerable Area 01/38) 169
3.39 Tarbert (Potentially Vulnerable Area 01/39) 173
3.40 Campbeltown (Potentially Vulnerable Area 01/40) 177
3.41 Other areas 181
3.42 Other flood risk activities by local authorities in Highland and Argyll Local Plan District 181

Section 4: Raising Awareness and Resilience 183

Section 5: Next Steps and Monitoring 184

Annex 1: LPD roles and responsibilities 185

Annex 2: Links to other plans, policies, strategies and legislative requirements 188

Annex 3: Supporting information 189

Annex 4: Glossary 192

Annex 5: Acknowledgements 201

Annex 6: SEA Determination 202

Section 1: Flood Risk Management in the Highland and Argyll Local Plan District

1.1 What is a Local Flood Risk Management Plan?

The Local Flood Risk Management Plan (the 'Plan') has been developed to set out Actions to reduce the impact of flooding in the Highland and Argyll Local Plan District. The Plan supplements the Flood Risk Management Strategy (the 'Strategy'), which sets out Objectives and Actions to reduce flood risk from rivers, the sea and surface water. The Strategy identifies where the risk of flooding and benefit of investment is greatest.

The Plan sets out how and when prioritised Actions will be delivered with this investment.

Plans will be delivered over a six year cycle starting with the first cycle between 2016 and 2022.

The Plan provides information to help individuals and communities to become more resilient to flooding within Section 3. Everyone can take action with the confidence of what others are doing and with the clear knowledge when they are doing it.

The contents of the Plan have been agreed with the lead authority and every other responsible authority which has flood risk related functions exercisable in or in relation to the Local Plan District and SEPA.

The Plan is published by The Highland Council, lead authority for the Highland and Argyll Local Plan District, in agreement with:

- Argyll and Bute Council
- Scottish Water
- SEPA
- Forestry Commission Scotland
- Loch Lomond and Trossachs National Park Authority
- Cairngorms National Park Authority.

The Plan is a requirement under the Flood Risk Management (Scotland) Act 2009 and fulfils requirements within the European Union's Floods Directive.

1.2 How to read this plan

This Plan should be read in parallel with the Flood Risk Management Strategy for the Highland and Argyll Local Plan District. Where appropriate the Plan will refer the reader to the Strategy.

The Strategy contains detailed information on flood risk and the impact it has on communities in the designated Potentially Vulnerable Areas (PVAs). The Strategy was published in December 2015 by SEPA and provides additional background information and national context.

Flood Risk Management Strategy

View online

The Strategy can be viewed online at:
http://apps.sepa.org.uk/FRMStrategies/highlands-argyll.html

View a paper copy

Due to the quantity of information contained in the Strategy, hard copies have not been made available for viewing. If you do not have access to the internet, please contact SEPA at the following:

Phone: **03000 99 66 99**

Local Flood Risk Management Plan

View online

The Plan can be viewed online at:

The Highland Council's website:
www.highland.gov.uk/info/1210/environment/81/flooding

Argyll and Bute Council's website:
www.argyll-bute.gov.uk/transport-and-streets/flood-advice

View a paper copy

A paper copy of the Plan can be viewed (for free) at the headquarters of the local authorities (addresses below) and relevant Service Centres/ Points, locations of which can be found online:

The Highland Council, Glenurquhart Road, Inverness, Inverness-Shire, IV3 5NX

Phone: **01349 886606**

Service Points:
www.highland.gov.uk/directory/16/service_points

Argyll and Bute Council, Kilmory, Lochgilphead, Argyll, PA31 8RD

Phone: **01546 605522**

Enquiry form:
www.argyll-bute.gov.uk/content/enquiriesform

Should you require specific sections of the Plan, or in formats/ languages not provided, please contact The Highland Council's Flood Risk Management Team.

The layout of the Plan follows that of the Strategy:

- **Section 1** contains background information on the approach taken in Scotland to manage flooding. It explains the duties and aims of relevant organisations, including how they work together and how flood risk management planning is linked to other government policies and initiatives. And, most importantly, how flood risk management planning is delivered locally to each Local Plan District through a Local Flood Risk Management Plan.

- **Section 2** includes an overview of the Local Plan District (LPD); a summary of the communities at greatest risk and the sets out Objectives and Actions that will be applied across the whole LPD.

- **Section 3** is the most important section for those individuals and communities seeking to understand their flood risk and its management. For communities at the greatest risk of flooding (called Potentially Vulnerable Areas) there is a short description of the sources and consequences of flooding. Each PVA includes Objectives to reduce the risk of flooding from significant sources. Most importantly, the Actions that will achieve the Objectives are described, including when they will be implemented, which organisation is responsible, and how they are to be funded.

- **Section 4** provides information how local authorities and the responsible authorities will raise awareness of flooding and promote resilience.

- **Annexes** to the Plan provide supporting documents and references:
  - Annex 1 - Roles and Responsibilities
  - Annex 2 - Links with other plans (location of Schedules of 'Clearance and Repair'
  - Annex 3 - Supporting Information (including background to National Flood Risk Assessment, PVA's)
  - Annex 4 - Glossary of Terms
  - Annex 5 - Acknowledgements
  - Annex 6 - SEA Determination

Both the Plan and the Strategy will be updated every six years.

1.3 How we have developed the Plan

Coordination, collaboration and partnership working

The Plan has been developed in partnership by the following organisations:

Figure 1: Local Plan District Partnership

Local Authorities work together for flood risk management planning purposes through a single 'Lead Authority' which has the responsibility to coordinate, prepare, publish and report on the Local Flood Risk Management Plan. The Highland Council was nominated the Lead Local Authority for the Highland and Argyll Local Plan District, with Argyll and Bute Council as a partner.

Scottish Environment Protection Agency (SEPA) has a duty to deliver a strategic approach to flood risk management within Scotland, and is also responsible for providing national flood forecasting and flood warning service. On 23rd December 2015, SEPA published the Flood Risk Management Strategy for the Highland and Argyll LPD, and which this Plan builds upon.

Scottish Water has the public drainage duty and is responsible for foul drainage and the drainage of rainwater run-off from roofs and any paved ground surface from the boundary of properties. Additionally, Scottish Water helps to protect homes from flooding caused by sewers either overflowing or becoming blocked. Scottish Water is not responsible for private pipework or guttering within the property boundary.

Loch Lomond and the Trossachs National Park Authority/Cairngorms National Park Authority fulfil an important role in land use planning within the National Parks, and the control of activities that can play a key role in managing and reducing flood risk.

Forestry Commission Scotland fulfils an important role in land use planning, is a significant land owner and can play a significant role in managing and reducing flood risk.

These partner organisations are termed 'Responsible Authorities' under the Act, and have been working more closely together than ever before. SEPA has ensured a consistent national approach is taken across all Local Plan Districts, and provided the strategic analysis and direction. Local Authorities, Scottish Water, National Park Authorities and Forestry Commission Scotland have ensured that that local knowledge and expertise has informed the decision-making.

Further detail on the roles and responsibilities of these organisations can be found in Annex 1.

1.4 Consultation, engagement and advice

Two statutory public consultations were held during the development of the Strategies and Plans. In 2011, as part of the development of the National Flood Risk Assessment, SEPA carried out a consultation on the general approach to flood risk management planning and the identification of Potentially Vulnerable Areas.

Then in 2015, SEPA and local authorities sought views on the characterisation of flooding in the Potentially Vulnerable Areas, and on the draft Objectives, Actions and proposed delivery to manage flooding in these areas. The views and representations of the respondents to the second consultation were taken into account when finalising the Strategies and Plan.

The Strategies and Plans have also benefitted from contributions from the Highland and Argyll and Lochaber Local Advisory Groups (LAGS), who provided important area-based knowledge on both the causes and consequences of flooding and on the appropriate actions for future management.

Advice was also taken from a National Flood Management Advisory Group consisting of over 50 member organisations, reflecting the national importance and impact of flooding on our communities, economy, environment and cultural heritage.

Some of the work carried out has been complex and technical in nature for which professional advice was sought from across Scotland and beyond. Working together, SEPA, The Scottish Government, local authorities, Scottish Water, Forestry Commission Scotland, the National Park Authorities and other key interested organisations have assisted each other and developed industry best practice guidance for flood risk management planning.

1.5 Strategic Environmental Assessment and Habitats Regulations Assessment

A Strategic Environmental Assessment (SEA) was carried out by SEPA on the Flood Risk Management Strategy for the Highland and Argyll Local Plan District. This included an Environmental Report, and Post Adoption Statement (taking account of consultee's comments).

Since the Plan sits below the Strategy, and reflects the measures proposed within the Strategy, no additional SEA has been undertaken. The Highland Council submitted a Screening Opinion to SEA Gateway in October 2015, and the opinion of SEPA, Scottish Natural Heritage and Historic Environment Scotland was that the Plan would have 'no (additional) significant environmental effects' other than those already identified and assessed through the Strategy. The Highland Council published this decision in April 2016 (see Annex 6).

Project level environmental impact assessments will be undertaken where required by planning and environmental regulations.

A Habitats Regulations Appraisal (HRA) was undertaken for the Strategy that has informed the Plan. Where the HRA Strategy identified mitigation measures necessary to afford the Natura interests a level of protection, these have been incorporated into the Plan. The Plan does not contain any proposed works that have not been identified in the Strategy for which an HRA has been undertaken. Studies identified in the Strategy and Plan may result in works that will be the subject of a future plan and full assessment would be undertaken as part of the plan development process. Where studies identify actions likely to have significant effects on qualifying interests of Natura sites and Appropriate Assessment (AA) will be required. Where it cannot be shown that there will be no adverse effect on site integrity, proposals will be refused.

1.6 Identification of Objectives, appraisal and prioritisation of actions

The identification of Objectives and appraisal of Actions to reduce flood risk has been led by SEPA with significant input from The Highland Council, Argyll and Bute Council and Scottish Water. The setting of Objectives and selecting the most sustainable Actions to reduce flood risk in each Local Plan District will provide the long-term vision for Flood Risk Management in Scotland.

Flood Maps

In 2014, SEPA developed new river, coastal and surface water maps for the whole of Scotland. This was supplemented with more detailed, local assessments where available and suitable for use.

In developing the flood maps SEPA have:

- Used the most up to date modelling techniques and applied a consistent approach
- Used industry endorsed methods
- Been able to show more information than ever before on the sources and impacts of flooding
- Developed the first national natural flood management maps showing the areas where natural techniques to help reduce flood risk could be most effective.

In developing the maps SEPA worked in partnership with local authorities. They also worked with the industry to define the overall approach to flood hazard mapping and undertook a series of internal checks and local authority reviews of outputs. Further information on Flood Hazard and Risk including mapping can be found at:
http://www.sepa.org.uk/environment/water/flooding/flood-maps/

These maps were a requirement of Section 21 of the Flood Risk Management Scotland Act, and the conclusions that were drawn from these maps helped inform the direction of this Plan (see Annex 3 for more information).

Objectives were then set to focus on the main sources and impacts of flooding identified in each Potentially Vulnerable Area. A wide range of Actions were appraised, including Flood Protection Schemes (or Works), Flood Protection Studies, Flood Warning Schemes, Surface Water Management Plans, and Natural Flood Management Studies (or Works).

To prioritise actions, SEPA separated the technical, risk-based assessment of priorities from aspects of local, practical deliverability. The costs and impacts of actions were used alongside information from delivery and funding bodies jointly to agree priorities and identify indicative delivery dates for actions. A National Prioritisation Advisory Group guided SEPA on the relative priority of flood risk management actions, having considered both the technical ranking and issues of local priority. This group included representatives from SEPA, local authorities, Scottish Water, Convention of Scottish Local Authorities (CoSLA) and Scottish Government.

Figure 2: Key Stages within the Appraisal Process

Possible Actions were initially appraised against Technical, Financial and Practical considerations, before a more detailed appraisal taking account of the benefit to cost ratio and a non-monetised score, including factors that are less tangible such as environmental benefit.

The Strategy provided the list of prioritised actions for the first six-year flood risk management planning cycle, 2016 to 2022 and beyond. The Plan identifies who will be responsible for delivering each Action, when it will be undertaken; the funding arrangements to deliver each Action and any coordination activities– see Sections 2 and 3.

The agreed actions identified for the first six-year cycle were based on the current level of funding, where available. However, future spending reviews and annualised financial settlements may affect each party's ability to deliver these actions.

Implementation of the Plan will be monitored through the Steering Group, which will meet from time to time throughout the first cycle. Progress will be reported through each responsible authority's governance process.

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

The Plan does not stand in isolation. As far as is practicable, an integrated approach to land and water management has been pursued. When developing Strategy and Plan, early links were made with other relevant aspects of water and land management including Local Development Plans, River Basin Management Plans and emergency plans. In turn, the Responsible Authorities will work proactively to ensure the findings from these flood risk management plans and strategies will influence other planning initiatives in an interactive and iterative cycle. Making these links has helped identify opportunities to deliver multiple benefits from flood risk management goals, Objectives and Actions.

Duty to assess bodies of water and schedule clearance and repair works

Under Section 18 of the Flood Risk Management (Scotland) Act (2009), local authorities have a duty to assess bodies of water (e.g. watercourses) and schedule 'clearance and repair' works where such works would substantially reduce flood risk.

The Highland Council has implemented a plan-led, risk based approach to assessing bodies of water that may give rise to flooding, and has documented over 500 watercourses and 2,000 structures throughout the Highlands. A full time watercourse inspector is employed to routinely assess the risk of flooding from each structure (e.g. a culvert inlet or screen).

Should any routine clearance work be required that cannot be carried out at the time of inspection, the work required to substantially reduce the risk of flooding will be put on a 'Schedule of clearance and repair works' and made available for public inspection (see Annex 2).

The Highland Council's Schedule of clearance and repair works is published online at:
www.highland.gov.uk/info/1210/environment/81/flooding/5

Argyll and Bute Council has implemented a plan-led, risk based approach to assessing bodies of water that may give rise to flooding.

Argyll and Bute Council will publish a schedule of clearance and repair works online. At present the council responds to requests on an individual basis. A request for details of clearance and repair at a specific location can be made by email at: **floodingenquiries@argyll-bute.gov.uk** or by writing to;

Infrastructure Design
Roads and Amenity Services
Argyll & Bute Council
Manse Brae
Lochgilphead
PA31 8SQ

River Basin Management Planning

River basin management aims to protect and improve the condition of our rivers, lochs, estuaries and coastal waters.

Developing a planned approach to tackling flood risk has provided an opportunity to connect with plans to improve the quality of Scotland's water environment at the same time. For example, coordination between river basin management and flood risk management can reduce flood risk, whilst improving water quality and biodiversity.

SEPA has led the delivery of River Basin Management Plans and Flood Risk Management Strategies, and they have worked with The Highland Council and Argyll and Bute Council in the development of the Local Flood Risk Management Plans to ensure that there is appropriate consistency and coordination in both Plans.

Land Use and Spatial Planning

Periodically, The Highland Council, Argyll and Bute Council, Loch Lomond & Trossachs National Park Authority and Cairngorms National Park Authority review and update their Local Development Plans. These plans set out the Strategy for delivering appropriate development within each area and take into account a number of constraints including flood risk.

The Highland Council

- The current Highland-wide Local Development Plan was adopted in 2012. A review of this plan has already begun and consultation on the Main Issues Report was carried out by The Highland Council which concluded in January 2016. The new plan is programmed to be published in summer of 2016, with adoption expected to be by the winter of 2017. The new Highland-wide Local Development Plan will take account of flood risk and the actions proposed in this Local Flood Risk Management Plan.

  Highland-wide Local Development Plan:
  www.highland.gov.uk/info/178/local_and_statutory_development_plans/199/highland-wide_local_development_plan

  Main Issues Report:
  http://consult.highland.gov.uk/portal/

The full details of how land can be used will be contained in The Highland Council's three Area Plans:

- Inner Moray Firth Local Development Plan:
  www.highland.gov.uk/info/178/local_and_statutory_development_plans/202/inner_moray_firth_local_development_plan
- Caithness and Sutherland Local Development Plan:
  www.highland.gov.uk/info/178/local_and_statutory_development_plans/283/caithness_and_sutherland_local_development_plan
- West Highland and Islands Local Development Plan:
  www.highland.gov.uk/info/178/local_and_statutory_development_plans/582/west_highlands_and_islands_local_development_plan

The Highland Council has also published its Highland Forest and Woodland Strategy. This document looks to build synergy between forestry and other interests which can benefit from woodlands, such as natural flood management. It can be found online at this location:
www.highland.gov.uk/downloads/file/891/highland_forest_and_woodland_strategy

Argyll and Bute Council

- The current Argyll and Bute Local Development Plan was adopted in March 2015. A review of this plan has already begun with the timetable set out in the Development Plan Scheme. The Main Issues Report is programmed for publication in September 2017 with adoption of LDP2 programmed for December 2019. The emerging Local Development Plan 2 will take account of flood risk and the actions proposed in this Local Flood Risk Management Plan. The full detail of how land can be used is contained in the adopted Argyll and Bute Local Development Plan, associated Supplementary Guidance and Action Programme.

  Argyll and Bute Local Development Plan:
  www.argyll-bute.gov.uk/ldp

  Development Plan Scheme:
  www.argyll-bute.gov.uk/sites/default/files/dps_jan_16_-_final.pdf

Surface Water Management Plans

The Highland Council will develop a Highland-wide Surface Water Management Plan (SWMP) within the first cycle (2016-2022) that will describe existing and future actions to reduce the flood risk from small watercourses (less than 3km2) and surface water runoff (e.g. overland flows across roads, fields and other areas). The Plan will describe existing activities such as watercourse inspections, assessments and gully maintenance and identify specific actions to alleviate surface water flooding in the following priority areas:

- Inverness
- Smithton and Culloden
- Dingwall and Strathpeffer
- Corpach
- Halkirk
- Fort William
- Caol & Inverlochy

Argyll and Bute Council will develop Surface Water Management Plans between 2016 and 2019 for the following priority areas.

- Oban
- Campbeltown

The Surface Water Management Plans will describe existing activities such as watercourse inspections, assessments and gully maintenance. The Plans will also identify specific actions to alleviate surface water flooding such as storage, flood routing and natural flood management.

Integrated Catchment Study

Integrated Catchment Studies (ICS) are led by Scottish Water in partnership with local authorities and SEPA. These studies will improve knowledge and understanding of the interactions between the above ground and below ground drainage network e.g. with the sewer network, watercourses and (where appropriate) the sea. This will improve the understanding of contributions these drainage networks play in local surface water flood risk.

An Integrated Catchment Study covering the Inverness catchment is being carried out to support the surface water management planning process. This includes the areas of Inverness city, the A96 corridor, Smithton, Culloden and Balloch.

This Study will go through the Scoping and Modelling phases between 2016-2020, which will define the sources and mechanisms of flooding in the catchment and develop an understanding of the impacts of that flooding.

It is expected that the ICS partnerships will remain after this period, to establish the preferred solution(s) to the significant flooding issues.

Section 2: Managing Flood Risk in the Highland and Argyll Local Plan District

This section presents a summary of flooding for the Highland and Argyll Local Plan District and for the forty (40) Potentially Vulnerable Areas (PVAs).

Detail on the Actions planned to manage flooding across the whole Local Plan District and in each Potentially Vulnerable Area in the first cycle period 2016-2022 are provided. Information on Actions identified in the current Strategy, but planned to be carried out in future cycles are also provided.

This section also identifies who will be responsible for the funding, delivery and implementation of the Actions and any coordination arrangements.

This section summarises the characteristics and impacts of flooding from river, coastal and surface water sources on the Highland and Argyll Local Plan District and how flooding from these mechanisms are to be managed, which are described in more detail in the Strategy.

2.1 Background on the Highland and Argyll Local Plan District

The Highland and Argyll Local Plan District covers the north and north-west of mainland Scotland together with the majority of the islands off the west coast (see Figure 3). It contains two local authorities The Highland Council and Argyll and Bute Council, and small areas of the Cairngorms and Loch Lomond and the Trossachs National Park. It has an area of approximately 29,000km2 and a coastline of approximately 4,190km. There are forty Potentially Vulnerable Areas in the Local Plan District (see Figure 3).

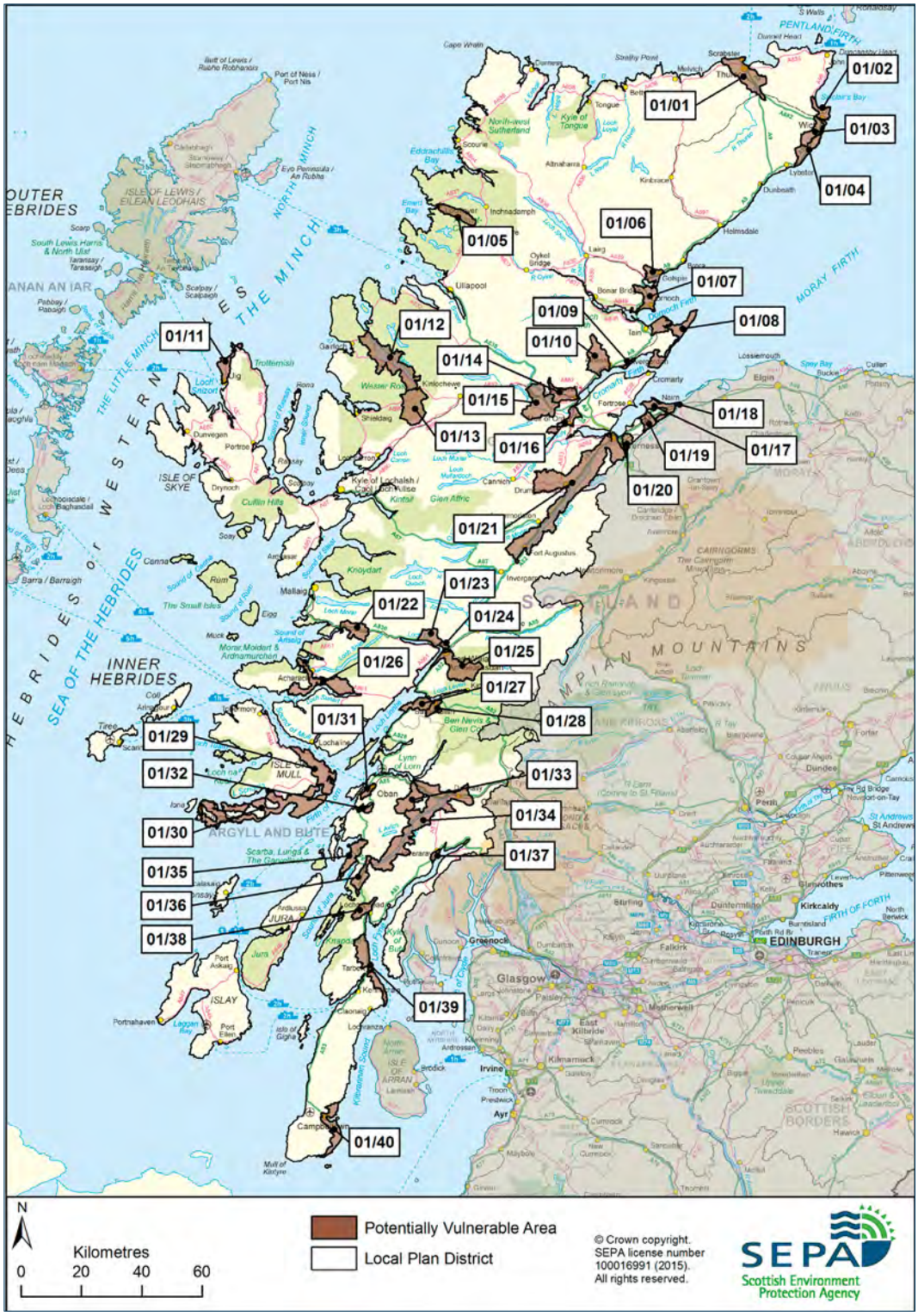


Figure 3: The Highland and Argyll Local Plan District with Potentially Vulnerable Areas.
Reproduced from the Highland and Argyll Flood Risk Management Strategy, SEPA (December 2015).

The population of the Highland and Argyll Local Plan District is approximately 280,000. The Local Plan District includes the Inner Hebrides, which consist of 35 inhabited islands and a further 44 uninhabited islands.

Inverness is the only city in the Local Plan District, with a population of over 55,000. The next two largest settlements are Fort William and Oban, both of which have populations of less than 10,000.

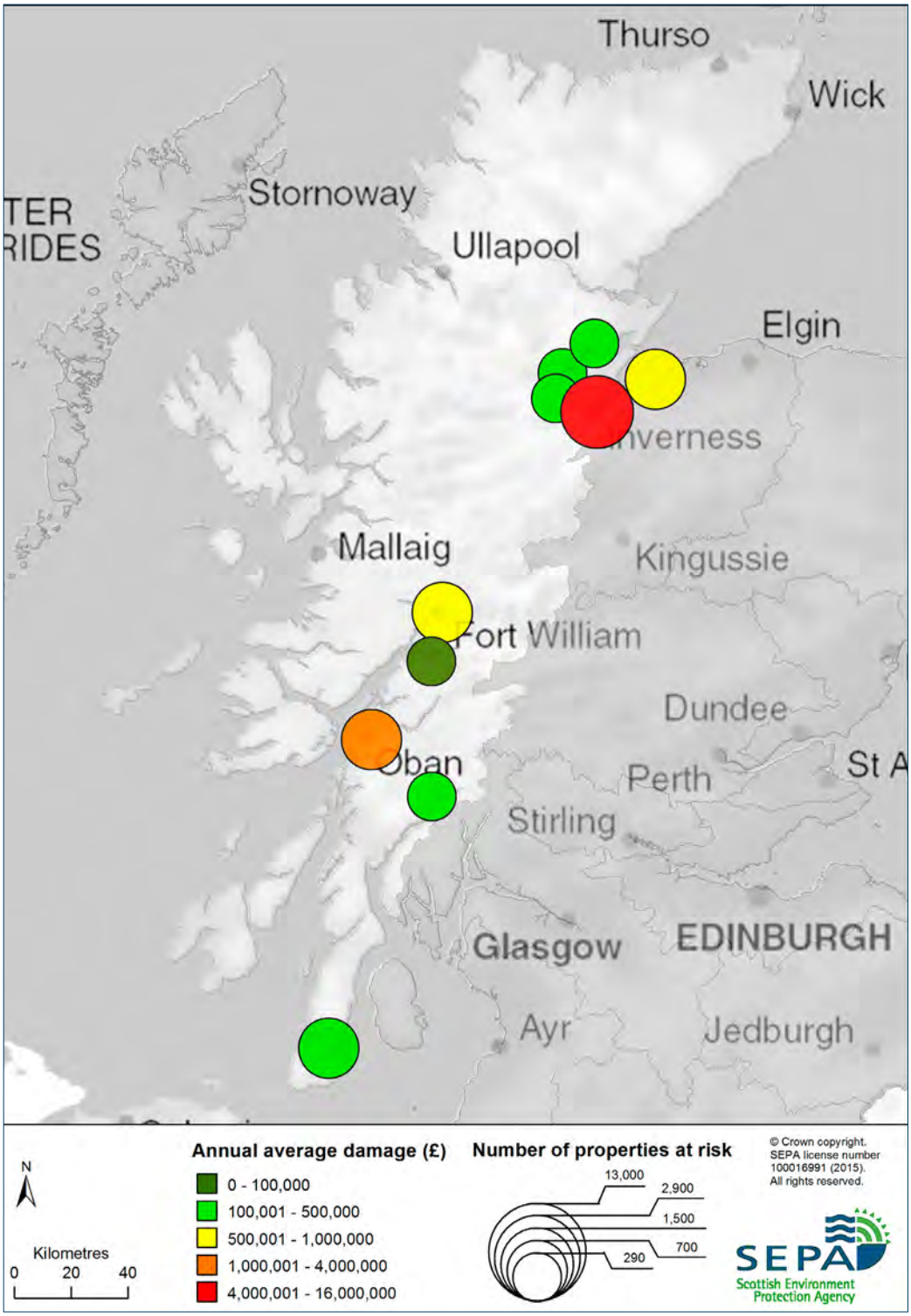


Figure 4: Highland and Argyll Local Plan District areas with most properties at risk of flooding and associated damages. Reproduced from the Highland and Argyll Flood Risk Management Strategy, SEPA (December 2015).

2.2 Flood risk in the Highland and Argyll Local Plan District

There are approximately 4,600 residential properties and 2,700 non-residential properties at risk of flooding in this Local Plan District. This equates to 6% of all residential properties and 20% of all non-residential properties. It is estimated that 62% of these properties are located within Potentially Vulnerable Areas. The Annual Average Damages from flooding are approximately £26.5 million with an estimated 49% of the damages for the entire Local Plan District accounted for in Potentially Vulnerable Areas.

The main source of flooding is from rivers and the sea (see Figure 5). The Annual Average Damages caused by river floods are approximately £12 million, with those caused by coastal and surface water floods being approximately £11.5 million and £2.9 million respectively.

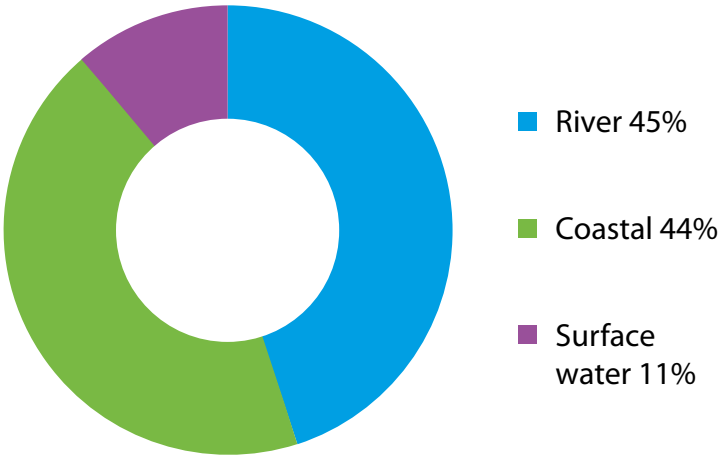


Figure 5: Annual Average Damages by flood source.
Reproduced from the Highland and Argyll Flood Risk Management Strategy, SEPA (December 2015)

Table 1 (below) shows the number of properties at risk and the Annual Average Damages caused by flooding in the main towns and cities within the Local Plan District. This includes damages to residential properties, non-residential properties, transport and agriculture. Please note that economic damages to airports and rail infrastructure are not included as information on damages at this scale is not available.

Area	Residential and non-residential properties at risk of flooding	Annual Average Damages
Inverness	1,500	£5.4 million
Oban	520	£1.9 million
Campbeltown	500	£520,000
Fort William, Corpach, Caol and Inverlochy	350	£850,000
Nairn (total for Local Plan District 1 and 5).	340*	£440,000*
Dingwall	150	£270,000
Inveraray	90	£370,000
Ballachulish and Glencoe	90	£280,000
Alness	90	£81,000
Muir of Ord	50	£210,000

Table 1: Main areas at risk of flooding

*Note that the totals in Table 1 include the whole of the town of Nairn however a small part of Nairn is located in the Findhorn, Nairn and Speyside Local Plan District. Most of the properties at risk of coastal flooding in Nairn are located to the west of the River Nairn and are in the Highland and Argyll Local Plan District.

2.3 Summary of Actions in Highland and Argyll

The following Table 2 summarises the Actions selected to be appropriate to manage flood risk in each Potentially Vulnerable Area. This includes Actions identified for Cycle 1 & 2.

PVA	Flood Protection Scheme Works	Natural Flood Management Works	New Flood Warning Scheme	Flood Protection Study	Natural Flood Management Study	Surface Water Plan/ Study	Strategic Mapping and Modelling	Maintain Flood Protection Scheme	Maintain Flood Warning	Flood Forecasting	Property Level Protection Scheme	Community Flood Action Group	Self Help	Awareness Raising	Maintenance	Site Protection Plan	Emergency Response Plans/ Response	Planning Policy
01/01				✓			✓			✓			✓	✓	✓		✓	✓
01/02							✓		✓	✓			✓	✓	✓		✓	✓
01/03							✓			✓			✓	✓	✓		✓	✓
01/04							✓		✓	✓			✓	✓	✓		✓	✓
01/05				✓						✓			✓	✓	✓	✓	✓	✓
01/06	✓			✓			✓		✓	✓		✓	✓	✓	✓		✓	✓
01/07	✓			✓					✓	✓			✓	✓	✓		✓	✓
01/08				✓			✓		✓	✓			✓	✓	✓		✓	✓
01/09							✓		✓	✓			✓	✓	✓		✓	✓
01/10				✓			✓		✓	✓			✓	✓	✓	✓	✓	✓
01/11										✓			✓	✓	✓		✓	✓
01/12										✓			✓	✓	✓		✓	✓
01/13				✓						✓			✓	✓	✓		✓	✓
01/14			✓	✓		✓	✓	✓	✓	✓			✓	✓	✓		✓	✓
01/15	✓			✓			✓		✓	✓			✓	✓	✓	✓	✓	✓
01/16				✓			✓	✓		✓			✓	✓	✓		✓	✓
01/17	✓			✓			✓		✓	✓			✓	✓	✓		✓	✓
01/18	✓			✓			✓		✓	✓			✓	✓	✓		✓	✓
01/19	✓						✓			✓			✓	✓	✓		✓	✓
01/20	✓					✓	✓			✓			✓	✓	✓		✓	✓
01/21	✓			✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓		✓	✓
01/22	✓									✓			✓	✓	✓		✓	✓
01/23	✓					✓	✓		✓	✓			✓	✓	✓		✓	✓
01/24	✓					✓	✓		✓	✓			✓	✓	✓		✓	✓
01/25	✓			✓		✓	✓		✓	✓			✓	✓	✓		✓	✓
01/26										✓			✓	✓	✓		✓	✓
01/27										✓			✓	✓	✓		✓	✓
01/28	✓			✓						✓			✓	✓	✓		✓	✓
01/29										✓			✓	✓	✓		✓	✓
01/30										✓			✓	✓	✓		✓	✓
01/31				✓		✓	✓		✓	✓			✓	✓	✓		✓	✓
01/32										✓			✓	✓	✓		✓	✓
01/33	✓						✓			✓			✓	✓	✓		✓	✓
01/34	✓						✓			✓			✓	✓	✓		✓	✓
01/35										✓			✓	✓	✓		✓	✓
01/36										✓			✓	✓	✓		✓	✓
01/37	✓						✓			✓			✓	✓	✓		✓	✓
01/38				✓			✓		✓	✓			✓	✓	✓		✓	✓
01/39				✓			✓		✓	✓			✓	✓	✓		✓	✓
01/40	✓			✓		✓	✓		✓	✓			✓	✓	✓		✓	✓

Table 2: Summary of Selected Actions for each Potentially Vulnerable Area

2.4 Objectives and Actions in the Highland and Argyll Local Plan District

The Objectives are the shared aims for managing flooding. Actions describe where and how flood risk will be managed. Objectives and Actions have been set by SEPA and agreed by flood risk management responsible authorities following consultation.

These Objectives and Actions apply to all areas of the Local Plan District, including the Potentially Vulnerable Areas. There are more specific Actions that apply within Potentially Vulnerable Areas, in addition to those listed below. Further detail can be found in the relevant Potentially Vulnerable Area Section.

Objective(s)	Object ID	Annual Average Damages
Avoid an overall increase in flood risk.	100001	• 4,600 residential properties • 2,700 non-residential properties • 10,000 people
Reduce overall flood risk.	100002	• 4,600 residential properties • 2,700 non-residential properties • 10,000 people

Object ID	**Reduce overall flood risk (100002)**		
Action ID	Flood Forecasting (10002009)		
Delivery Lead	SEPA	**Indicative Delivery**	Ongoing
Description	The Scottish Flood Forecasting Service is a joint initiative between SEPA and the Met Office that produces daily, national flood guidance statements which are issued to Category 1 and 2 Responders. The flood guidance statements provide an assessment of the risk of flooding for a five day period allowing responders time to put preparations in place to reduce the impact of flooding. The service also provides information which allows SEPA to issue flood alerts or warnings, giving people a better chance of reducing the impact of flooding on their home or business. For more information please visit SEPA's website. The Flood Alert areas within the plan are: • Argyll and Bute • Caithness and Sutherland • Easter Ross and Great Glen • Skye and Lochaber • Wester Ross		
Funding	SEPA's flood forecasting service is funded through Scottish Government's grant in aid allocation. The Met Office receives funding from the UK Government.		
Co-ordination	SEPA / Met Office joint initiative. Hydrological information is provided by the Met Office. SEPA uses the information to predict the likelihood and timing of the river, coastal and surface water flooding.		

Object ID	**Reduce overall flood risk (100002)**		
Action ID	Self Help (10000200011)		
Delivery Lead	Property Owner/ Manager	**Indicative Delivery**	Ongoing
Description	Everyone is responsible for protecting themselves and their property from flooding. Property and business owners can take simple steps to reduce damage and disruption to their homes and businesses should flooding happen. This includes preparing a flood plan and flood kit, installing property level protection, signing up to Floodline and the Resilient Communities Initiative, and ensuring that properties and businesses are insured against flood damage.		
Funding	Funding of 'self-help' measures will be met by the individual property owner.		
Co-ordination	Areas where property level protection may be appropriate may be identified by the responsible authorities through 'Awareness Raising' and 'Community Resilience' actions.		
Delivery Lead	Local Authority	**Indicative Delivery**	Ongoing
Description	The Highland Council and Argyll and Bute Council will continue to provide impartial advice to property and business owners to help them protect their property from flooding. Each local authority can provide advice on roles and responsibilities with respect to flood risk and help with identify sources and mechanisms of flooding. The Highland Council and Argyll and Bute Council refer Tenants, Property and Business owners to the Scottish Flood Forum (SFF) for advice on property level protection. Neither The Highland Council nor Argyll and Bute Council provide Property Level Protection products (e.g. flood gates). These should be purchased direct from accredited suppliers.		
Funding	The Highland Council and Argyll and Bute Council provide impartial advice through their annual revenue budget.		
Co-ordination	'Self-help' Actions will be co-ordinated with SEPA and other responsible authorities and other actions, and in particular with 'Awareness Raising', 'Community Flood Action Groups' and 'Emergency Plans/Response' Actions. Local authorities will work closely with the Scottish Flood Forum (a National Charity) to provide home and business owners advice on flood risk, community resilience groups and property level protection.		

Object ID	**Reduce overall flood risk (100002)**		
Action ID	Awareness Raising (1000020013)		
Delivery Lead	Responsible Authorities	**Indicative Delivery**	Ongoing
Description	The Highland Council and Argyll and Bute Council will continue to raise awareness throughout the first cycle (2016–2022), to ensure communities are better prepared to deal with the challenges of climate change. Local authorities will engage local members, community councils and constituents in areas where Flood Protection Studies or Works are being progressed. They will also aim to develop Community Resilience Groups in Potentially Vulnerable Areas and in areas where no specific Actions are proposed. From 2016 SEPA will engage the community through local participation in national initiatives, including partnership working with Neighbourhood Watch Scotland. SEPA will engage with local authorities and community resilience groups and community safety partnerships where possible. Along with SEPA, local authorities will share communication and education resources with other responsible authorities. These resources will include awareness campaigns, media and marketing activity and promotion of SEPA's flood forecasting and warning services (Floodline). For areas where a new Flood Protection Scheme is proposed SEPA will support the local authority's communications and engagement activities with media activity, local public awareness events and education engagement with schools. SEPA will also deliver joint communications with local authorities for Floodline customers in any newly protected flood warning area. Scottish Water will support SEPA and responsible authorities with their awareness raising activities as required and provide targeted flooding communications for Scottish Water specific activities. Scottish Water will raise awareness by producing and supplying targeted information to the public on large capital projects and detailed local studies. More general information and flooding guidance will be available on the website at: **www.scottishwater.co.uk/you-and-your-home/your-home/flooding-information**		
Funding	The Highland Council and Argyll and Bute Council raise awareness of flood risk through their annual revenue budget. SEPA's awareness raising activities are funded by Scottish Government through SEPA's grant in aid settlement. Scottish Water's funding for this action is accounted for in their capital or operational expenditure.		
Co-ordination	Awareness Raising will be co-ordinated with the other responsible authorities through the Local Planning District (LPD) Partnership. Local authorities will make available their monitor locations and data to SEPA and the Met Office and coordinate the collection of river level data where possible. Community Resilience Groups can liaise with local authorities to set up river level monitors in their area and set up action plans to help the vulnerable.		

Object ID	**Reduce overall flood risk (100002)**		
Action ID	Maintenance (1000020007)		
Delivery Lead	Responsible Authorities	**Indicative Delivery**	Ongoing
Description	Local authorities have a duty to assess bodies of water (e.g. watercourses) and schedule 'clearance and repair' works where such works would substantially reduce flood risk. Local authorities produce schedules of clearance and repair works and make these available for public inspection. The Highland Council's Schedule of clearance and repair works are published online at: **www.highland.gov.uk/info/1210/environment/81/flooding/5** Argyll and Bute Council will publish a schedule of clearance and repair works online. At present the council responds to requests on an individual basis. A request for details of clearance and repair at a specific location can be made by email to: **floodingenquiries@argyll-bute.gov.uk** or by writing to: Infrastructure Design Roads and Amenity Services Argyll & Bute Council Manse Brae Lochgilphead PA31 8SQ Local authorities also maintain Council assets such as formal Flood Protection Schemes/ Defences, coastal erosion protection (where protection council assets e.g. roads/ bridges), culverts and river level monitors. Scottish Water will undertake risk based inspections, maintenance and repair on the public sewer network.		
Funding	The assessment of watercourses, clearance and repair works and maintenance of all council assets are funded through the Council's annual revenue budget.		
Co-ordination	Scottish Water will keep responsible authorities informed of large scale capital maintenance work to identify opportunities for co-ordination.		

Object ID	**Reduce overall flood risk (100002)**		
Action ID	Emergency Plans/ Response (1000020014)		
Delivery Lead	Responsible Authorities	**Indicative Delivery**	Ongoing
Description	To promote effective preparation and strengthen the partnerships necessary for dealing with emergencies, the Civil Contingencies Act 2004 was introduced. The Highland Council is a member of the Highlands and Islands Local Resilience Partnership (HILRP). This partnership ensures good multi-agency working in the region. Through the HILRP, The Highland Council also influences national emergency planning arrangements. Follow @handiprepared on Twitter for updates from the emergency services. The Highland Council has worked with HILRP to produce Preparing for Emergencies in the Highland and Islands, a guide which provides basic information about what individuals can do to protect themselves and their family in the event of a major emergency. The Highland Council provides staff with the plans, procedures and information they require to enable them to reduce the impacts of any major emergency. Highlands and Islands Local Resilience Partnership: **www.handiprepared.gov.uk** Handiprepared on Twitter: **https://mobile.twitter.com/handiprepared** Preparing for Emergencies in the Highland and Islands: **www.highland.gov.uk/downloads/file/6342/preparing_for_emergencies_in_the_highlands_and_islands** Argyll and Bute Council is a member of the West of Scotland Regional Resilience Partnership (WoSRRP). This partnership ensures effective multi-agency planning and response to emergencies. At a more local level, Emergency Services and other category 1 and 2 responders, as well as Voluntary Agencies form the membership of the Argyll and Bute Local Resilience Partnership (LRP). Argyll and Bute Council has an Emergency Response Plan which details the Council's response to any major incident, including flooding. The Role of the Council during a major flood is summarised below: • Provide Emergency Centre facilities or temporary accommodation to those unable to remain in or to access their homes • Establish traffic diversions in the immediate and wider area • Provide public information in conjunction with partner agencies • Deploy a lead Incident Officer, if necessary • Coordinate communications • Lead long term recovery efforts **www.readyscotland.org/my-community/ready-in-your-area/west-rrp**		

	Helping Communities Both The Highland Council and Argyll & Bute Council promote Community Resilience through each Community Council. They also provide the following assistance to the general public: • Advice and guidance on the preparation of community emergency plans • Reception centres and transportation for people evacuated from their homes • Plant and equipment during emergencies • A control centre to co-ordinate the response during emergencies • Advice on potentially dangerous structures or buildings • Advice on environmental health and public health • Advice and guidance during the incident and afterwards in the recovery period During an emergency, information will be made available to the public as quickly as possible in the local media, our website, Twitter and Facebook. **River Monitors** The Highland Council and Argyll and Bute Council maintain a number of river level monitors in high risk locations which are used to provide early warning of flood risk. The monitors can be viewed by the public by visiting: **www.timeview2.net** (login details are available) They can be used to help individuals be prepared for the risk of flooding. Both authorities will continue to review locations to provide river and coastal level monitors to provide flood warning.
Funding	The Highland Council and Argyll and Bute Council provide emergency planning and response and river level monitors through its annual revenue budget.
Co-ordination	The Highland Council is a member of the Highlands and Islands Local Resilience Partnership (HILRP). This partnership ensures good multi-agency working with other public, private and voluntary agencies, in particular Police Scotland, Scottish Fire & Rescue Service, Scottish Ambulance Service, Maritime & Coastguard Agency, NHS, SEPA and British Red Cross across the region. Highlands and Islands Local Resilience Partnership: **www.handiprepared.gov.uk** Argyll and Bute Local Resilience Partnership membership includes multi-agency partners who regularly attend meetings and exercises. This ensures an effective multi-agency response when required.

Object ID	**Reduce overall flood risk (100002)** **Avoid an overall increase in flood risk (100002)**		
Action ID	Planning Policies (100001001)		
Delivery Lead	Responsible Authorities	**Indicative Delivery**	Ongoing
Description	National planning policies set out Scottish Ministers' priorities for the operation of the planning system and for the development and use of land. The policy supports a sustainable approach to flood risk management and aims to build the resilience in our towns and cities. Under this approach, development in areas with medium to high likelihood of flooding should be avoided. The Highland Council, Argyll and Bute Council and National Park Authorities are all Planning Authorities within the Local Plan District. Each Planning Authority considers flood risk and drainage impact to be material considerations for any new application. Within the Highlands, new developments must satisfy local adopted supplementary guidance on Flood Risk and Drainage Impact Assessment: **www.highland.gov.uk/downloads/file/2954/flood_risk_and_drainage_impact_assessment_supplementary_guidance** Within Argyll and Bute, new developments must satisfy the adopted Supplementary Guidance on Sustainable Drainage Systems (SG LDP SERV 2), Drainage Impact Assessment (SG LDP SERV 3) and Flood Risk (SG LDP SERV 7), which are a statutory part of the Development Plan. Supplementary Guidance: **www.argyll-bute.gov.uk/sites/default/files/supplementary_guidance_adopted_march_2016_b.pdf** SEPA has a statutory role in relation to the provision of flood risk advice to planning authorities. This role is expressed in Section 72 of the FRM Act, 2009. SEPA also has a duty to co-operate with planning authorities in the preparation of development plans. When consulted in relation to planning applications for development or site allocations in development plans, and where the planning authority considers there may be a risk of flooding, SEPA will provide advice. The advice provided by SEPA will be with respect to the risk of flooding and on the basis of the relevant information it holds which is suitable for planning purposes. It will also be in line with the principles and duties set out in the FRM Act. Further information about how SEPA engage in the planning system, including guidance on flood risk and planning is available on SEPA website: **www.sepa.org.uk/environment/land/planning**		
Funding	The Highland Council and Argyll and Bute Council implement national planning policy through its annual revenue budget. SEPA's land use planning activities are funded by Scottish Government through SEPA's grant in aid settlement.		
Co-ordination	Each Planning Authority coordinates the responses of statutory authorities and any other relevant organisations when considering new planning applications. Local Development Plans are reviewed periodically and undergo a widespread and lengthy consultation (called the Main Issues Report) - coordinated by the Planning Authorities. SEPA's land use planning activities will be co-ordinated with the Planning Authorities as required.		

Section 3: Potentially Vulnerable Area (PVA) Summary

The following table provides a quick link to all information in the Plan for each Potentially Vulnerable Area. More detailed information regarding flood risk, flood history, flood damages, and land use is provided in the Highland & Argyll Flood Risk Management Strategy can be found at:

http://apps.sepa.org.uk/FRMStrategies

The Highland Council

LPD/PVA Reference - PVA Name	Page
01/01 - Thurso	29
01/02 - Wick Airport	33
01/03 - Wick- Burn of Newton	37
01/04 - Wick Coastal	41
01/05 - Lochinver	45
01/06 - Golspie	49
01/07 - Dornoch	55
01/08 - Tarbat Ness	59
01/09 - Invergordon	63
01/10 - Alness	67
01/11 - Uig, Isle of Skye	71
01/12 - Poolewe	73
01/13 - Kinlochewe	75
01/14 - Dingwall and Strathpeffer	79
01/15 - Contin and Garve	85
01/16 - Conon Bridge and Muir of Ord	89
01/17 - Nairn West and Ardersier	93
01/18 - Nairn Central	97
01/19 - Inverness Airport	101
01/20 - Smithton and Culloden	105
01/21 - Inverness and the Great Glen	111
01/22 - Lochailort	121
01/23 - Corpach	123
01/24 - Caol and Inverlochy	127
01/25 - Fort William	131
01/26 - Sunart and Moidart	135
01/27 - South Ballachulish	137
01/28 - Ballachulish and Glencoe	139

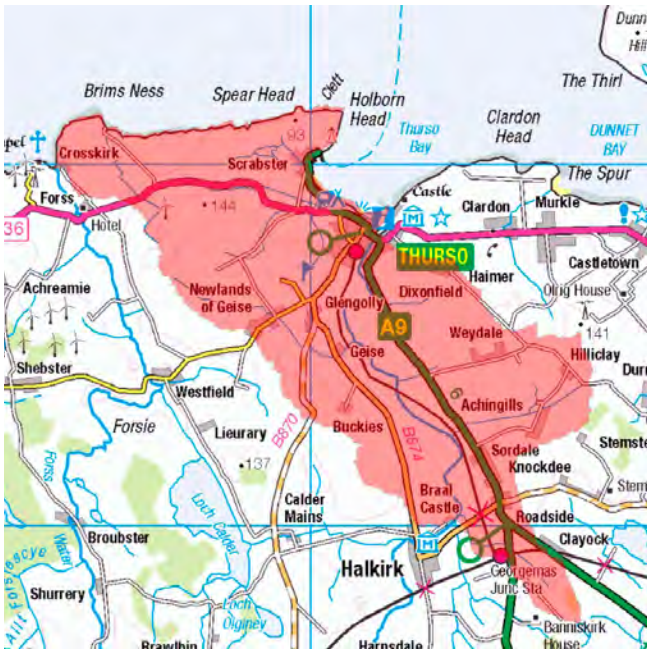
Argyll & Bute Council

LPD/PVA Reference - PVA Name	Page
01/29 - Isle of Mull, Craignure	143
01/30 - Ross of Mull	145
01/31 - Oban	147
01/32 - Loch Feochan	151
01/33 - Taynuilt	153
01/34 - Loch Awe	157
01/35 - Craignish	161
01/36 - Kilmartin	163
01/37 - Inveraray	165
01/38 - Lochgilphead	169
01/39 - Tarbert	173
01/40 - Campbeltown	177

3.1 Thurso (Potentially Vulnerable Area 01/01)

This Potentially Vulnerable Area is approximately 81km^2 and includes the town of Thurso and rural areas to the south and west (shown below).

The Potentially Vulnerable Area includes the smaller settlements of Scrabster, Crosskirk, Newlands of Geise, Glengolly, Sordale, Achingills, Weydale and Dixonfield.



The A9 and A836 roads pass through the area.

The main river flowing through the area is the River Thurso, which is tidal in its lower reaches.

There are approximately 10 residential and 10 non-residential properties at risk of flooding.

The Annual Average Damages are approximately £77,000 with the majority caused by river flooding.

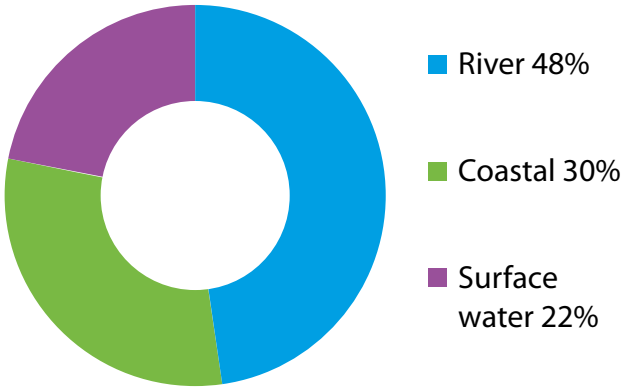


Figure 6
Annual Average Damages by flood source.

Objective(s)	ID	Indicator
Avoid an overall increase in flood risk	100001	• 10 residential properties. • £77,000 Annual Average Damages.
Reduce overall flood risk	100002	• 10 residential properties. • £77,000 Annual Average Damages.
Reduce risk in Thurso (Riverside area) from coastal flooding	100101	• £2,100 Annual Average Damages from non-residential properties.
Reduce flood risk in Thurso (Riverside area) from the River Thurso	100102	• £2,200 Annual Average Damages from non-residential properties.
Reduce flood risk in Thurso (Burnside) from the Wolf Burn	100103	• £21,000 Annual Average Damages from residential properties.

Actions to be carried out within this PVA					
Flood Protection Scheme/Works	Natural Flood Management Works	New Flood Warning	Community Flood Action Groups	Property Level Protection	Site Protection Plans
Flood Protection Study	Natural Flood Management Study	Maintain Flood Warning	Awareness Raising	Surface Water Plan/Study	Emergency Plans/Response
Maintain Flood Protection Scheme	Strategic Mapping and Modelling	Flood Forecasting	Self Help	Maintenance	Planning Policies

Action ID	Flood Protection Study (1001010005)		
Object ID	**Reduce risk in Thurso (Riverside Area) from coastal flooding (100101)** **Reduce risk in Thurso (Riverside Area) from the River Thurso (100102)**		
Delivery Lead	The Highland Council	Indicative Delivery	2016-2019
Description	A hydraulic study will be carried out to further improve the understanding of flood risk in Thurso, taking account of wind and wave action from the sea and the tidal influence on river flooding. Following the development of this model, and an improved understanding of the potential damages, a Flood Protection Study will investigate the potential benefits to providing coastal revetments, direct defences and/or property level protection. Other Actions may also be considered in order to develop the most sustainable range of options. This Flood Protection Study will not have an adverse effect on the River Thurso SAC.		
Funding	The Highland Council's Capital Programme includes funding to develop the Study within the cycle (approved June 2015).		
Co-ordination	The Highland Council will coordinate the development of the Study with actions of other responsible authorities and engage local community groups. The Highland Council will also work closely with SEPA to improve the flood risk maps for Thurso once more detailed modelling of the River Thurso has been carried out. This Study will be progressed along with a Study for Golspie.		

Action ID	Flood Protection Study (1001030005)		
Object ID	**Reduce risk in Thurso (Burnside) from the Wolf Burn (100103)**		
Delivery Lead	The Highland Council	Indicative Delivery	2022-2027 (Cycle 2)
Description	A Flood Protection Study will be carried out to investigate the feasibility of improving conveyance along the Wolf Burn (Burnside) and the tributary to the north-west of the Thurso Business Park. Other Actions (including property level protection) will also be considered in order to develop the most sustainable range of options. The Study will confirm the extent of works required and the business case for a Flood Protection Scheme (or Works). The Study should also look to confirm the level of flood risk for Thurso Business Park which may be underestimated based on the history of flooding in the area.		
Funding	Funding to develop this Study will be secured from The Highland Council's Capital Programme in 2022.		
Co-ordination	The Highland Council will coordinate the development of the Study with actions of other responsible authorities and engage local community groups.		

Action ID	Strategic Mapping and Modelling (1000020019)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Scottish Water	Indicative Delivery	2016 - 2020
Description	Scottish Water will undertake further investigation and modelling in the Halkirk and Thurso sewer catchments to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.		
Funding	Scottish Water funding is committed in its capital programme through Q&S 4a (2015-2021) which is approved by its regulators and customers.		
Co-ordination	Scottish Water will work with responsible authorities to incorporate relevant information into these studies and by regularly keeping the responsible authorities informed of their progress. Scottish Water will provide responsible authorities with the outputs of the Section 16 assessment which, where relevant, may be used to inform surface water management plans and SEPA flood hazard and risk maps.		

Action ID	Flood Forecasting (1000020009)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing

Action ID	Self Help (1000020011)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	General Public	Indicative Delivery	Ongoing

Action ID	Awareness Raising (1000020013)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Maintenance (1000020007)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Emergency Plans/Response (1000020014)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Planning Policies (1000010001)*		
Object ID	**Reduce overall flood risk (100002)** **Avoid an overall increase in flood risk (100001)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

* These Actions apply to all PVA's and across the whole of the LPD area. More information regarding these Actions can be found in Section 2.4.

3.2 Wick Airport (Potentially Vulnerable Area 01/02)

This Potentially Vulnerable Area is approximately 20km^2. It includes the northern part of the town of Wick and the rural area to the north and east including Wick Airport (shown below). It includes the smaller settlements of Ackergill, Papigoe, Broadhaven and Staxigoe.

There are no major rivers; however the Wick River flows just outside the southern boundary.

Fewer than ten residential and non-residential properties are at risk of flooding.

The Annual Average Damages are approximately £10,000 with the majority caused by surface water and coastal flooding.

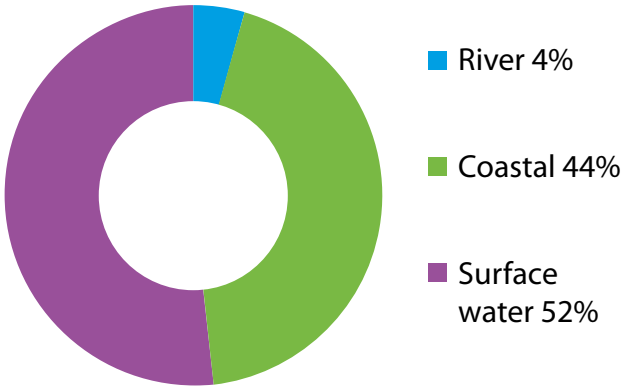


Figure 7
Annual Average Damages by flood source

Objective(s)	ID	Indicator
Avoid an overall increase in flood risk	100001	• 10 residential properties. • £10,000 Annual Average Damages.
Reduce overall flood risk	100002	• 10 residential properties. • £10,000 Annual Average Damages.

Actions to be carried out within this PVA					
Flood Protection Scheme/Works	Natural Flood Management Works	New Flood Warning	Community Flood Action Groups	Property Level Protection	Site Protection Plans
Flood Protection Study	Natural Flood Management Study	Maintain Flood Warning	Awareness Raising	Surface Water Plan/Study	Emergency Plans/Response
Maintain Flood Protection Scheme	Strategic Mapping and Modelling	Flood Forecasting	Self Help	Maintenance	Planning Policies

Action ID	Maintain Flood Warning (1000020030)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing
Description	Continue to maintain the 'Wick' flood warning area which is part of the Moray Firth coastal flood warning scheme. When flood events occur in an area with an existing flood warning service, SEPA will seek to verify the flood forecasts and warnings. SEPA will use feedback and post-event data to ensure that our flood warning service is timely and accurate.		
Funding	The maintenance of SEPA's flood warning service is funded by Scottish Government through SEPA's grant in aid settlement.		
Co-ordination	SEPA will work with the local authority to ensure that any new information is considered in the existing flood warning system.		

Action ID	Strategic Mapping and Modelling (1000020019)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Scottish Water	Indicative Delivery	2016 - 2017
Description	Scottish Water will undertake further investigation and modelling in the Wick sewer catchment to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.		
Funding	Scottish Water funding is committed in its capital programme through Q&S 4a (2015-2021) which is approved by its regulators and customers.		
Co-ordination	Scottish Water will work with responsible authorities to incorporate relevant information into these studies and by regularly keeping the responsible authorities informed of their progress. Scottish Water will provide responsible authorities with the outputs of the Section 16 assessment which, where relevant, may be used to inform surface water management plans and SEPA flood hazard and risk maps.		

Action ID	Flood Forecasting (1000020009)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing

Action ID	Self Help (1000020011)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	General Public	Indicative Delivery	Ongoing

Action ID	Awareness Raising (1000020013)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Maintenance (1000020007)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

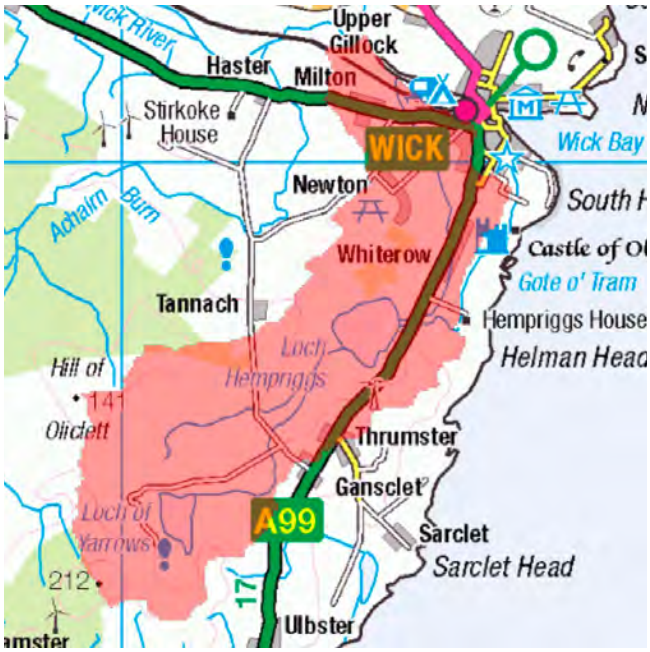
Action ID	Emergency Plan/ Response (1000020014)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Planning Policies (1000010001)*		
Object ID	**Reduce overall flood risk (100002)** **Avoid an overall increase in flood risk (100001)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

* These Actions apply to all PVA's and across the whole of the LPD area. More information regarding these Actions can be found in Section 2.4.

3.3 Wick – Burn of Newton (Potentially Vulnerable Area 01/03)

This Potentially Vulnerable Area is approximately 30km^2. It includes the south west part of Wick, and the smaller settlements of Thrumster, Milton, and Newton (shown below). The A99 passes through the area.



The Burn of Newton is the largest river in the area.

There are approximately 40 residential properties and fewer than 10 non-residential properties at risk of flooding.

The Annual Average Damages are approximately £190,000 with the majority caused by river flooding.

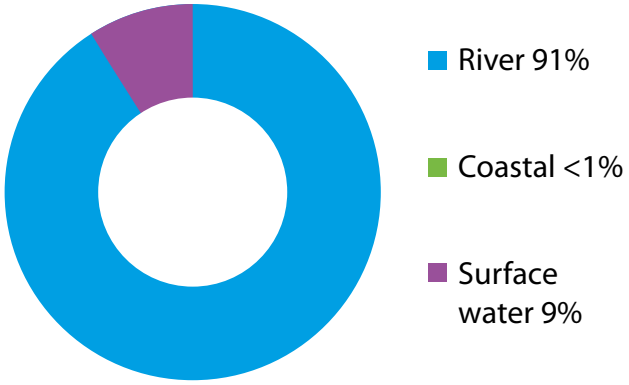


Figure 8
Annual Average Damages by flood source

Objective(s)	ID	Indicator
Avoid an overall increase in flood risk	100001	• 40 residential properties. • £190,000 Annual Average Damages.
Reduce overall flood risk	100002	• 40 residential properties. • £190,000 Annual Average Damages.
Reduce flood risk in Wick from the Burn of Newton	100301	• 70 people • £170,000 Annual Average Damages.

Actions to be carried out within this PVA					
Flood Protection Scheme/Works	Natural Flood Management Works	New Flood Warning	Community Flood Action Groups	Property Level Protection	Site Protection Plans
Flood Protection Study	Natural Flood Management Study	Maintain Flood Warning	Awareness Raising	Surface Water Plan/Study	Emergency Plans/Response
Maintain Flood Protection Scheme	Strategic Mapping and Modelling	Flood Forecasting	Self Help	Maintenance	Planning Policies

Action ID	Strategic Mapping and Modelling (1000020016)		
Object ID	**Reduce flood risk in Wick from the Burn of Newton (100301)**		
Delivery Lead	SEPA	Indicative Delivery	2016 - 2017
Description	SEPA will be seeking to develop the flood hazard mapping in the area of Loch Hempriggs to the confluence with the Wick River to improve understanding of the flood risk. The extent and timing of the completed improvements will be dependent on detailed scoping and data availability.		
Funding	SEPA's strategic mapping and modelling activities are funded by Scottish Government through SEPA's grant in aid settlement.		
Co-ordination	SEPA's strategic mapping activities will be co-ordinated with the activities of other responsible authorities as required.		

Action ID	Strategic Mapping and Modelling (1000020019)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Scottish Water	Indicative Delivery	2016 - 2020
Description	Scottish Water will undertake further investigation and modelling in the Wick sewer catchment to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.		
Funding	Scottish Water funding is committed in its capital programme through Q&S 4a (2015-2021) which is approved by its regulators and customers.		
Co-ordination	Scottish Water will work with responsible authorities to incorporate relevant information into these studies and by regularly keeping the responsible authorities informed of their progress. Scottish Water will provide responsible authorities with the outputs of the Section 16 assessment which, where relevant, may be used to inform surface water management plans and SEPA flood hazard and risk maps.		

Action ID	Flood Forecasting (1000020009)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing

Action ID	Self Help (1000020011)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	General Public	Indicative Delivery	Ongoing

Action ID	Awareness Raising (1000020013)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Maintenance (1000020007)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Emergency Plan/ Response (1000020014)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Planning Policies (1000010001)*		
Object ID	**Reduce overall flood risk (100002)** **Avoid an overall increase in flood risk (100001)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

* These Actions apply to all PVA's and across the whole of the LPD area. More information regarding these Actions can be found in Section 2.4.

3.4 Wick Coastal (Potentially Vulnerable Area 01/04)

This Potentially Vulnerable Area is approximately 36km^2. It includes the south east part of Wick and the mainly rural area along the coastline to the south (shown below). It includes the smaller settlements of Sarclet, Gansclet, Whaligoe, Brean and Blackness. The A99 road passes through the area.

The Wick River flows along the northern boundary of the area and there are also a number of smaller watercourses including the Mill Lade, which runs between Loch Hempriggs and the distillery in Wick.

There are approximately 40 residential properties and 20 non-residential properties at risk of flooding.

The Annual Average Damages are approximately £400,000 with the majority caused by river flooding.

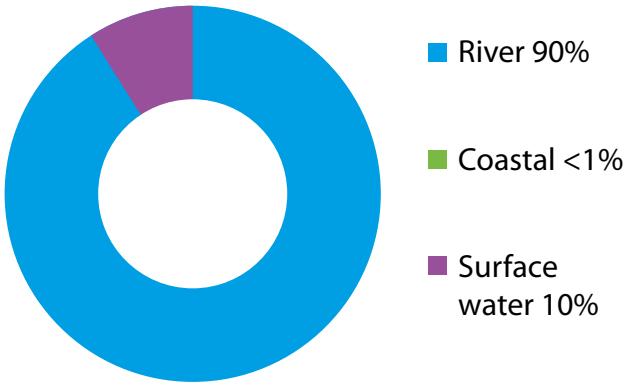


Figure 9
Annual Average Damages by flood source

Objective(s)	ID	Indicator
Avoid an overall increase in flood risk	100001	• 40 residential properties • £400,000 Annual Average Damages
Reduce overall flood risk	100002	• 40 residential properties • £400,000 Annual Average Damages
Reduce flood risk in Wick from the Mill Lade	100401	• 70 people • £360,000 Annual Average Damages

Actions to be carried out within this PVA					
Flood Protection Scheme/Works	Natural Flood Management Works	New Flood Warning	Community Flood Action Groups	Property Level Protection	Site Protection Plans
Flood Protection Study	Natural Flood Management Study	Maintain Flood Warning	Awareness Raising	Surface Water Plan/Study	Emergency Plans/Response
Maintain Flood Protection Scheme	Strategic Mapping and Modelling	Flood Forecasting	Self Help	Maintenance	Planning Policies

Action ID	Strategic Mapping and Modelling (1000020016)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	2018
Description	SEPA will be seeking to incorporate additional surface water hazard mapping information into the flood maps to improve understanding of flood risk. Approximately 2,100km^2 of improved data is currently available within this Local Plan District.		
Funding	SEPA's strategic mapping and modelling activities are funded by Scottish Government through SEPA's grant in aid settlement.		
Co-ordination	SEPA's strategic mapping activities will be co-ordinated with the activities of other responsible authorities as required.		

Action ID	Strategic Mapping and Modelling (1004010016)		
Object ID	**Reduce flood risk in Wick from the Mill Lade (100401)**		
Delivery Lead	SEPA	Indicative Delivery	2016 - 2017
Description	SEPA will be seeking to develop the flood hazard mapping in the area of Loch Hempriggs to the confluence with the Wick River to improve understanding of the flood risk. The extent and timing of the completed improvements will be dependent on detailed scoping and data availability.		
Funding	SEPA's strategic mapping and modelling activities are funded by Scottish Government through SEPA's grant in aid settlement.		
Co-ordination	SEPA's strategic mapping activities will be co-ordinated with the activities of other responsible authorities as required.		

Action ID	Strategic Mapping and Modelling (1000020019)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Scottish Water	Indicative Delivery	2016 - 2017
Description	Scottish Water will undertake further investigation and modelling in the Wick sewer catchment to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.		
Funding	Scottish Water funding is committed in its capital programme through Q&S 4a (2015-2021) which is approved by its regulators and customers.		
Co-ordination	Scottish Water will work with responsible authorities to incorporate relevant information into these studies and by regularly keeping the responsible authorities informed of their progress. Scottish Water will provide responsible authorities with the outputs of the Section 16 assessment which, where relevant, may be used to inform surface water management plans and SEPA flood hazard and risk maps.		

Action ID	Maintain Flood Warning (1000020030)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing
Description	Continue to maintain the 'Wick' flood warning area which is part of the Moray Firth coastal flood warning scheme. When flood events occur in an area with an existing flood warning service, SEPA will seek to verify the flood forecasts and warnings. SEPA will use feedback and post-event data to ensure that our flood warning service is timely and accurate.		
Funding	The maintenance of SEPA's flood warning service is funded by Scottish Government through SEPA's grant in aid settlement.		
Co-ordination	SEPA will work with the local authority to ensure that any new information is considered in the existing flood warning system.		

Action ID	Flood Forecasting (1000020009)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing

Action ID	Self Help (1000020011)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	General Public	Indicative Delivery	Ongoing

Action ID	Awareness Raising (1000020013)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Maintenance (1000020007)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Emergency Plan/ Response (1000020014)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

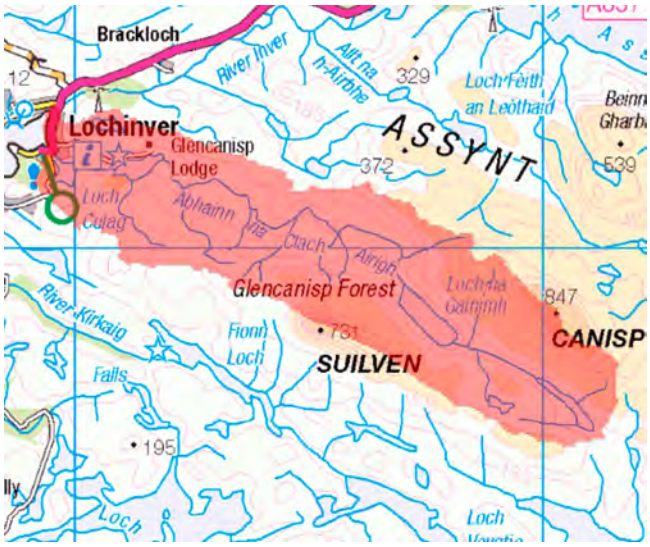
Action ID	Planning Policies (1000010001)*		
Object ID	**Reduce overall flood risk (100002)** **Avoid an overall increase in flood risk (100001)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

* These Actions apply to all PVA's and across the whole of the LPD area. More information regarding these Actions can be found in Section 2.4.

3.5 Lochinver (Potentially Vulnerable Area 01/05)

This Potentially Vulnerable Area covers Lochinver and the rural areas to the south east (shown below). It is approximately 35km^2.

A short section of the A837 passes through the area.



The main river in this area is the Abhainn na Clach Airigh system which includes several lochs, the largest of which is Loch na Gainimh.

There are approximately 10 residential properties and 10 non-residential properties at risk of flooding.

The Annual Average Damages are £140,000 with the majority caused by river flooding.

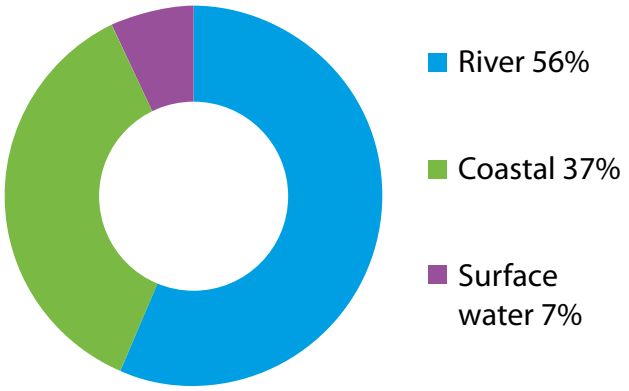


Figure 10
Annual Average Damages by flood source

Objective(s)	ID	Indicator
Avoid an overall increase in flood risk	100001	• 40 residential properties • £400,000 Annual Average Damages
Reduce overall flood risk	100002	• 40 residential properties • £400,000 Annual Average Damages
Reduce the number of community facilities at risk of flooding from Loch Culag in Lochinver	100501	• 2 educational buildings

Actions to be carried out within this PVA					
Flood Protection Scheme/Works	Natural Flood Management Works	New Flood Warning	Community Flood Action Groups	Property Level Protection	Site Protection Plans
Flood Protection Study	Natural Flood Management Study	Maintain Flood Warning	Awareness Raising	Surface Water Plan/Study	Emergency Plans/Response
Maintain Flood Protection Scheme	Strategic Mapping and Modelling	Flood Forecasting	Self Help	Maintenance	Planning Policies

Action ID	Flood Protection Study (1005010005)		
Object ID	**Reduce the number of community facilities at risk of flooding from Loch Culag in Lochinver (100501)**		
Delivery Lead	The Highland Council	Indicative Delivery	2022-2027 (Cycle 2)
Description	A Flood Protection Study is required to reduce the risk of flooding to Lochinver Primary School and nursery from Loch Culag. The Study will focus on the potential for direct defences around the perimeter of the school grounds, but other Actions may also be considered in order to develop the most sustainable range of options. The Study will confirm the size of defence required and the business case for a Flood Protection Scheme (or Works).		
Funding	Funding to develop this Study will be secured from The Highland Council's Capital Programme in 2022.		
Co-ordination	The Highland Council will coordinate the development of the Study with actions of other responsible authorities and engage local community groups.		

Action ID	Site Protection Plan (1005010015)		
Object ID	**Reduce the number of community facilities at risk of flooding from Loch Culag in Lochinver (100501)**		
Delivery Lead	The Highland Council	Indicative Delivery	2016-2019
Description	The Highland Council will work with the management of a school, and provide advice in the development of a site protection plan, to build resilience in the event of a flood.		
Funding	This work is revenue funded.		
Co-ordination	The Highland Council will coordinate the development of the plan with other responsible authorities.		

Action ID	Flood Forecasting (1000020009)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing

Action ID	Self Help (1000020011)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	General Public	Indicative Delivery	Ongoing

Action ID	Awareness Raising (1000020013)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Maintenance (1000020007)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Emergency Plan/ Response (1000020014)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

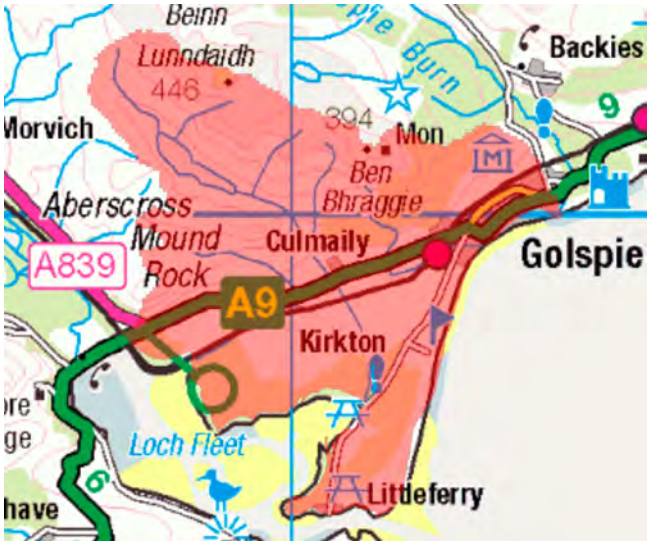
Action ID	Planning Policies (1000010001)*		
Object ID	**Reduce overall flood risk (100002)** **Avoid an overall increase in flood risk (100001)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

* These Actions apply to all PVA's and across the whole of the LPD area. More information regarding these Actions can be found in Section 2.4.

3.6 Golspie (Potentially Vulnerable Area 01/06)

This Potentially Vulnerable Area is approximately 38km^2. It includes Golspie and the mainly rural area to the south and west including the settlements of Littleferry, Kirkton, and Culmaily (shown below).

The A9 road passes through the area.



The main river within the PVA is the Culmaily Burn (to the southwest of Golspie). Rhives Burn and Golspie Burn pass through the village. Loch Lunndaidh is also located in the area.

There are approximately 60 residential and 10 non-residential properties at risk of flooding.

The Annual Average Damages from flooding are approximately £190,000 with the majority caused by coastal flooding.

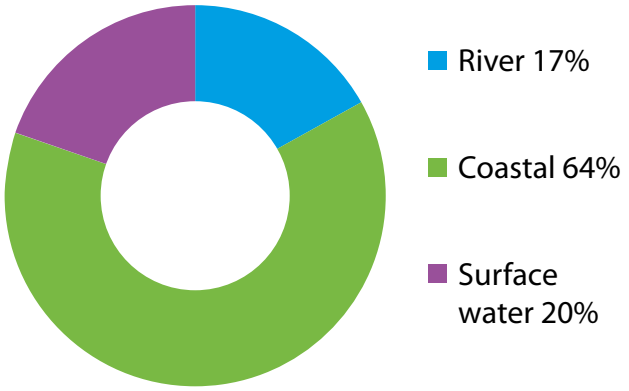


Figure 11
Annual Average Damages by flood source

Objective(s)	ID	Indicator
Avoid an overall increase in flood risk	100001	• 60 residential properties • £190,000 Annual Average Damages
Reduce overall flood risk	100002	• 60 residential properties • £190,000 Annual Average Damages
Reduce the risk in Golspie from coastal flooding	100601	• 40 people • £68,000 Annual Average Damages from residential properties • £29,000 Annual Average Damages from non-residential properties
Reduce the physical or disruption risk related to the transport network for roads	1300	• 3 locations on the A9 with a total length of 150m

Actions to be carried out within this PVA					
Flood Protection Scheme/Works	Natural Flood Management Works	New Flood Warning	Community Flood Action Groups	Property Level Protection	Site Protection Plans
Flood Protection Study	Natural Flood Management Study	Maintain Flood Warning	Awareness Raising	Surface Water Plan/Study	Emergency Plans/Response
Maintain Flood Protection Scheme	Strategic Mapping and Modelling	Flood Forecasting	Self Help	Maintenance	Planning Policies

Action ID	Flood Protection Study (1006010005)		
Object ID	**Reduce risk in Golspie from coastal flooding (100601)**		
Delivery Lead	The Highland Council	**Indicative Delivery**	2016-2019
Description	In order to fully understand the risk of coastal flooding affecting Golspie, further hydraulic modelling will be carried out to assess coastal processes and the effect of wind and wave action on the existing defences. Once the flood risk and potential damages are understood, a Flood Protection Study will assess the potential benefits of providing improved defences (flood walls) along the town's frontage. The Study will also include an assessment of the potential benefits of using Natural Flood Management techniques, with a focus on the coastal management (revetments) and beach recharge. Other Actions (including the application of property level protection) will also be considered in order to develop the most sustainable range of options. The Study will confirm the extent and size of defences required and the business case for a Flood Protection Scheme (or Works). This Flood Protection Study will not have an adverse effect on the Moray Firth SAC, Dornoch Firth or Loch Fleet SPA.		
Funding	The Highland Council's Capital Programme includes funding to develop the Study within the cycle (approved June 2015).		
Co-ordination	The Highland Council will coordinate the development of the Study, in particular any Natural Flood Management aspects that include the alteration (including enhancement) or restoration of natural features and characteristics with any actions of other responsible authorities and local community groups. The Highland Council will work with the 'Golspie Flood Prevention Group' to agree a solution that meets the aspirations of the community. The Highland Council will also work closely with SEPA to improve the flood risk maps for Golspie once more detailed modelling of the coast has been carried out This Study will be progressed along with a Study for Thurso.		

Action ID	Community Flood Action Groups (1000020012)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Community	Indicative Delivery	Ongoing
Description	The 'Golspie Flood Prevention Group' was formed to represent the community and express their concerns about flooding and flood risk management in Golspie. The group aims to provide input into any decisions made concerning flood management in Golspie.		
Funding	The group's membership is voluntary. The group is actively seeking external funding to help develop flood risk management solutions in Golspie.		
Co-ordination	The group aims to work with The Highland Council and other responsible authorities to develop sustainable solutions to flooding in Golspie.		

Action ID	Strategic Mapping and Modelling (1000020016)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	2018
Description	SEPA will be seeking to incorporate additional surface water hazard mapping information into the flood maps to improve understanding of flood risk. Approximately 2,100km^2 of improved data is currently available within this Local Plan District.		
Funding	SEPA's strategic mapping and modelling activities are funded by Scottish Government through SEPA's grant in aid settlement.		
Co-ordination	SEPA's strategic mapping activities will be co-ordinated with the activities of other responsible authorities as required.		

Action ID	Strategic Mapping and Modelling (1000020019)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Scottish Water	Indicative Delivery	2016 - 2020
Description	Scottish Water will undertake further investigation and modelling in the Golspie sewer catchment to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.		
Funding	Scottish Water funding is committed in its capital programme through Q&S 4a (2015-2021) which is approved by its regulators and customers.		
Co-ordination	Scottish Water will work with responsible authorities to incorporate relevant information into these studies and by regularly keeping the responsible authorities informed of their progress. Scottish Water will provide responsible authorities with the outputs of the Section 16 assessment which, where relevant, may be used to inform surface water management plans and SEPA flood hazard and risk maps.		

Action ID	Flood Protection Scheme/Works (1300021)		
Object ID	**Reduce the physical risk related to the transport network for roads (1300)**		
Delivery Lead	Transport Scotland	Indicative Delivery	2022-2027 (Cycle 2)
Description	Transport Scotland will carry out civil engineering work which will reduce flood risk to identified sections of the A9.		
Funding	Grant in aid allocation from Scottish Government.		
Co-ordination	Transport Scotland will consult with appropriate authorities through its statutory processes.		

Action ID	Maintain Flood Warning (1000020030)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing
Description	Continue to maintain the 'Helmsdale to Embo' flood warning area which is part of the Moray Firth coastal flood warning scheme. When flood events occur in an area with an existing flood warning service, SEPA will seek to verify the flood forecasts and warnings. SEPA will use feedback and post-event data to ensure that our flood warning service is timely and accurate.		
Funding	The maintenance of SEPA's flood warning service is funded by Scottish Government through SEPA's grant in aid settlement.		
Co-ordination	A Flood Protection Study is proposed for Golspie coast. SEPA will work with the local authority to ensure that any new information about flood risk resulting from the proposed Flood Protection Study is considered in the existing flood warning system.		

Action ID	Flood Forecasting (1000020009)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing

Action ID	Self Help (1000020011)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	General Public	Indicative Delivery	Ongoing

Action ID	Awareness Raising (1000020013)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Maintenance (1000020007)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Emergency Plan/ Response (1000020014)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

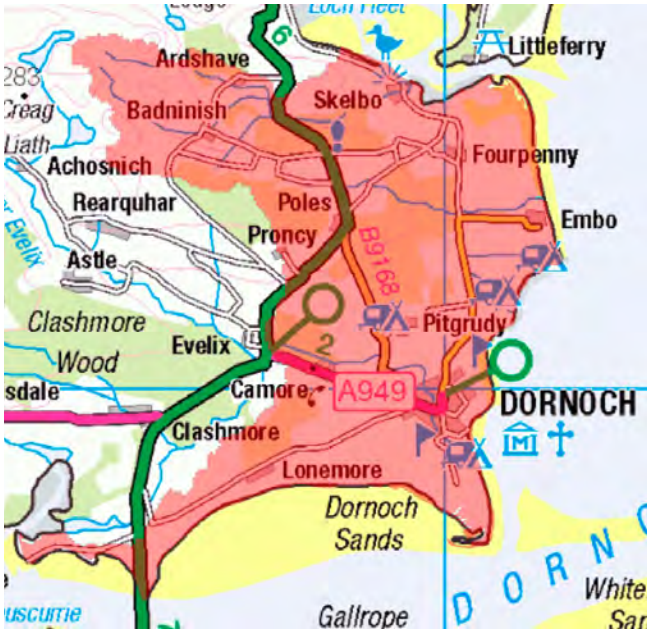
Action ID	Planning Policies (1000010001)*		
Object ID	**Reduce overall flood risk (100002)** **Avoid an overall increase in flood risk (100001)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

* These Actions apply to all PVA's and across the whole of the LPD area. More information regarding these Actions can be found in Section 2.4.

3.7 Dornoch (Potentially Vulnerable Area 01/07)

This Potentially Vulnerable Area is approximately 60km^2. It includes Dornoch and the surrounding mainly rural areas including the settlements of Embo, Skelbo and Hilton (shown below).

The A9 and A949 pass through the area.



The main rivers in the area are the River Evelix and the Skelbo Burn.

There are fewer than 10 residential properties and approximately 20 non-residential properties at risk of flooding.

The Annual Average Damages are approximately £64,000 with the majority caused by river and surface water flooding.

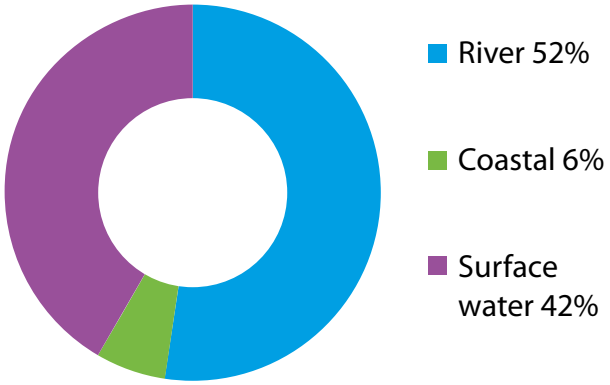


Figure 12
Annual Average Damages by flood source

Objective(s)	ID	Indicator
Avoid an overall increase in flood risk	100001	• <10 residential properties • £64,000 Annual Average Damages
Reduce overall flood risk	100002	• <10 residential properties • £64,000 Annual Average Damages
Reduce flood risk in Dornoch from the Dornoch Burn	100701	• £7,700 Annual Average Damages from residential properties • £12,000 Annual Average Damages from non-residential properties
Reduce the physical or disruption risk related to the transport network for roads	1301	• 5 locations on the A9 with a total length of 130m

Actions to be carried out within this PVA					
Flood Protection Scheme/Works	Natural Flood Management Works	New Flood Warning	Community Flood Action Groups	Property Level Protection	Site Protection Plans
Flood Protection Study	Natural Flood Management Study	Maintain Flood Warning	Awareness Raising	Surface Water Plan/Study	Emergency Plans/Response
Maintain Flood Protection Scheme	Strategic Mapping and Modelling	Flood Forecasting	Self Help	Maintenance	Planning Policies

Action ID	Flood Protection Study (1007010005)		
Object ID	**Reduce flood risk in Dornoch from the Dornoch Burn (100701)**		
Delivery Lead	The Highland Council	Indicative Delivery	2022-2027 (Cycle 2)
Description	A Flood Protection Study is required for Dornoch to investigate the impact of structures crossing the burn (and potential blockage scenarios) on flood risk. The Study will focus on the potential to improve conveyance though the village by removing or replacing existing structures/ services. Other Actions will also be considered including the installation/ modification of trash screens, construction of direct defences (flood walls) and consideration of property level protection for any residual risk. The Study will confirm the business case for a Flood Protection Scheme (or Works).		
Funding	Funding to develop this Study will be secured from The Highland Council's Capital Programme in 2022.		
Co-ordination	The Highland Council will coordinate the development of the Study with actions of other responsible authorities and engage local community groups.		

Action ID	Maintain Flood Warning (1000020030)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing
Description	Continue to maintain the 'Helmsdale to Embo' flood warning area which is part of the Moray Firth coastal flood warning scheme. When flood events occur in an area with an existing flood warning service, SEPA will seek to verify the flood forecasts and warnings. SEPA will use feedback and post-event data to ensure that our flood warning service is timely and accurate.		
Funding	The maintenance of SEPA's flood warning service is funded by Scottish Government through SEPA's grant in aid settlement		
Co-ordination	SEPA will work with the local authority to ensure that any new information is considered in the existing flood warning system.		

Action ID	Flood Protection Scheme/Works (1301021)		
Object ID	**Reduce the physical risk related to the transport network for roads (1301)**		
Delivery Lead	Transport Scotland	Indicative Delivery	2022-2027 (Cycle 2)
Description	Transport Scotland will carry out civil engineering work which will reduce flood risk to identified sections of the A9.		
Funding	Grant in aid settlement from Scottish Government.		
Co-ordination	Transport Scotland will consult with appropriate authorities through its statutory processes.		

Action ID	Flood Forecasting (1000020009)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing

Action ID	Self Help (1000020011)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	General Public	Indicative Delivery	Ongoing

Action ID	Awareness Raising (1000020013)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Maintenance (1000020007)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Emergency Plan/ Response (1000020014)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Planning Policies (1000010001)*		
Object ID	**Reduce overall flood risk (100002)** **Avoid an overall increase in flood risk (100001)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

* These Actions apply to all PVA's and across the whole of the LPD area. More information regarding these Actions can be found in Section 2.4.

Photo by Joe Foster

3.8 Tarbat Ness (Potentially Vulnerable Area 01/08)

This Potentially Vulnerable Area is approximately 78km^2.

It is situated north of the Moray Firth between the Dornoch Firth and the Cromarty Firth (shown below).

The area is mainly rural but includes the villages of Portmahomack, Inver, Skinnerton, Rockfield Balintore and Nigg.

There are approximately 40 residential and 10 non-residential properties at risk of flooding.

The Annual Average Damages are approximately £130,000 with the majority caused by coastal flooding.

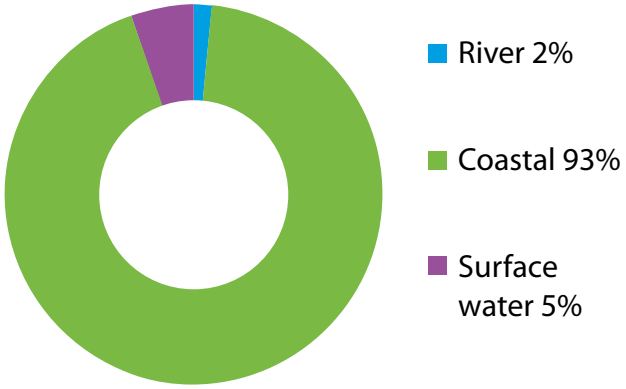


Figure 13
Annual Average Damages by flood source

Objective(s)	ID	Indicator
Avoid an overall increase in flood risk	100001	• 40 residential properties • £130,000 Annual Average Damages
Reduce overall flood risk	100002	• 40 residential properties • £130,000 Annual Average Damages
Reduce risk in Portmahomack from coastal flooding	100803	• 140 people • £29,000 Annual Average Damages from residential properties
Reduce risk in Balintore from coastal flooding	100802	• 410 people • £86,000 Annual Average Damages from residential properties
Reduce risk in Rockfield from coastal flooding	100804	• 40 people • £8,400 Annual Average Damages from residential properties
Reduce risk in Inver and Skinnerton from coastal flooding	100801	• £85,000 Annual Average Damages from residential properties

Actions to be carried out within this PVA					
Flood Protection Scheme/Works	Natural Flood Management Works	New Flood Warning	Community Flood Action Groups	Property Level Protection	Site Protection Plans
Flood Protection Study	Natural Flood Management Study	Maintain Flood Warning	Awareness Raising	Surface Water Plan/Study	Emergency Plans/Response
Maintain Flood Protection Scheme	Strategic Mapping and Modelling	Flood Forecasting	Self Help	Maintenance	Planning Policies

Action ID	Flood Protection Study (1008010005)		
Object ID	**Reduce risk in Rockfield from coastal flooding (100804)** **Reduce risk in Portmahomack from coastal flooding (100803)** **Reduce risk in Balintore from coastal flooding (100802)** **Reduce risk in Inver and Skinnerton from coastal flooding (100801)**		
Delivery Lead	The Highland Council	Indicative Delivery	2018-2021
Description	A Flood Protection Study is required to further investigate the feasibility of developing a Flood Protection Scheme (or Works) for Tarbat Ness, focusing on the villages of Inver, Skinnerton, Balintore, Portmahomack and Rockfield. Further hydraulic modelling will be required to fully understand the potential damages from coastal flooding (including wind and wave action). The Study will focus on the potential benefits of providing revetments, direct defences or offshore breakwaters. Other Actions including relocation and property level protection will also be considered in order to develop the most sustainable range of options. This Flood Protection Study will not have an adverse effect on the Moray Firth SAC, Dornoch Firth and Morrich More SAC, and Dornoch Firth and Loch Fleet SPA.		
Funding	The Highland Council's Capital Programme includes funding to develop the Study within the cycle (approved June 2015).		
Co-ordination	The Highland Council will coordinate the development of the Study with actions of other responsible authorities and engage local community groups. The Highland Council will also work closely with SEPA to improve the flood risk maps for Tarbat Ness once more detailed modelling of the coast has been carried out.		

Action ID	Strategic Mapping and Modelling (1000020019)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Scottish Water	Indicative Delivery	2016 – 2017
Description	Scottish Water will undertake further investigation and modelling in the Balintore sewer catchment to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.		
Funding	Scottish Water funding is committed in its capital programme through Q&S 4a (2015-2021) which is approved by its regulators and customers.		
Co-ordination	Scottish Water will work with responsible authorities to incorporate relevant information into these studies and by regularly keeping the responsible authorities informed of their progress. Scottish Water will provide responsible authorities with the outputs of the Section 16 assessment which, where relevant, may be used to inform surface water management plans and SEPA flood hazard and risk maps.		

Action ID	Maintain Flood Warning (1000020030)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing
Description	Continue to maintain the 'Cromarty Firth', 'Portmahomack to Inver' and 'Rockfield to Balintore' flood warning areas which are part of the Moray Firth coastal flood warning scheme.		
Funding	The maintenance of SEPA's flood warning service is funded by Scottish Government through SEPA's grant in aid settlement.		
Co-ordination	A Flood Protection Study is proposed for Rockfield, Portmahomack, Balintore, Inver and Skinnerton. SEPA will work with the local authority to ensure that any new information about flood risk resulting from the proposed Flood Protection Study is considered in the existing flood warning system.		

Action ID	Flood Forecasting (1000020009)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing

Action ID	Self Help (1000020011)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	General Public	Indicative Delivery	Ongoing

Action ID	Awareness Raising (1000020013)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Maintenance (1000020007)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

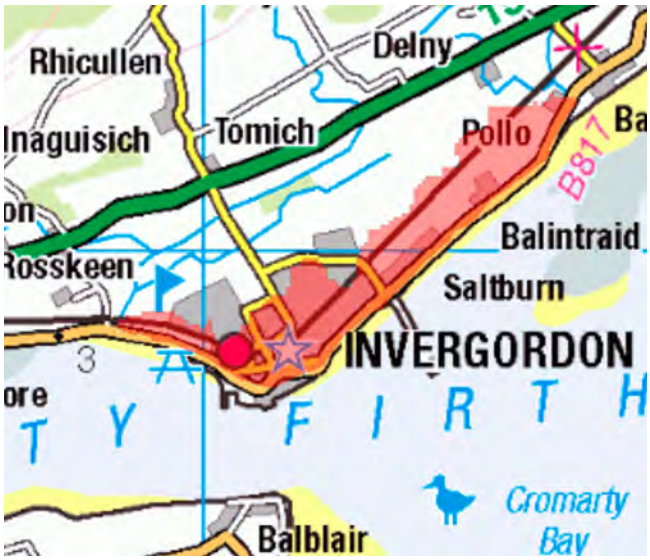
Action ID	Emergency Plan/ Response (1000020014)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Planning Policies (1000010001)*		
Object ID	**Reduce overall flood risk (100002)** **Avoid an overall increase in flood risk (100001)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

* These Actions apply to all PVA's and across the whole of the LPD area. More information regarding these Actions can be found in Section 2.4.

3.9 Invergordon (Potentially Vulnerable Area 01/09)

This Potentially Vulnerable Area is approximately 4km^2. It is located on the northern shore of the Cromarty Firth and includes Invergordon and its oil rig repair facility (shown below). The B817 road runs through the area.



There are fewer than 10 residential properties and approximately 20 non-residential properties at risk of flooding.

The Annual Average Damages are approximately £6,000 with the majority of these caused by surface water flooding.

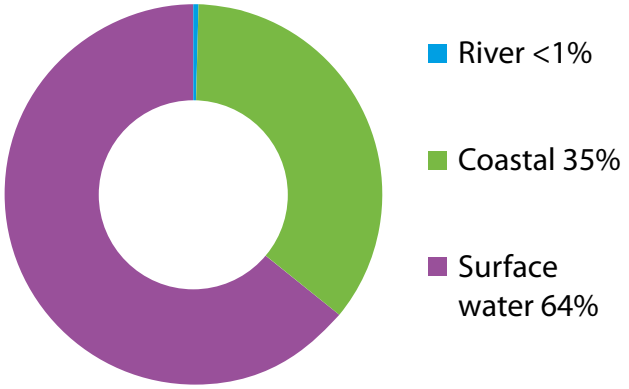


Figure 14
Annual Average Damages by flood source

Objective(s)	ID	Indicator
Avoid an overall increase in flood risk	100001	• <10 residential properties • £6,000 Annual Average Damages
Reduce overall flood risk	100002	• <10 residential properties • £6,000 Annual Average Damages

Actions to be carried out within this PVA					
Flood Protection Scheme/Works	Natural Flood Management Works	New Flood Warning	Community Flood Action Groups	Property Level Protection	Site Protection Plans
Flood Protection Study	Natural Flood Management Study	Maintain Flood Warning	Awareness Raising	Surface Water Plan/Study	Emergency Plans/Response
Maintain Flood Protection Scheme	Strategic Mapping and Modelling	Flood Forecasting	Self Help	Maintenance	Planning Policies

Action ID	Strategic Mapping and Modelling (1000020019)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Scottish Water	Indicative Delivery	2016 - 2018
Description	Scottish Water will undertake further investigation and modelling in the Invergordon sewer catchment to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.		
Funding	Scottish Water funding is committed in its capital programme through Q&S 4a (2015-2021) which is approved by its regulators and customers.		
Co-ordination	Scottish Water will work with responsible authorities to incorporate relevant information into these studies and by regularly keeping the responsible authorities informed of their progress. Scottish Water will provide responsible authorities with the outputs of the Section 16 assessment which, where relevant, may be used to inform surface water management plans and SEPA flood hazard and risk maps.		

Action ID	Maintain Flood Warning (1000020030)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing
Description	Continue to maintain the 'Cromarty Firth' flood warning area which is part of the Moray Firth coastal flood warning scheme. When flood events occur in an area with an existing flood warning service, SEPA will seek to verify the flood forecasts and warnings. SEPA will use feedback and post-event data to ensure that our flood warning service is timely and accurate.		
Funding	The maintenance of SEPA's flood warning service is funded by Scottish Government through SEPA's grant in aid settlement		
Co-ordination	SEPA will work with the local authority to ensure that any new information is considered in the existing flood warning system.		

Action ID	Flood Forecasting (1000020009)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing

Action ID	Self Help (1000020011)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	General Public	Indicative Delivery	Ongoing

Action ID	Awareness Raising (1000020013)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Maintenance (1000020007)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

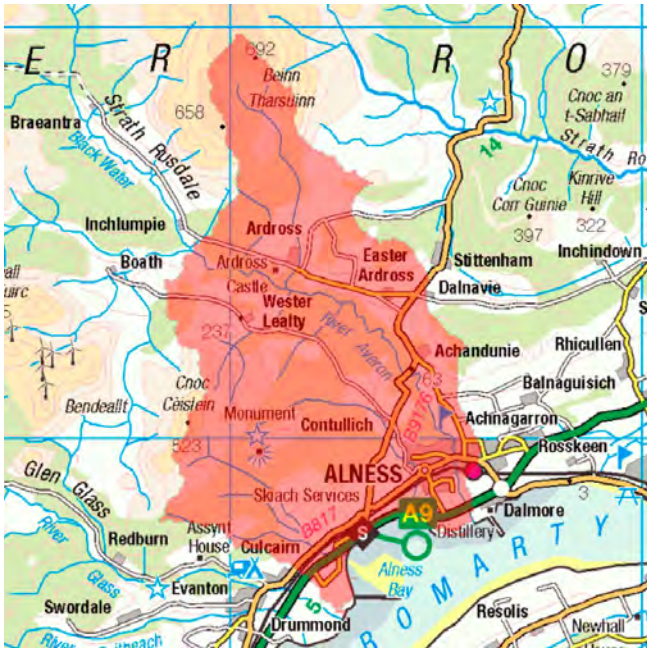
Action ID	Emergency Plan/ Response (1000020014)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Planning Policies (1000010001)*		
Object ID	**Reduce overall flood risk (100002)** **Avoid an overall increase in flood risk (100001)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

* These Actions apply to all PVA's and across the whole of the LPD area. More information regarding these Actions can be found in Section 2.4.

3.10 Alness (Potentially Vulnerable Area 01/10)

This Potentially Vulnerable Area is 60km^2. It is located on the north of the Cromarty Firth and includes Alness and the mainly rural areas to the north (shown below). The A9 and B9176 and B817 all pass through the area.



The main rivers are the River Alness and River Averon.

There are approximately 50 residential properties and 60 non-residential properties at risk of flooding.

The Annual Average Damages are approximately £180,000 with the majority caused by river flooding.

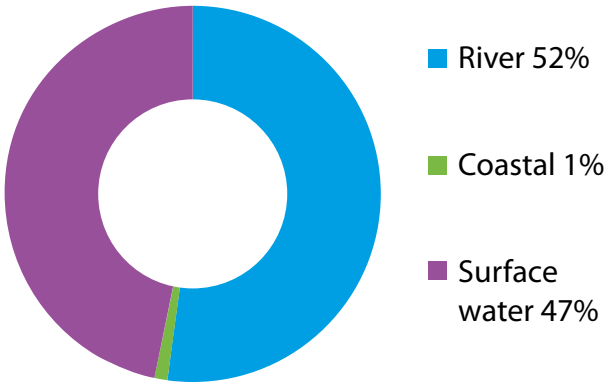


Figure 15
Annual Average Damages by flood source

Objective(s)	ID	Indicator
Avoid an overall increase in flood risk	100001	• 50 residential properties • £180,000 Annual Average Damages
Reduce overall flood risk	100002	• 50 residential properties • £180,000 Annual Average Damages
Reduce the flood risk in Alness from the Contullich Burn	101002	• 20 people • £18,000 Annual Average Damages from residential properties • £1,700 Annual Average Damages from non-residential properties
Reduce flood risk in Alness from the River Alness / Averon	101001	• 60 people • £9,300 Annual Average Damages from residential properties • £30,000 Annual Average Damages from non-residential properties • 1 nursing home • 1 educational building

Actions to be carried out within this PVA					
Flood Protection Scheme/Works	Natural Flood Management Works	New Flood Warning	Community Flood Action Groups	Property Level Protection	Site Protection Plans
Flood Protection Study	Natural Flood Management Study	Maintain Flood Warning	Awareness Raising	Surface Water Plan/Study	Emergency Plans/Response
Maintain Flood Protection Scheme	Strategic Mapping and Modelling	Flood Forecasting	Self Help	Maintenance	Planning Policies

Action ID	Flood Protection Study (1010020005)		
Object ID	**Reduce flood risk in Alness from the Contullich Burn (101002)**		
Delivery Lead	The Highland Council	Indicative Delivery	2022-2027 (Cycle 2)
Description	A Flood Protection Study is required to investigate the feasibility of developing a Flood Protection Scheme to alleviate flood risk from the Contullich Burn. The Study will focus on the potential benefits of providing trash screens to capture trees and other large debris, sediment management (using structural or Natural Flood Management techniques) and consideration of property level protection. Other Actions may also be considered to develop the most sustainable range of options. The Study will confirm the business case for a Flood Protection Scheme (or Works). This Flood Protection Study will not have an adverse effect on the Cromarty Firth SPA.		
Funding	Funding to develop this Study will be secured from The Highland Council's Capital Programme in 2022.		
Co-ordination	The Highland Council will coordinate the development of the Study, in particular any Natural Flood Management aspects that include the alteration (including enhancement) or restoration of natural features and characteristics with any actions of other responsible authorities and local community groups.		

Action ID	Strategic Mapping and Modelling (1010020016)		
Object ID	**Reduce flood risk in Alness from the River Alness/Averon (101001)**		
Delivery Lead	SEPA	Indicative Delivery	2015 - 2016
Description	SEPA will review existing modelling and data for this area, to determine if any improvements can be made to the flood maps. SEPA will support the local authority if further work beyond a strategic scale is required.		
Funding	SEPA's strategic mapping and modelling activities are funded by Scottish Government through SEPA's grant in aid settlement.		
Co-ordination	SEPA's strategic mapping activities will be co-ordinated with the activities of other responsible authorities as required.		

Action ID	Strategic Mapping and Modelling (1000020019)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Scottish Water	Indicative Delivery	2016 - 2018
Description	Scottish Water will undertake further investigation and modelling in the Alness sewer catchment to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.		
Funding	Scottish Water funding is committed in its capital programme through Q&S 4a (2015-2021) which is approved by its regulators and customers.		
Co-ordination	Scottish Water will work with responsible authorities to incorporate relevant information into these studies and by regularly keeping the responsible authorities informed of their progress. Scottish Water will provide responsible authorities with the outputs of the Section 16 assessment which, where relevant, may be used to inform surface water management plans and SEPA flood hazard and risk maps.		

Action ID	Maintain Flood Warning (1000020030)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing
Description	Continue to maintain the 'Cromarty Firth' flood warning area which is part of the Moray Firth coastal flood warning scheme. When flood events occur in an area with an existing flood warning service, SEPA will seek to verify the flood forecasts and warnings. SEPA will use feedback and post-event data to ensure that our flood warning service is timely and accurate.		
Funding	The maintenance of SEPA's flood warning service is funded by Scottish Government through SEPA's grant in aid settlement.		
Co-ordination	SEPA will work with the local authority to ensure that any new information is considered in the existing flood warning system.		

Action ID	Site Protection Plan (1010010015)		
Object ID	**Reduce flood risk in Alness from the River Alness/Averon (101001)**		
Delivery Lead	The Highland Council	Indicative Delivery	2016-2019
Description	The Highland Council will work with the management of a school and care home, and provide advice in the development of a site protection plan, to build resilience in the event of a flood.		
Funding	This work is revenue funded.		
Co-ordination	The Highland Council will coordinate the development of the plan with other responsible authorities.		

Action ID	Flood Forecasting (1000020009)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing

Action ID	Self Help (1000020011)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	General Public	Indicative Delivery	Ongoing

Action ID	Awareness Raising (1000020013)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Maintenance (1000020007)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Emergency Plan/ Response (1000020014)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Planning Policies (1000010001)*		
Object ID	**Reduce overall flood risk (100002)** **Avoid an overall increase in flood risk (100001)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

* These Actions apply to all PVA's and across the whole of the LPD area. More information regarding these Actions can be found in Section 2.4.

3.11 Uig, Isle of Skye (Potentially Vulnerable Area 01/11)

This Potentially Vulnerable Area is approximately 31km^2. It is located to the north of Uig on the Isle of Skye (shown below). It is a mainly rural area with scattered properties along the A855 road and small settlements at Kilmuir, Duntulm and Monkstadt.

There are no major rivers in this area however there are numerous small watercourses and drains including Draine Mhor.

There are fewer than 10 residential and non-residential properties at risk of flooding.

The Annual Average Damages are approximately £38,000 with the majority caused by coastal flooding.

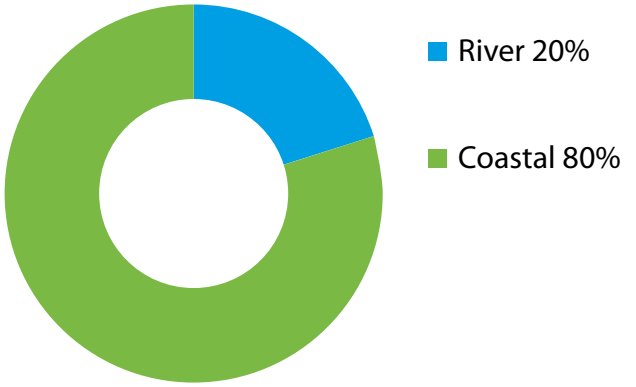


Figure 16
Annual Average Damages by flood source

Objective(s)	ID	Indicator
Avoid an overall increase in flood risk	100001	• <10 residential properties • £38,000 Annual Average Damages
Reduce overall flood risk	100002	• <10 residential properties • £38,000 Annual Average Damages

Actions to be carried out within this PVA					
Flood Protection Scheme/Works	Natural Flood Management Works	New Flood Warning	Community Flood Action Groups	Property Level Protection	Site Protection Plans
Flood Protection Study	Natural Flood Management Study	Maintain Flood Warning	Awareness Raising	Surface Water Plan/Study	Emergency Plans/Response
Maintain Flood Protection Scheme	Strategic Mapping and Modelling	Flood Forecasting	Self Help	Maintenance	Planning Policies

Action ID	Flood Forecasting (1000020009)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing

Action ID	Self Help (1000020011)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	General Public	Indicative Delivery	Ongoing

Action ID	Awareness Raising (1000020013)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Maintenance (1000020007)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Emergency Plan/ Response (1000020014)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

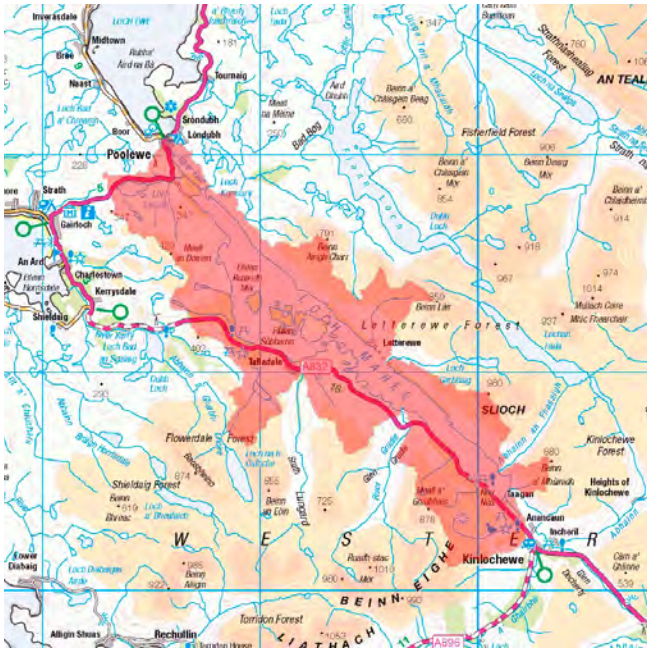
Action ID	Planning Policies (1000010001)*		
Object ID	**Reduce overall flood risk (100002)** **Avoid an overall increase in flood risk (100001)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

* These Actions apply to all PVA's and across the whole of the LPD area. More information regarding these Actions can be found in Section 2.4.

3.12 Poolewe (Potentially Vulnerable Area 01/12)

This Potentially Vulnerable Area is approximately 125km^2. It is located around Loch Maree (shown below). It is a mainly rural area but includes the communities of Poolewe and Talladale.

The A832 passes through the area.



Loch Maree is the main water body in the Potentially Vulnerable Area. There are several small rivers draining into the loch and the River Ewe which connects Loch Maree to the coast at Loch Ewe.

There are fewer than 10 residential and non-residential properties at risk of flooding.

The Annual Average Damages are approximately £28,000 with the majority caused by river flooding.

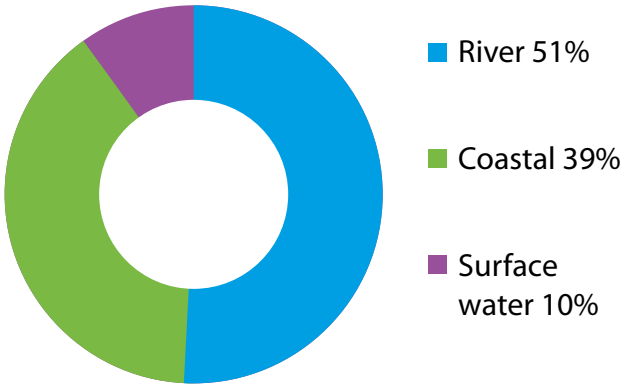


Figure 17
Annual Average Damages by flood source

Objective(s)	ID	Indicator
Avoid an overall increase in flood risk	100001	• <10 residential properties • £28,000 Annual Average Damages
Reduce overall flood risk	100002	• <10 residential properties • £28,000 Annual Average Damages

Actions to be carried out within this PVA					
Flood Protection Scheme/Works	Natural Flood Management Works	New Flood Warning	Community Flood Action Groups	Property Level Protection	Site Protection Plans
Flood Protection Study	Natural Flood Management Study	Maintain Flood Warning	Awareness Raising	Surface Water Plan/Study	Emergency Plans/Response
Maintain Flood Protection Scheme	Strategic Mapping and Modelling	Flood Forecasting	Self Help	Maintenance	Planning Policies

Action ID	Flood Forecasting (1000020009)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing

Action ID	Self Help (1000020011)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	General Public	Indicative Delivery	Ongoing

Action ID	Awareness Raising (1000020013)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Maintenance (1000020007)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Emergency Plan/ Response (1000020014)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

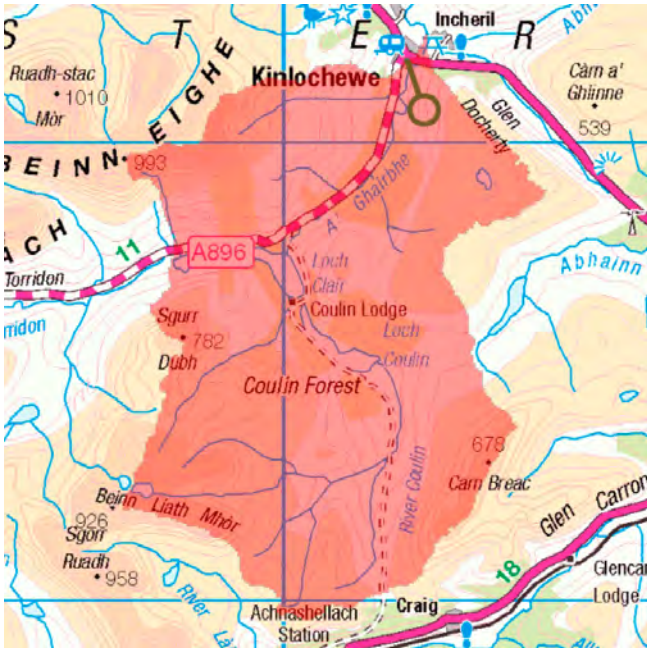
Action ID	Planning Policies (1000010001)*		
Object ID	**Reduce overall flood risk (100002)** **Avoid an overall increase in flood risk (100001)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

* These Actions apply to all PVA's and across the whole of the LPD area. More information regarding these Actions can be found in Section 2.4.

3.13 Kinlochewe (Potentially Vulnerable Area 01/13)

This Potentially Vulnerable Area is approximately 76km^2. It is located to the south east of Loch Maree (shown below). It covers part of Kinlochewe and the mainly rural area to the south.

The A896 road runs through the area.



The main river in the area is the River Coulin. There are also several smaller watercourses and lochs in the area, including Loch Clair and Loch Coulin.

There are approximately 10 residential and 10 non-residential properties at risk of flooding.

The Annual Average Damages are approximately £61,000 with the majority caused by river flooding.

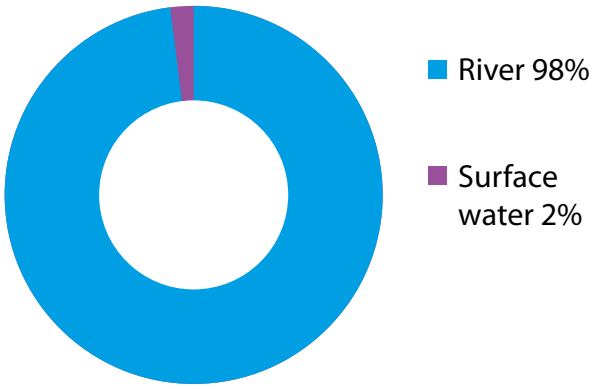


Figure 18
Annual Average Damages by flood source

Objective(s)	ID	Indicator
Avoid an overall increase in flood risk	100001	• 10 residential properties • £61,000 Annual Average Damages
Reduce overall flood risk	100002	• 10 residential properties • £61,000 Annual Average Damages
Reduce flood risk in Kinlochewe rom the A'Ghairbhe	101301	• £42,000 Annual Average Damages from residential properties

Actions to be carried out within this PVA					
Flood Protection Scheme/Works	Natural Flood Management Works	New Flood Warning	Community Flood Action Groups	Property Level Protection	Site Protection Plans
Flood Protection Study	Natural Flood Management Study	Maintain Flood Warning	Awareness Raising	Surface Water Plan/Study	Emergency Plans/Response
Maintain Flood Protection Scheme	Strategic Mapping and Modelling	Flood Forecasting	Self Help	Maintenance	Planning Policies

Action ID	Flood Protection Study (1013010005)		
Object ID	**Reduce flood risk in Kinlochewe from the A'Ghairbhe river (101301)**		
Delivery Lead	The Highland Council	Indicative Delivery	2022-2027 (Cycle 2)
Description	A Flood Protection Study is required to further investigate the feasibility of a developing a Flood Protection Scheme (or Works) to alleviate flood risk in Kinlochewe. The Study will focus on the potential benefits of providing direct defences (flood walls); the use of a control structure at Loch Clair to increase storage upstream; Natural Flood Management techniques (including runoff control, river/ floodplain restoration and sediment management). Other Actions, including property level protection may also be considered to develop the most sustainable range of options. The Study will confirm the business case for a Flood Protection Scheme (or Works). This Flood Protection Study will not have an adverse effect on the Loch Maree SAC.		
Funding	Funding to develop this Study will be secured from The Highland Council's Capital Programme in 2022.		
Co-ordination	The Highland Council will coordinate the development of the Study, in particular any Natural Flood Management aspects that include the alteration (including enhancement) or restoration of natural features and characteristics with any actions of other responsible authorities and local community groups.		

Action ID	Flood Forecasting (1000020009)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing

Action ID	Self Help (1000020011)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	General Public	Indicative Delivery	Ongoing

Action ID	Awareness Raising (1000020013)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Maintenance (1000020007)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

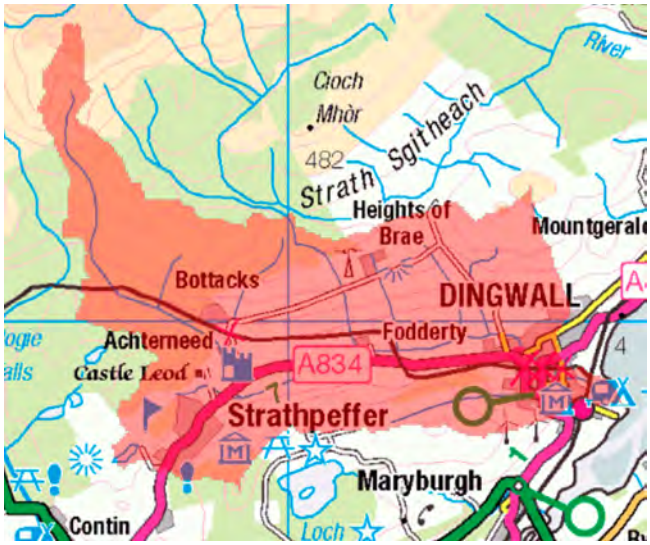
Action ID	Emergency Plan/ Response (1000020014)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Planning Policies (1000010001)*		
Object ID	**Reduce overall flood risk (100002)** **Avoid an overall increase in flood risk (100001)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

* These Actions apply to all PVA's and across the whole of the LPD area. More information regarding these Actions can be found in Section 2.4.

3.14 Dingwall and Strathpeffer (Potentially Vulnerable Area 01/14)

This Potentially Vulnerable Area is approximately 38km^2. It includes the towns of Dingwall and Strathpeffer as well as the surrounding rural area (shown below). The A834 and A862 pass through.



The main river is the River Peffery.

There are approximately 90 residential and 90 non-residential properties at risk of flooding.

The Annual Average Damages are approximately £310,000 with the majority caused by surface water flooding.

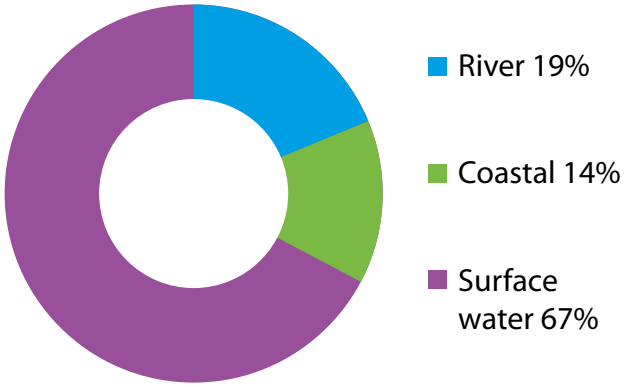


Figure 19
Annual Average Damages by flood source

Objective(s)	ID	Indicator
Avoid an overall increase in flood risk	100001	• 90 residential properties • £310,000 Annual Average Damages
Reduce overall flood risk	100002	• 90 residential properties • £310,000 Annual Average Damages
Reduce flood risk in Dingwall from the River Peffery	101401	• 170 people • £54,000 Annual Average Damages from residential properties • £48,000 Annual Average Damages from non-residential properties • 2 educational buildings
Reduce flood risk in Blairninich from the River Peffery.	101402	• 20 people • £30,000 Annual Average Damages from residential properties
Reduce risk in Dingwall from coastal flooding.	101403	• £2,700 Annual Average Damages from residential properties • £36,000 Annual Average Damages from non-residential properties • 1 educational building
Reduce risk from surface water flooding in Dingwall and Strathpeffer	101407	• This Objective will be monitored using surface water flood risk across the Potentially Vulnerable Area. For 01/14 there are 60 residential properties at risk and Annual Average Damages of £210,000.

Actions to be carried out within this PVA					
Flood Protection Scheme/Works	Natural Flood Management Works	New Flood Warning	Community Flood Action Groups	Property Level Protection	Site Protection Plans
Flood Protection Study	Natural Flood Management Study	Maintain Flood Warning	Awareness Raising	Surface Water Plan/Study	Emergency Plans/Response
Maintain Flood Protection Scheme	Strategic Mapping and Modelling	Flood Forecasting	Self Help	Maintenance	Planning Policies

Action ID	Flood Protection Study (1014010005)		
Object ID	**Reduce risk in Dingwall from coastal flooding (101403)** **Reduce flood risk in Blairninich from the River Peffery (101402)** **Reduce flood risk in Dingwall from the River Peffery (101401)**		
Delivery Lead	The Highland Council	Indicative Delivery	2016-2019
Description	A Flood Protection Study is required to further investigate the feasibility of developing a Flood Protection Scheme (or Works) for Dingwall and Blairninich. A hydraulic study will be carried out to further improve the understanding of flood risk in Dingwall taking account of the tidal influence on river flooding. Following the development of this model and an improved understanding of the potential damages from the river and sea, a Flood Protection Study will investigate the potential benefits of providing direct defences, flood storage and property level protection. The Study will also include an investigation into the potential benefits of using Natural Flood Management techniques throughout the catchment to improve the condition of the waterbody, and help reduce flood risk from the River Peffery in high likelihood events. Such techniques may include runoff reduction, river/ floodplain restoration and sediment management but other actions will be considered in order to develop the most sustainable range of options. The Study will confirm the business case for a Flood Protection Scheme (or Works). This Flood Protection Study will not have an adverse effect on the Cromarty Firth SPA.		
Funding	The Highland Council's Capital Programme includes funding to develop the Study within the cycle (approved June 2015). SEPA is providing funding from the Water Environment Fund (WEF) to assess the morphological pressures on the Peffery and investigate options to improve the classification.		
Co-ordination	The Highland Council will coordinate the development of the Study, in particular any Natural Flood Management aspects that include the alteration (including enhancement) or restoration of natural features and characteristics with any actions of other responsible authorities and local community groups. The Highland Council will work with SEPA and relevant landowners to remove morphological pressures on the river and improve its general condition.		

Action ID	New Flood Warning (1000020010)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	2022-2027 (Cycle 2)
Description	The area under consideration includes properties in Dingwall affected by flooding from the River Peffery. Full scoping will be required before a flood warning service can be developed and implemented in this area and to determine appropriate timescales for delivery.		
Funding	The maintenance of SEPA's flood warning service is funded by Scottish Government through SEPA's grant in aid settlement. In addition, Scottish Government provides grant funding to enable SEPA to implement new flood warning schemes.		
Co-ordination	A Flood Protection Study is proposed for Dingwall and Blairninich. SEPA will work with the local authority to ensure that new information about flood risk resulting from the proposed Flood Protection Study is considered in developing the new flood warning system.		

Action ID	Surface Water Management Plan (1014070018)		
Object ID	**Reduce risk from surface water flooding in Dingwall and Strathpeffer (101407)**		
Delivery Lead	The Highland Council	Indicative Delivery	2016-2022
Description	The Highland Council will develop a Highland-wide Surface Water Management Plan (SWMP) that will describe existing and future actions to reduce the flood risk from small watercourses (less than 3km^2) and surface water runoff (e.g. overland flows across roads, fields and other areas). The plan will describe existing activities such as watercourse inspections, assessments and gully maintenance and identify appropriate specific actions to alleviate surface water flooding in Dingwall and Strathpeffer. 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.		
Funding	The Highland Council's Capital Programme includes funding to develop the Study within the cycle (approved June 2015).		
Co-ordination	The Highland Council will lead the development of the Surface Water Management Plan and will work with other responsible authorities and engage local community groups to understand the problems caused by surface water run-off and urban drainage and agree appropriate objectives and actions to alleviate flooding. Scottish Water will work with and support surface water management planning through ensuring that best available knowledge and data is used to input into the surface water management plans.		

Action ID	Strategic Mapping and Modelling (1000020019)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Scottish Water	Indicative Delivery	2016 - 2017
Description	Scottish Water will undertake further investigation and modelling in the Dingwall and Strathpeffer sewer catchments to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009. Any outputs from this modelling work may feed into the proposed surface water management plan for Dingwall and Strathpeffer.		
Funding	Scottish Water funding is committed in its capital programme through Q&S 4a (2015-2021) which is approved by its regulators and customers.		
Co-ordination	Scottish Water will work with responsible authorities to incorporate relevant information into these studies and by regularly keeping the responsible authorities informed of their progress. Scottish Water will provide responsible authorities with the outputs of the Section 16 assessment which, where relevant, may be used to inform surface water management plans and SEPA flood hazard and risk maps.		

Action ID	Maintain Flood Protection Scheme (1014010017)		
Object ID	**Reduce flood risk in Dingwall from the River Peffery (101401)**		
Delivery Lead	The Highland Council	Indicative Delivery	Ongoing
Description	The existing Dingwall Flood Protection Scheme (consisting of flood embankments along parts of the River Peffery in Dingwall) will be maintained to provide continued flood protection from the River Peffery and sea.		
Funding	Funding to maintain all existing Highland Council Flood Protection Schemes is allocated through the Council's annual revenue budget.		
Co-ordination	The Highland Council will coordinate its actions with landowners and SEPA as required.		

Action ID	Maintain Flood Warning (1000020030)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing
Description	Continue to maintain the 'Cromarty Firth' flood warning area which is part of the Moray Firth coastal flood warning scheme. When flood events occur in an area with an existing flood warning service, SEPA will seek to verify the flood forecasts and warnings. SEPA will use feedback and post-event data to ensure that our flood warning service is timely and accurate.		
Funding	The maintenance of SEPA's flood warning service is funded by Scottish Government through SEPA's grant in aid settlement.		
Co-ordination	A Flood Protection Study is proposed for Dingwall and Blairninich. SEPA will work with the local authority to ensure that any new information about flood risk resulting from the proposed Flood Protection Study is considered in the existing flood warning system.		

Action ID	Flood Forecasting (1000020009)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing

Action ID	Self Help (1000020011)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	General Public	Indicative Delivery	Ongoing

Action ID	Awareness Raising (1000020013)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Maintenance (1000020007)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Emergency Plan/ Response (1000020014)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

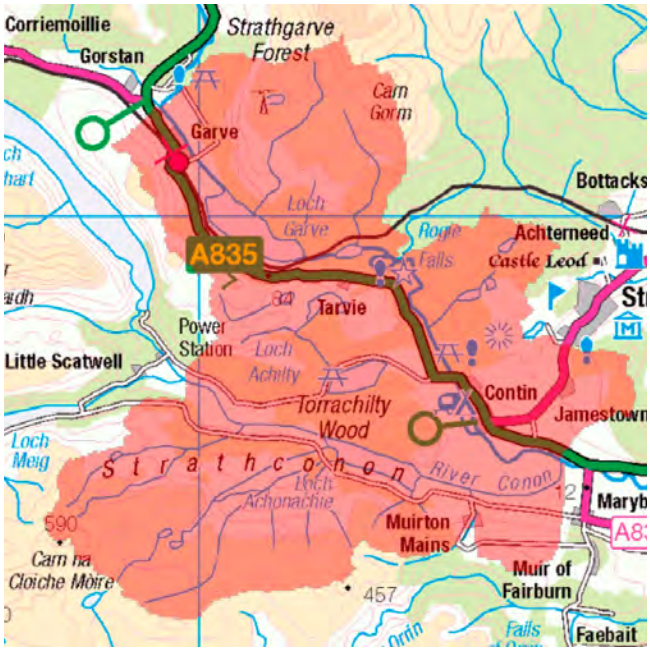
Action ID	Planning Policies (1000010001)*		
Object ID	**Reduce overall flood risk (100002)** **Avoid an overall increase in flood risk (100001)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

* These Actions apply to all PVA's and across the whole of the LPD area. More information regarding these Actions can be found in Section 2.4.

3.15 Contin and Garve (Potentially Vulnerable Area 01/15)

This Potentially Vulnerable Area is approximately 85km^2 and is located to the north west of Dingwall.

It includes Contin, Garve and the surrounding, mainly rural area (shown below).



The A834 and A835 pass through the area.

There are approximately 30 residential properties and fewer than 10 non-residential properties at risk of flooding.

The Annual Average Damages are approximately £59,000 with the majority caused by river flooding.

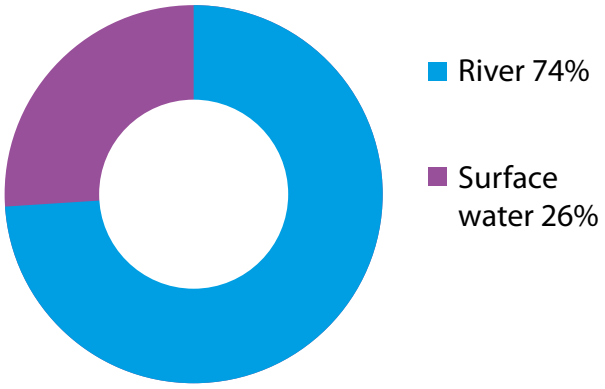


Figure 20
Annual Average Damages by flood source

Objective(s)	ID	Indicator
Avoid an overall increase in flood risk	100001	• 30 residential properties • £59,000 Annual Average Damages
Reduce overall flood risk	100002	• 30 residential properties • £59,000 Annual Average Damages
Reduce the physical or disruption risk related to the transport network for roads	1302	• 7 locations with a total length of 290m
Reduce flood risk in Garve from the Black Water	101501	• 20 people • £24,000 Annual Average Damages from residential properties • 1 educational building

Actions to be carried out within this PVA					
Flood Protection Scheme/Works	Natural Flood Management Works	New Flood Warning	Community Flood Action Groups	Property Level Protection	Site Protection Plans
Flood Protection Study	Natural Flood Management Study	Maintain Flood Warning	Awareness Raising	Surface Water Plan/Study	Emergency Plans/Response
Maintain Flood Protection Scheme	Strategic Mapping and Modelling	Flood Forecasting	Self Help	Maintenance	Planning Policies

Action ID	Flood Protection Study (1015010005)		
Object ID	**Reduce flood risk in Garve from the Black Water (101501)**		
Delivery Lead	The Highland Council	Indicative Delivery	2022-2027 (Cycle 2)
Description	A Flood Protection Study is required to further investigate the feasibility of developing a Flood Protection Scheme (or Works) for Garve. The Study will focus on the potential benefits of providing direct defences, improvements to conveyance and consideration of property level protection for residual risk. Other Actions may also be considered to develop the most sustainable range of options. The Study will confirm the business case for a Flood Protection Scheme (or Works).		
Funding	Funding to develop this Study will be secured from The Highland Council's Capital Programme in 2022.		
Co-ordination	The Highland Council will coordinate the development of the Study with actions of other responsible authorities and engage local community groups.		

Action ID	Strategic Mapping and Modelling (1000020016)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	2018
Description	SEPA will be seeking to incorporate additional surface water hazard mapping information into the flood maps to improve understanding of flood risk. Approximately 2,100km^2 of improved data is currently available within this Local Plan District.		
Funding	SEPA's strategic mapping and modelling activities are funded by Scottish Government through SEPA's grant in aid settlement.		
Co-ordination	SEPA's strategic mapping activities will be co-ordinated with the activities of other responsible authorities as required.		

Action ID	Strategic Mapping and Modelling (1000020019)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Scottish Water	Indicative Delivery	2016 - 2017
Description	Scottish Water will undertake further investigation and modelling in the Strathpeffer sewer catchment, which includes Contin, to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.		
Funding	Scottish Water funding is committed in its capital programme through Q&S 4a (2015-2021) which is approved by its regulators and customers.		
Co-ordination	Scottish Water will work with responsible authorities to incorporate relevant information into these studies and by regularly keeping the responsible authorities informed of their progress. Scottish Water will provide responsible authorities with the outputs of the Section 16 assessment which, where relevant, may be used to inform surface water management plans and SEPA flood hazard and risk maps.		

Action ID	Maintain Flood Warning (1000020030)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing
Description	Continue to maintain: the 'Contin' and 'Garve' flood warning areas, which warn of flooding to properties and roads, the 'Moy Bridge' flood warning area, which warns of potential flooding to the A832; and the 'Scatwell' flood warning area, which warns of flooding to low lying agricultural land. All four are part of the Conon Valley flood warning scheme. When flood events occur in an area with an existing flood warning service, SEPA will seek to verify the flood forecasts and warnings. SEPA will use feedback and post-event data to ensure that our flood warning service is timely and accurate.		
Funding	The maintenance of SEPA's flood warning service is funded by Scottish Government through SEPA's grant in aid settlement.		
Co-ordination	SEPA will work with the local authority to ensure that any new information is considered in the existing flood warning system.		

Action ID	Site Protection Plan (1015010015)		
Object ID	**Reduce flood risk in Garve from the Black Water (101501)**		
Delivery Lead	The Highland Council	Indicative Delivery	2016-2019
Description	The Highland Council will work with the management of a school, and provide advice in the development of a site protection plan, to build resilience in the event of a flood.		
Funding	This work is revenue funded.		
Co-ordination	The Highland Council will coordinate the development of the plan with other responsible authorities.		

Action ID	Flood Protection Scheme/Works (1301021)		
Object ID	**Reduce the physical risk related to the transport network for roads (1302)**		
Delivery Lead	Transport Scotland	Indicative Delivery	2016-2021
Description	Transport Scotland will carry out civil engineering work which will reduce flood risk to identified sections of the A835.		
Funding	Grant in aid allocation from Scottish Government.		
Co-ordination	Transport Scotland will consult with appropriate authorities through its statutory processes.		

Action ID	Flood Forecasting (1000020009)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing

Action ID	Self Help (1000020011)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	General Public	Indicative Delivery	Ongoing

Action ID	Awareness Raising (1000020013)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Maintenance (1000020007)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Emergency Plan/ Response (1000020014)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

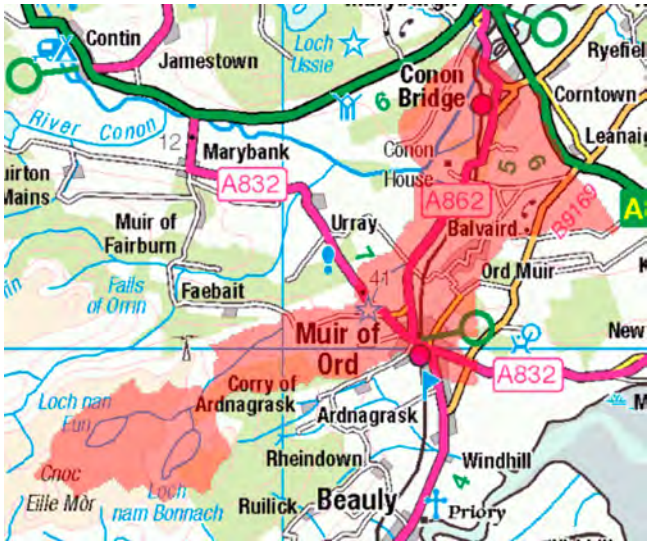
Action ID	Planning Policies (1000010001)*		
Object ID	**Reduce overall flood risk (100002)** **Avoid an overall increase in flood risk (100001)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

* These Actions apply to all PVA's and across the whole of the LPD area. More information regarding these Actions can be found in Section 2.4.

3.16 Conon Bridge and Muir of Ord (Potentially Vulnerable Area 01/16)

This Potentially Vulnerable Area is approximately 27km^2. It includes the Muir of Ord and Conon Bridge as well as adjacent mainly rural areas (shown below).

The A862, A832 and B9169 pass through the area.



The River Conon is the largest river in the area. Conon Bridge benefits from a formal Flood Protection Scheme which was constructed in 1990.

There are approximately 60 residential and 10 non-residential properties at risk of flooding.

The Annual Average Damages are approximately £250,000 with the majority caused by river flooding.

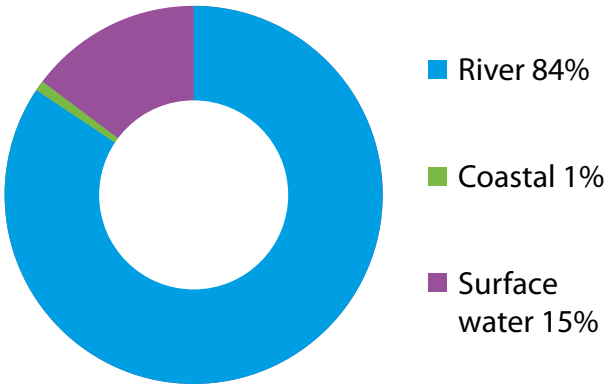


Figure 21
Annual Average Damages by flood source

Objective(s)	ID	Indicator
Avoid an overall increase in flood risk	100001	• 60 residential properties • £250,000 Annual Average Damages
Reduce overall flood risk	100002	• 60 residential properties • £250,000 Annual Average Damages
Reduce flood risk in Muir of Ord from the Allt Fionnaidh / Logie Burn and Ord Loch	101601	• 50 people • £61,000 Annual Average Damages from residential properties • £140,000 Annual Average Damages from non-residential properties
Maintain the River Conon Flood Protection Scheme in Conon Bridge.	101602	• £9,100 Annual Average Damages from residential properties • £2,200 Annual Average Damages from non-residential properties

Actions to be carried out within this PVA					
Flood Protection Scheme/Works	Natural Flood Management Works	New Flood Warning	Community Flood Action Groups	Property Level Protection	Site Protection Plans
Flood Protection Study	Natural Flood Management Study	Maintain Flood Warning	Awareness Raising	Surface Water Plan/Study	Emergency Plans/Response
Maintain Flood Protection Scheme	Strategic Mapping and Modelling	Flood Forecasting	Self Help	Maintenance	Planning Policies

Action ID	Flood Protection Study (1016010005)		
Object ID	**Reduce flood risk in Muir of Ord from the Allt Fionnaidh / Logie Burn and Ord Loch (101601)**		
Delivery Lead	The Highland Council	Indicative Delivery	2022-2027 (Cycle 2)
Description	A hydraulic study is required to understand the flood risk in Muir of Ord from the Allt Fionnaidh / Logie Burn and Ord Loch. The Study will determine the potential damages and influence whether a Flood Protection Study will be needed.		
Funding	Funding to develop this plan will be secured from The Highland Council's Capital Programme in 2022.		
Co-ordination	The Highland Council will coordinate the development of the plan with other responsible authorities and engage with the school/ local community.		

Action ID	Strategic Mapping and Modelling (1000020016)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	2018
Description	SEPA will be seeking to incorporate additional surface water hazard mapping information into the flood maps to improve understanding of flood risk. Approximately 2,100km^2 of improved data is currently available within this Local Plan District.		
Funding	SEPA's strategic mapping and modelling activities are funded by Scottish Government through SEPA's grant in aid settlement.		
Co-ordination	SEPA's strategic mapping activities will be co-ordinated with the activities of other responsible authorities as required.		

Action ID	Strategic Mapping and Modelling (1000020019)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Scottish Water	Indicative Delivery	2016 - 2019
Description	Scottish Water will undertake further investigation and modelling in the Conon Bridge and Muir of Ord sewer catchments to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.		
Funding	Scottish Water funding is committed in its capital programme through Q&S 4a (2015-2021) which is approved by its regulators and customers.		
Co-ordination	Scottish Water will work with responsible authorities to incorporate relevant information into these studies and by regularly keeping the responsible authorities informed of their progress. Scottish Water will provide responsible authorities with the outputs of the Section 16 assessment which, where relevant, may be used to inform surface water management plans and SEPA flood hazard and risk maps.		

Action ID	Maintain Flood Protection Scheme (1016020017)		
Object ID	**Maintain the River Conon Flood Protection Scheme in Conon Bridge (101602)**		
Delivery Lead	The Highland Council	Indicative Delivery	Ongoing
Description	The Conon Bridge Flood Prevention Scheme was completed in 1990 and extended after 2006 to provide a 1 in 100 year standard of protection. The scheme provides protection to the community at Conon Bridge from the River Conon. The defences will be maintained to ensure the current level of protection continues for properties in Conon Bridge.		
Funding	Funding to maintain all existing Highland Council Flood Protection Schemes is allocated through the Council's annual revenue budget.		
Co-ordination	The Highland Council will coordinate its actions with landowners and SEPA as required.		

Action ID	Flood Forecasting (1000020009)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing

Action ID	Self Help (1000020011)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	General Public	Indicative Delivery	Ongoing

Action ID	Awareness Raising (1000020013)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Maintenance (1000020007)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Emergency Plan/ Response (1000020014)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

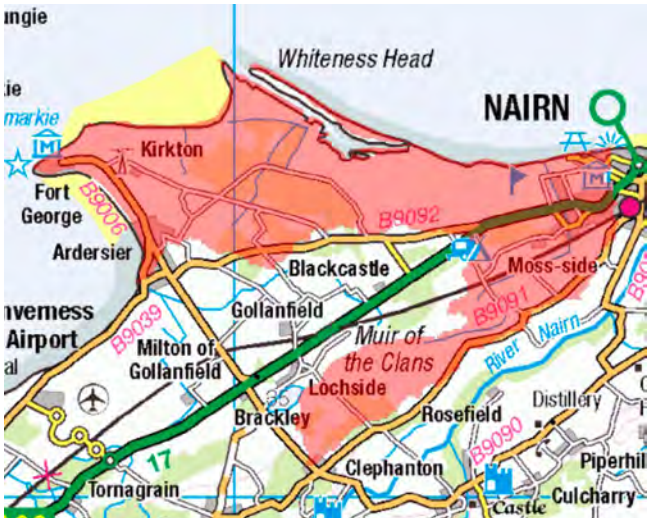
Action ID	Planning Policies (1000010001)*		
Object ID	**Reduce overall flood risk (100002)** **Avoid an overall increase in flood risk (100001)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

* These Actions apply to all PVA's and across the whole of the LPD area. More information regarding these Actions can be found in Section 2.4.

3.17 Nairn West and Ardersier (Potentially Vulnerable Area 01/17)

This Potentially Vulnerable Area is approximately 32km^2. It is located on the Moray Firth and includes the western part of Nairn as well as Kirkton and Ardersier (shown below).

The A96 passes through the area.



The River Nairn lies to the east and the main river in the area is the Alton Burn.

There are approximately 30 residential and 30 non-residential properties at risk of flooding.

The Annual Average Damages are approximately £73,000 with the majority caused by river flooding.

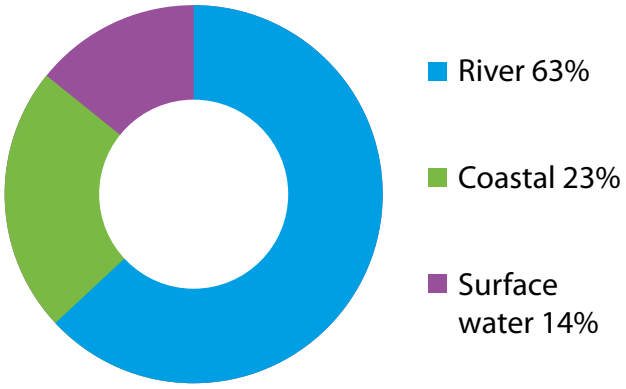


Figure 22
Annual Average Damages by flood source

Objective(s)	ID	Indicator
Avoid an overall increase in flood risk	100001	• 30 residential properties • £73,000 Annual Average Damages
Reduce overall flood risk	100002	• 30 residential properties • £73,000 Annual Average Damages
Reduce the physical risk, or disruption risk, related to areas of the A96 at risk of flooding	1303	• 4 locations on the A96 with a total length of 30m
Reduce flood risk in Nairn West from the Alton Burn	101701	• £11,000 Annual Average Damages from residential properties

Actions to be carried out within this PVA					
Flood Protection Scheme/Works	Natural Flood Management Works	New Flood Warning	Community Flood Action Groups	Property Level Protection	Site Protection Plans
Flood Protection Study	Natural Flood Management Study	Maintain Flood Warning	Awareness Raising	Surface Water Plan/Study	Emergency Plans/Response
Maintain Flood Protection Scheme	Strategic Mapping and Modelling	Flood Forecasting	Self Help	Maintenance	Planning Policies

Action ID	Flood Protection Study (1016010005)		
Object ID	**Reduce flood risk in Nairn West from the Alton Burn (101701)**		
Delivery Lead	The Highland Council	Indicative Delivery	2022-2027 (Cycle 2)
Description	A Flood Protection Study is required of the Alton Burn to further investigate the feasibility of developing a Flood Protection Scheme (or Works) that would reduce the risk to properties along the Alton Burn. The Study will focus on the potential benefits of improving road bridges to improve conveyance and consideration of property level protection for residual risk. Other Actions may also be considered to develop the most sustainable range of options. The Study will confirm the feasibility of improving the road structures and the business case for a Flood Protection Scheme (or Works).		
Funding	Funding to develop this Study will be secured from The Highland Council's Capital Programme in 2022.		
Co-ordination	The Highland Council will coordinate the development of the Study with actions of other responsible authorities and engage local community groups.		

Action ID	Strategic Mapping and Modelling (1000020019)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Scottish Water	Indicative Delivery	Ardersier 2016 – 2017 Nairn 2018-2020
Description	Scottish Water will undertake further investigation and modelling in the Ardersier and Nairn sewer catchments to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.		
Funding	Scottish Water funding is committed in its capital programme through Q&S 4a (2015-2021) which is approved by its regulators and customers.		
Co-ordination	Scottish Water will work with responsible authorities to incorporate relevant information into these studies and by regularly keeping the responsible authorities informed of their progress. Scottish Water will provide responsible authorities with the outputs of the Section 16 assessment which, where relevant, may be used to inform surface water management plans and SEPA flood hazard and risk maps.		

Action ID	Maintain Flood Warning (1000020030)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing
Description	Continue to maintain the 'Ardersier to Nairn' flood warning area which is part of the Moray Firth coastal flood warning scheme. When flood events occur in an area with an existing flood warning service, SEPA will seek to verify the flood forecasts and warnings. SEPA will use feedback and post-event data to ensure that our flood warning service is timely and accurate.		
Funding	The maintenance of SEPA's flood warning service is funded by Scottish Government through SEPA's grant in aid settlement.		
Co-ordination	SEPA will work with the local authority to ensure that any new information is considered in the existing flood warning system.		

Action ID	Flood Protection Scheme/Works (1301021)		
Object ID	**Reduce the physical risk related to the transport network for roads (1303)**		
Delivery Lead	Transport Scotland	Indicative Delivery	2028-2033 (Cycle 3)
Description	Reduce the physical risk, or disruption risk, related to areas of the A96 at risk of flooding.		
Funding	Grant in aid allocation from Scottish Government.		
Co-ordination	Transport Scotland will consult with appropriate authorities through its statutory processes.		

Action ID	Flood Forecasting (1000020009)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing

Action ID	Self Help (1000020011)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	General Public	Indicative Delivery	Ongoing

Action ID	Awareness Raising (1000020013)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Maintenance (1000020007)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

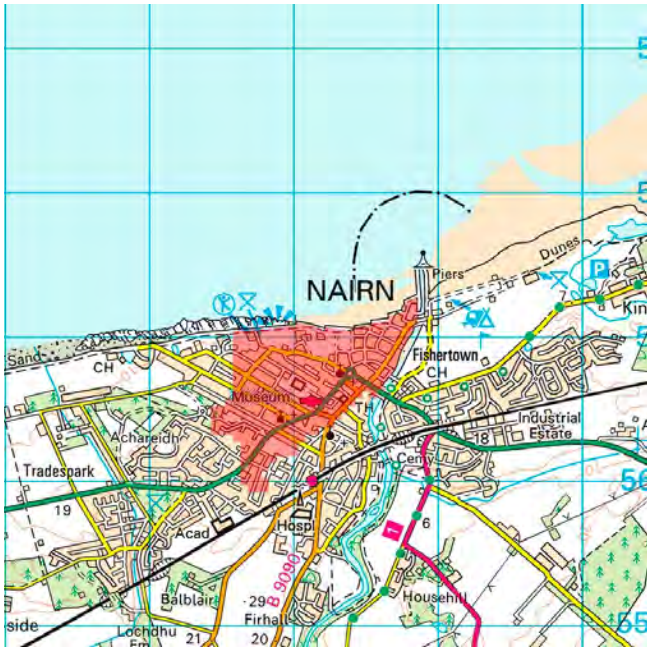
Action ID	Emergency Plan/ Response (1000020014)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Planning Policies (1000010001)*		
Object ID	**Reduce overall flood risk (100002)** **Avoid an overall increase in flood risk (100001)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

* These Actions apply to all PVA's and across the whole of the LPD area. More information regarding these Actions can be found in Section 2.4.

3.18 Nairn Central (Potentially Vulnerable Area 01/18)

This Potentially Vulnerable Area covers the urban area of approximately 2km^2 in the centre of Nairn to the west of the river (shown below).



The A96 road passes through the area and the River Nairn flows along its eastern boundary.

There are approximately 350 residential properties and 30 non-residential properties at risk of flooding.

The Annual Average Damages are approximately £340,000 with the majority caused by coastal flooding.

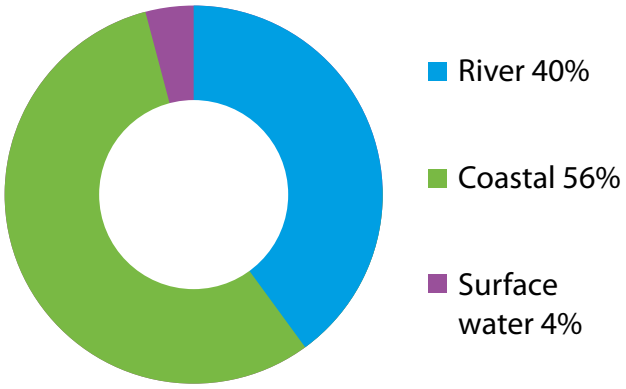


Figure 23
Annual Average Damages by flood source

Objective(s)	ID	Indicator
Avoid an overall increase in flood risk	100001	• 350 residential properties • £340,000 Annual Average Damages
Reduce overall flood risk	100002	• 350 residential properties • £340,000 Annual Average Damages
Reduce the physical risk, or disruption risk, related to areas of the A96 at risk of flooding	1304	• 20m of road at 1 location of the A96
Reduce flood risk in Nairn Central from the River Nairn	101801	• 500 people • £100,000 Annual Average Damages from residential properties • £6,000 Annual Average Damages from non-residential properties
Reduce risk in Nairn Central from coastal flooding	101802	• 260 people • £170,000 Annual Average Damages from residential properties • £5,300 Annual Average Damages from non-residential properties

Actions to be carried out within this PVA					
Flood Protection Scheme/Works	Natural Flood Management Works	New Flood Warning	Community Flood Action Groups	Property Level Protection	Site Protection Plans
Flood Protection Study	Natural Flood Management Study	Maintain Flood Warning	Awareness Raising	Surface Water Plan/Study	Emergency Plans/Response
Maintain Flood Protection Scheme	Strategic Mapping and Modelling	Flood Forecasting	Self Help	Maintenance	Planning Policies

Action ID	Flood Protection Study (1018010005)		
Object ID	**Reduce risk in Nairn Central from coastal flooding (101802)** **Reduce flood risk in Nairn Central from the River Nairn (101801)**		
Delivery Lead	The Highland Council	Indicative Delivery	2016-2019
Description	A Flood Protection Study is required to further investigate the feasibility of developing a Flood Protection Scheme (or Works) for central Nairn. A hydraulic study will be carried out to further improve the understanding of flood risk in Nairn, taking account of the tidal influence on river flooding in the central and Fishertown area. The model will include the Auldearn Burn to ensure that any interaction and negative impacts are included in the assessment of potential damages in the Balmakeith area. Following the development of this model a Flood Protection Study will investigate the potential benefits of providing direct defences throughout the town. The Study will also include an investigation into the potential benefits of using Natural Flood Management techniques (such as river/ floodplain restoration and sediment management) in the Auldearn Burn catchment. Other actions, such as property level protection, will be considered in order to develop the most sustainable range of options. An informal flood defence currently exists along parts of the river in central Nairn. The level of protection this provides in unknown but will be maintained by the Council until a formal defence to an appropriate standard can replace it. This Flood Protection Study will not have an adverse effect on the Moray Firth SAC		
Funding	The Highland Council's Capital Programme includes funding to develop the Study within the cycle (approved June 2015).		
Co-ordination	This Study will be joined with the Flood Protection Study for Nairn East and Auldearn PVA in the Findhorn, Nairn and Speyside Local Plan District (PVA05/08) ensure a coordinated response to the flood risk in Nairn is developed. The Highland Council will coordinate the development of the Study, in particular any Natural Flood Management aspects that include the alteration (including enhancement) or restoration of natural features and characteristics with any actions of other responsible authorities and local community groups.		

Action ID	Flood Protection Scheme/Works (1301021)		
Object ID	**Reduce the physical risk related to the transport network for roads (1304)**		
Delivery Lead	Transport Scotland	Indicative Delivery	2028-2033 (Cycle 3)
Description	Reduce the physical risk, or disruption risk, related to areas of the A96 at risk of flooding.		
Funding	Grant in aid allocation from Scottish Government.		
Co-ordination	Transport Scotland will consult with appropriate authorities through its statutory processes.		

Action ID	Strategic Mapping and Modelling (1000020016)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	2018
Description	SEPA will be seeking to incorporate additional surface water hazard mapping information into the flood maps to improve understanding of flood risk. Approximately 2,100km^2 of improved data is currently available within this Local Plan District.		
Funding	SEPA's strategic mapping and modelling activities are funded by Scottish Government through SEPA's grant in aid settlement.		
Co-ordination	SEPA's strategic mapping activities will be co-ordinated with the activities of other responsible authorities as required.		

Action ID	Strategic Mapping and Modelling (1000020019)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Scottish Water	Indicative Delivery	2018 - 2020
Description	Scottish Water will undertake further investigation and modelling in the Nairn sewer catchments to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.		
Funding	Scottish Water funding is committed in its capital programme through Q&S 4a (2015-2021) which is approved by its regulators and customers.		
Co-ordination	Scottish Water will work with responsible authorities to incorporate relevant information into these studies and by regularly keeping the responsible authorities informed of their progress. Scottish Water will provide responsible authorities with the outputs of the Section 16 assessment which, where relevant, may be used to inform surface water management plans and SEPA flood hazard and risk maps.		

Action ID	Maintain Flood Warning (1000020030)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing
Description	Continue to maintain the 'Ardersier to Nairn' flood warning area which is part of the Moray Firth coastal flood warning scheme. When flood events occur in an area with an existing flood warning service, SEPA will seek to verify the flood forecasts and warnings. SEPA will use feedback and post-event data to ensure that our flood warning service is timely and accurate.		
Funding	The maintenance of SEPA's flood warning service is funded by Scottish Government through SEPA's grant in aid settlement		
Co-ordination	A Flood Protection Study is proposed for Nairn central. SEPA will work with the local authority to ensure that any new information about flood risk resulting from the proposed Flood Protection Study is considered in the existing flood warning system.		

Action ID	Flood Forecasting (1000020009)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing

Action ID	Self Help (1000020011)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	General Public	Indicative Delivery	Ongoing

Action ID	Awareness Raising (1000020013)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Maintenance (1000020007)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

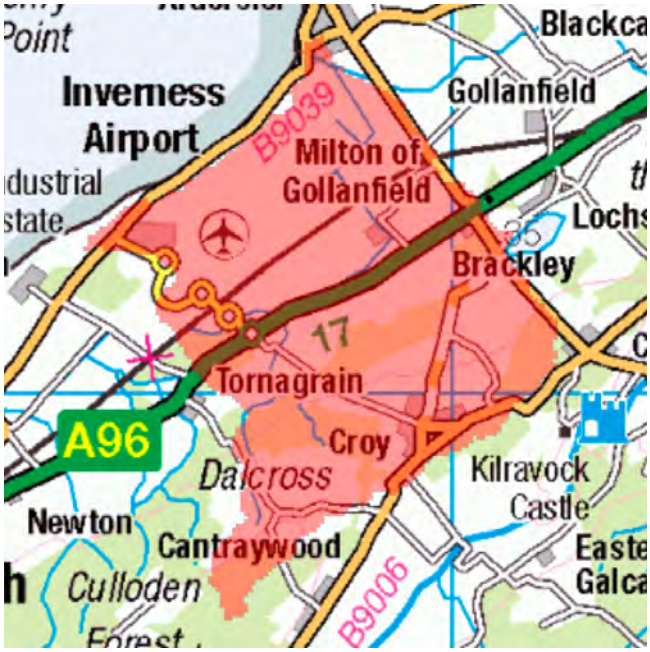
Action ID	Emergency Plan/ Response (1000020014)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Planning Policies (1000010001)*		
Object ID	**Reduce overall flood risk (100002)** **Avoid an overall increase in flood risk (100001)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

* These Actions apply to all PVA's and across the whole of the LPD area. More information regarding these Actions can be found in Section 2.4.

3.19 Inverness Airport (Potentially Vulnerable Area 01/19)

This Potentially Vulnerable Area is approximately 20km^2. It is located between Inverness and Nairn (shown below). It includes Inverness Airport, the industrial estate at Croy and the southern part of Ardersier.



The A96, B9006, B9039, B9090 and B9091 pass through the area.

There are fewer than 10 residential and non-residential properties at risk of flooding.

The Annual Average Damages are approximately £16,000 with the majority caused by surface water flooding.

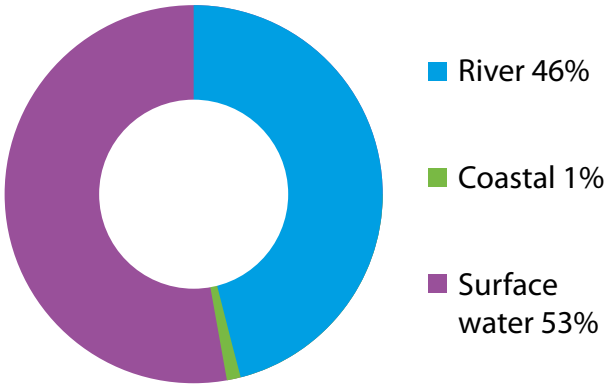


Figure 24
Annual Average Damages by flood source

Objective(s)	ID	Indicator
Avoid an overall increase in flood risk	100001	• <10 residential properties • £16,000 Annual Average Damages
Reduce overall flood risk	100002	• <10 residential properties • £16,000 Annual Average Damages
Reduce the physical risk, or disruption risk, related to areas of the A96 at risk of flooding	1305	• 130m of road at 1 location of the A96

Actions to be carried out within this PVA					
Flood Protection Scheme/Works	Natural Flood Management Works	New Flood Warning	Community Flood Action Groups	Property Level Protection	Site Protection Plans
Flood Protection Study	Natural Flood Management Study	Maintain Flood Warning	Awareness Raising	Surface Water Plan/Study	Emergency Plans/Response
Maintain Flood Protection Scheme	Strategic Mapping and Modelling	Flood Forecasting	Self Help	Maintenance	Planning Policies

Action ID	Strategic Mapping and Modelling (1000020016)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	2018
Description	SEPA will be seeking to incorporate additional surface water hazard mapping information into the flood maps to improve understanding of flood risk. Approximately 2,100km^2 of improved data is currently available within this Local Plan District.		
Funding	SEPA's strategic mapping and modelling activities are funded by Scottish Government through SEPA's grant in aid settlement.		
Co-ordination	SEPA's strategic mapping activities will be co-ordinated with the activities of other responsible authorities as required.		

Action ID	Strategic Mapping and Modelling (1000020019)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Scottish Water	Indicative Delivery	2016 - 2017
Description	Scottish Water will undertake further investigation and modelling in the Ardersier sewer catchment to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.		
Funding	Scottish Water funding is committed in its capital programme through Q&S 4a (2015-2021) which is approved by its regulators and customers.		
Co-ordination	Scottish Water will work with responsible authorities to incorporate relevant information into these studies and by regularly keeping the responsible authorities informed of their progress. Scottish Water will provide responsible authorities with the outputs of the Section 16 assessment which, where relevant, may be used to inform surface water management plans and SEPA flood hazard and risk maps.		

Action ID	Flood Protection Scheme/Works (1305021)		
Object ID	**Reduce the physical risk related to the transport network for roads (1305)**		
Delivery Lead	Transport Scotland	Indicative Delivery	2028-2033 (Cycle 3)
Description	Reduce the physical risk, or disruption risk, related to areas of the A96 at risk of flooding		
Funding	Grant in aid allocation from Scottish Government.		
Co-ordination	Transport Scotland will consult with appropriate authorities through its statutory processes.		

Action ID	Flood Forecasting (1000020009)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing

Action ID	Self Help (1000020011)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	General Public	Indicative Delivery	Ongoing

Action ID	Awareness Raising (1000020013)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Maintenance (1000020007)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

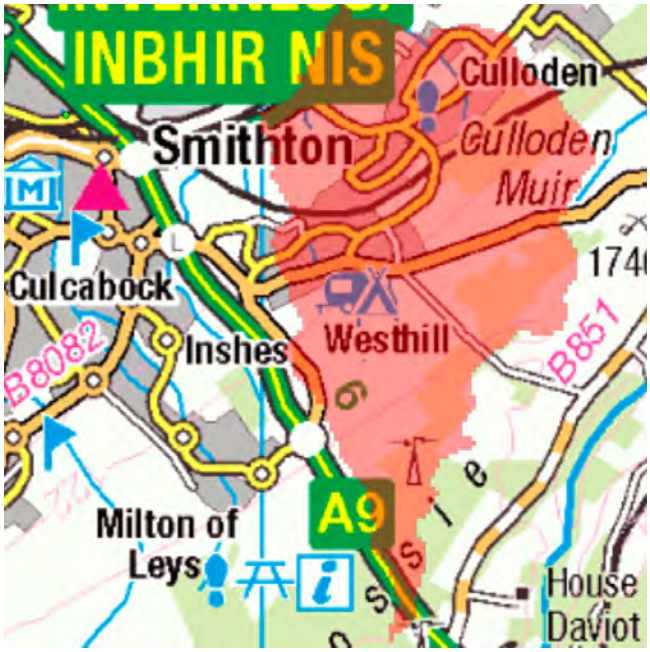
Action ID	Emergency Plan/ Response (1000020014)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Planning Policies (1000010001)*		
Object ID	**Reduce overall flood risk (100002)** **Avoid an overall increase in flood risk (100001)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

* These Actions apply to all PVA's and across the whole of the LPD area. More information regarding these Actions can be found in Section 2.4.

3.20 Smithton and Culloden (Potentially Vulnerable Area 01/20)

This Potentially Vulnerable Area is approximately 14km^2. It includes Smithton, Culloden and Westhill (shown below). The A96, A9 and B9006 pass through the area.



There are a series of small rivers in this area. These generally flow north and discharge into the Moray Firth.

There are approximately 30 residential and 10 non-residential properties at risk of flooding.

The Annual Average Damages are approximately £33,000 with the majority caused by surface water.

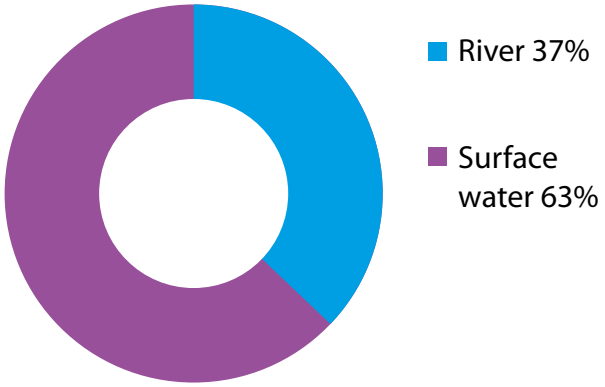


Figure 25
Annual Average Damages by flood source

Objective(s)	ID	Indicator
Avoid an overall increase in flood risk	100001	• 30 residential properties • £33,000 Annual Average Damages
Reduce overall flood risk	100002	• 30 residential properties • £33,000 Annual Average Damages
Reduce risk from surface water flooding in Smithton and Culloden	102001	• This Objective will be monitored using surface water flood risk across the Potentially Vulnerable Area. For 01/20 there are 30 residential properties at risk and Annual Average Damages of £21,000.

Actions to be carried out within this PVA					
Flood Protection Scheme/Works	Natural Flood Management Works	New Flood Warning	Community Flood Action Groups	Property Level Protection	Site Protection Plans
Flood Protection Study	Natural Flood Management Study	Maintain Flood Warning	Awareness Raising	Surface Water Plan/Study	Emergency Plans/Response
Maintain Flood Protection Scheme	Strategic Mapping and Modelling	Flood Forecasting	Self Help	Maintenance	Planning Policies

Action ID	Flood Protection Scheme (1020010006)		
Object ID	**Reduce risk from surface water flooding in Smithton and Culloden (102001)**		
Delivery Lead	The Highland Council	**Indicative Delivery**	2016-2020
Description	The Smithton and Culloden Flood Protection Scheme will be completed within the cycle (subject to receiving all necessary permissions). The Highland Council has already implemented Phases 1-3 of the Scheme across the catchment which has resulted in improvements to culverts, construction of coarse debris screens, river restoration and erosion protection. Phase 4 of the scheme has been in development for 4 years and includes the construction of 2 large flood attenuation areas in Smithton Park and Culloden Park, replacement of a low capacity culvert and river restoration. This work is undergoing detailed design and will be promoted as a formal Flood Protection Scheme in 2016. The implementation of the final phase of scheme (assumed to be before 2020) will provide protection to the community up to and including a 0.5% AEP (1 in 200 year) flood event.		
Funding	The Highland Council's Capital Programme includes funding to develop and construct the Flood Protection Scheme within the cycle (approved June 2015). Scottish Government has confirmed that this Flood Protection Scheme will be eligible for 80% grant funding (subject to future spending reviews).		
Co-ordination	The Highland Council will coordinate the development of the Scheme and any awareness raising opportunities with other responsible authorities and local community groups.		

Action ID	Surface Water Management Plan (1020010018)		
Object ID	**Reduce risk from surface water flooding in Smithton and Culloden (102001)**		
Delivery Lead	The Highland Council	Indicative Delivery	2016-2022
Description	The Highland Council will develop a Highland-wide Surface Water Management Plan (SWMP) that will describe existing and future actions to reduce the flood risk from small watercourses (less than 3km^2) and surface water runoff (e.g. overland flows across roads, fields and other areas). The plan will describe existing activities such as watercourse inspections, assessments and gully maintenance and identify appropriate specific actions to alleviate surface water flooding in Smithton and Culloden. 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.		
Funding	The Highland Council's Capital Programme includes funding to develop the SWMP within the cycle (approved June 2015).		
Co-ordination	The Highland Council will lead the development of the Surface Water Management Plan and will work with other responsible authorities and engage local community groups to understand the problems caused by surface water run-off and urban drainage and agree appropriate objectives and actions to alleviate flooding. Scottish Water will work with and support surface water management planning through ensuring that best available knowledge and data is used to input into the surface water management plans.		

Action ID	Surface Water Management Plan (1020010018)		
Object ID	**Reduce risk from surface water flooding in Smithton and Culloden (102001)**		
Delivery Lead	Scottish Water	Indicative Delivery	2016-2020
Description	An Integrated Catchment Study (ICS) (see Section 7.1) including Inverness and the wider catchment will be carried out to support the surface water management planning process in Inverness, Smithton and Culloden. The Study will improve knowledge and understanding of the interactions between the above ground and below ground drainage network e.g. with the sewer network, watercourses and the sea. This will improve the understanding of local surface water flood risk. The stated timescales and funding arrangements between Scottish Water and the Highland Council will take the studies though the Scoping and Modelling phases to define the significant flooding issues in the catchment. It is expected that the ICS partnerships will remain after this period, to establish the preferred solution(s) to the significant flooding issues.		
Funding	The Integrated Catchment Study is being jointly funded by Scottish Water and The Highland Council. Scottish Water funding is committed in its capital programme through Q&S 4a (2015-2021) which is approved by its regulators and customers. The Highland Council's Capital Programme includes funding to develop the ICS within the cycle (approved June 2015).		
Co-ordination	Scottish Water will work collaboratively with project partners throughout the studies. Scottish Water will provide project partners with the outputs of the Integrated Catchment Study which, where relevant, may be used to inform surface water management plans. The Highland Council will coordinate the development of the ICS with actions of other responsible authorities and engage local community groups.		

Action ID	Strategic Mapping and Modelling (1000020019)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Scottish Water	Indicative Delivery	2018 - 2020
Description	Scottish Water will undertake further investigation and modelling in the Highland PFI sewer catchment to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.		
Funding	Scottish Water funding is committed in its capital programme through Q&S 4a (2015-2021) which is approved by its regulators and customers.		
Co-ordination	Scottish Water will work with responsible authorities to incorporate relevant information into these studies and by regularly keeping the responsible authorities informed of their progress. Scottish Water will provide responsible authorities with the outputs of the Section 16 assessment which, where relevant, may be used to inform surface water management plans and SEPA flood hazard and risk maps.		

Action ID	Flood Forecasting (1000020009)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing

Action ID	Self Help (1000020011)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	General Public	Indicative Delivery	Ongoing

Action ID	Awareness Raising (1000020013)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Maintenance (1000020007)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Emergency Plan/ Response (1000020014)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

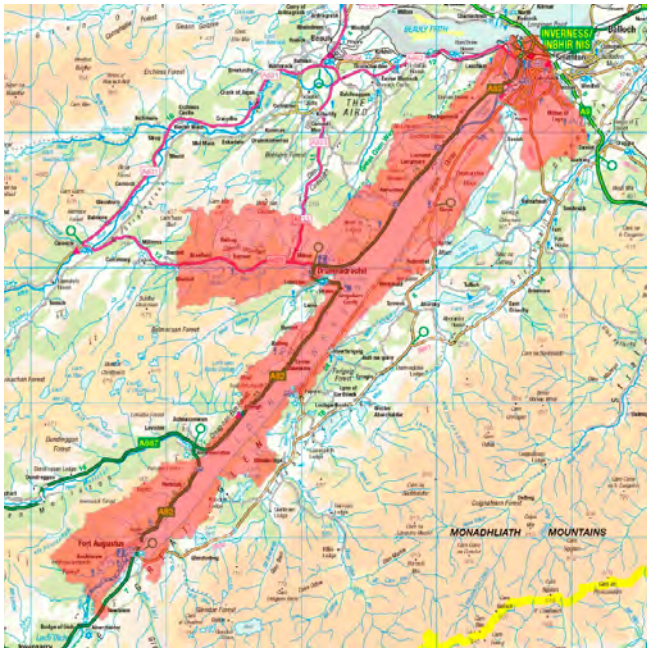
Action ID	Planning Policies (1000010001)*		
Object ID	**Reduce overall flood risk (100002)** **Avoid an overall increase in flood risk (100001)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

* These Actions apply to all PVA's and across the whole of the LPD area. More information regarding these Actions can be found in Section 2.4.

3.21 Inverness and the Great Glen (Potentially Vulnerable Area 01/21)

This Potentially Vulnerable Area is approximately 340km^2. It covers the region between Inverness and Fort Augustus, including Drumnadrochit and the surrounding areas (shown below). The A887, A82, A831 and A833 pass through.

Loch Ness and the River Ness, flows from the north end of Loch Ness through Inverness.



The River Ness Flood Protection Scheme is located on the tidal section of the Ness and was completed in 2015. An estimated 800 residential and 190 non-residential properties benefit from this scheme. Further properties benefit from the Fort Augustus Flood Protection Scheme and the South West Inverness Flood Relief Channel.

There are approximately 1,400 residential and 380 non-properties at risk of flooding.

The Annual Average Damages are approximately £5.6 million with the majority caused by coastal flooding.

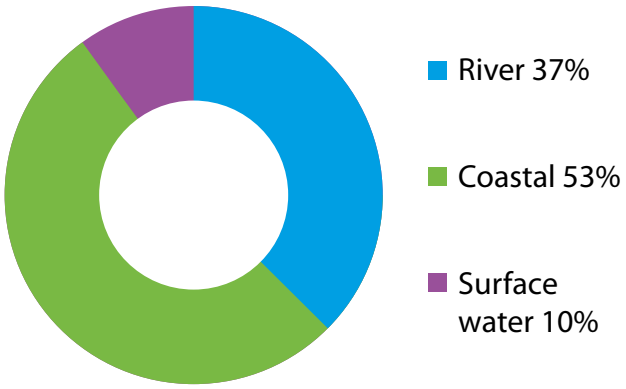


Figure 26
Annual Average Damages by flood source

Objective(s)	ID	Indicator
Avoid an overall increase in flood risk	100001	• 1,400 residential properties • £5.6 million Annual Average Damages
Reduce overall flood risk	100002	• 1,400 residential properties • £5.6 million Annual Average Damages
Maintain the River Ness (Tidal) Flood Protection Scheme and accept existing levels of flood risk in the north of Inverness due to flooding from the River Ness, downstream of Ness Bridge, and the Moray Firth	102101	An estimated 790 residential properties and 200 non-residential properties will continue to be protected to a 1 in 100 year standard of protection (including an allowance for climate change)
Maintain the South West Inverness Flood Protection Scheme and accept existing levels of flood risk to properties in the south west of Inverness from various rivers	102102	An estimated 600 residential properties will continue to be protected to a 1 in 100 year standard of protection (including an allowance for climate change)
Maintain the Fort Augustus Flood Protection Scheme and accept existing levels of flood risk in Fort Augustus	102104	An estimated 30 properties will continue to be protected to a 1 in 25 year standard of protection.

Objective(s)	ID	Indicator
Reduce risk in the South Kessock area of Inverness from coastal flooding	102107	• 930 people • £830,000 Annual Average Damages from residential properties • £73,000 Annual Average Damages from non-residential properties
Reduce flood risk in Inverness from the River Ness between Ness Bridge and Ness Islands	102106	• 250 people • £98,000 Annual Average Damages from residential properties • £65,000 Annual Average Damages from non-residential properties
Reduce flood risk in Inverness from the Mill Burn	102103	• 210 people • £41,000 Annual Average Damages from residential properties • £1,000 Annual Average Damages from non-residential properties
Reduce flood risk in Drumnadrochit from the River Enrick	102105	• £46,000 Annual Average Damages from residential properties • £850 Annual Average Damages from non-residential properties • 1 emergency service
Reduce risk from surface water flooding in Inverness	102109	• This Objective will be monitored using surface water flood risk across the Potentially Vulnerable Area. For 01/21 there are 440 residential properties at risk and Annual Average Damages of £560,000.

Actions to be carried out within this PVA					
Flood Protection Scheme/Works	Natural Flood Management Works	New Flood Warning	Community Flood Action Groups	Property Level Protection	Site Protection Plans
Flood Protection Study	Natural Flood Management Study	Maintain Flood Warning	Awareness Raising	Surface Water Plan/Study	Emergency Plans/Response
Maintain Flood Protection Scheme	Strategic Mapping and Modelling	Flood Forecasting	Self Help	Maintenance	Planning Policies

Action ID	Flood Protection Scheme (1021050021)		
Object ID	**Reduce flood risk in Drumnadrochit from the River Enrick (102105)**		
Delivery Lead	The Highland Council	Indicative Delivery	2016-2022
Description	A Flood Protection Scheme providing protection to properties a risk within the village and the A831 in the area known as Kilmichael will be completed within the cycle (subject to receiving all necessary permissions). The Flood Protection Scheme currently includes the construction of direct defences (flood walls/ embankments). This work is undergoing detailed design and it will be promoted as a formal Flood Protection Scheme before 2019. The Scheme will be expanded to investigate the potential benefits of using Natural Flood Management techniques to help reduce flood risk in Drumnadrochit in high likelihood floods. This study will build on the work previously carried out by the Glen Urquhart Land Use Partnership (GULUP) and will cover the full range of Natural Flood Management techniques: runoff control measures; the use of floodplain and riparian woodland; construction of large woody debris/ boulders in the tributaries; river or floodplain restoration and sediment management. The study will confirm the extent and type of measures required and the business case for Natural Flood Management Works. Other actions, such as property level protection, will also be considered in order to develop the most sustainable range of options. This Flood Protection Scheme and the Natural Flood Management Study will not have an adverse effect on the North Inverness Lochs SPA and Urquhart Bay Wood SAC		
Funding	The Highland Council's Capital Programme includes funding to develop and construct the Flood Protection Scheme within the cycle (approved June 2015). Scottish Government has confirmed that this Flood Protection Scheme will be eligible for 80% grant funding (subject to future spending reviews).		
Co-ordination	The Highland Council will coordinate the development of the Study, in particular any Natural Flood Management aspects that include the alteration (including enhancement) or restoration of natural features and characteristics with any actions of other responsible authorities and local community groups.		

Action ID	Natural Flood Management Study (1021050003)		
Object ID	**Reduce flood risk in Drumnadrochit from the River Enrick (102105)**		
Delivery Lead	The Highland Council	Indicative Delivery	2016 - 2022
Description	This Study will be carried out as part of the Flood Protection Scheme for the River Enrick (see Flood Protection Scheme (1021050021))		

Action ID	Community Flood Action Groups (1021050012)		
Object ID	**Reduce flood risk in Drumnadrochit from the River Enrick (102105)**		
Delivery Lead	Community	Indicative Delivery	Ongoing
Description	The Glen Urquhart Land Use Partnership (GULUP) is a voluntary, non-profit, community-led limited company which has been in existence for over ten years. It seeks to give the local community a voice in determining and sustainably developing the long term economic and environmental goals for the area (including flood risk) and will work in partnership with any interested organizations to this end.		
Funding	GULUP is a voluntary non- profit community group.		
Co-ordination	The group will work with responsible authorities to develop sustainable solutions to flooding in Dumnadrochit.		

Action ID	Flood Protection Scheme/Works (1021030006)		
Object ID	**Reduce flood risk in Inverness from the Mill Burn (102103)**		
Delivery Lead	The Highland Council	Indicative Delivery	2016-2019
Description	A Flood Protection Scheme providing protection to properties a risk from the Mill Burn in Inverness will be completed within the cycle (subject to receiving all necessary permissions). The Flood Protection Scheme currently includes 3 discrete operations: construction of flood embankments along Old Edinburgh Road, Castle Heather; flood walls alongside Diriebught Road and the replacement of a culvert beneath Harbour Road. This Scheme will be reviewed before carrying out detailed design and promoting a formal Flood Protection Scheme. The Scheme will confirm the extent and type of measures required and the business case for a Flood Protection Scheme (or Works). Other actions, such as property level protection, will also be considered in order to develop the most sustainable range of options.		
Funding	The Highland Council's Capital Programme includes funding to develop and construct the Flood Protection Scheme within the cycle (approved June 2015).		
Co-ordination	The Highland Council will coordinate the development of the Scheme and any awareness raising opportunities with other responsible authorities and local community groups.		

Action ID	Flood Protection Study (1021070005)		
Object ID	**Reduce risk in the South Kessock area of Inverness from coastal flooding (102107)**		
Delivery Lead	The Highland Council	Indicative Delivery	2016 - 2019
Description	A Flood Protection Study is required to assess the condition and standard of protection provided by existing sea walls and defences in South Kessock, Inverness. The Study will consider the impact of wind and wave action and determine whether the existing standard of protection is adequate, whether improvements to the existing defences are required, or a new Flood Protection Scheme is required. This Flood Protection Study will not have an adverse effect on the Moray Firth SAC and Inner Moray Firth SPA.		
Funding	The Highland Council's Capital Programme includes funding to develop the Flood Protection Study within the cycle (approved June 2015).		
Co-ordination	The Highland Council will coordinate the development of the Study with other responsible authorities and local community groups. The Highland Council will also work closely with SEPA to improve the flood risk maps in South Kessock once more detailed modelling of the Beauly Firth has been carried out		

Action ID	Flood Protection Study (1021060005)		
Object ID	**Reduce flood risk in Inverness from the River Ness between Ness Bridge and Ness Islands (102106)**		
Delivery Lead	The Highland Council	Indicative Delivery	2018-2021
Description	A formal Flood Protection Order for the fluvial section (upstream of Ness Bridge) was promoted and confirmed by Scottish Ministers in 2009. The scheme being promoted included flood walls along both banks of the riverside. At the time, Planning Permission was required and the scheme received significant opposition from local businesses and residents. A Flood Protection Study will be carried out that will investigate possible alternative measures which will address the risk. The Study will confirm the extent and type of measures required and the business case for a Flood Protection Scheme (or Works). Other actions, such as property level protection and demountable defences will also be considered in order to develop the most sustainable range of options.		
Funding	The Highland Council's Capital Programme includes funding to develop the Flood Protection Study within the cycle (approved June 2015).		
Co-ordination	The Highland Council will coordinate the development of the Study with other responsible authorities and local community groups.		

Action ID	Surface Water Management Plan (1021090018)		
Object ID	**Reduce risk from surface water flooding in Inverness (102109)**		
Delivery Lead	The Highland Council	Indicative Delivery	2016-2022
Description	The Highland Council will develop a Highland-wide Surface Water Management Plan (SWMP) that will describe existing and future actions to reduce the flood risk from small watercourses (less than 3km^2) and surface water runoff (e.g. overland flows across roads, fields and other areas). The plan will describe existing activities such as watercourse inspections, assessments and gully maintenance and identify appropriate specific actions to alleviate surface water flooding in Inverness. 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.		
Funding	The Highland Council's Capital Programme includes funding to develop the SWMP within the cycle (approved June 2015).		
Co-ordination	The Highland Council will lead the development of the Surface Water Management Plan and will work with other responsible authorities and engage local community groups to understand the problems caused by surface water run-off and urban drainage and agree appropriate objectives and actions to alleviate flooding. Scottish Water will work with and support surface water management planning through ensuring that best available knowledge and data is used to input into the surface water management plans.		

Action ID	Strategic Mapping and Modelling (1000020019)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Scottish Water	Indicative Delivery	2018 - 2020
Description	Scottish Water will undertake further investigation and modelling in the Highland PFI sewer catchment to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.		
Funding	Scottish Water funding is committed in its capital programme through Q&S 4a (2015-2021) which is approved by its regulators and customers.		
Co-ordination	Scottish Water will work with responsible authorities to incorporate relevant information into these studies and by regularly keeping the responsible authorities informed of their progress. Scottish Water will provide responsible authorities with the outputs of the Section 16 assessment which, where relevant, may be used to inform surface water management plans and SEPA flood hazard and risk maps.		

Action ID	Surface Water Management Plan (1020010018)		
Object ID	**Reduce risk from surface water flooding in Inverness (102001)**		
Delivery Lead	Scottish Water	Indicative Delivery	2016-2020
Description	An Integrated Catchment Study (ICS) including Inverness and the wider catchment will be carried out to support the surface water management planning process in Inverness, Smithton and Culloden. The Study will improve knowledge and understanding of the interactions between the above ground and below ground drainage network e.g. with the sewer network, watercourses and the sea. This will improve the understanding of local surface water flood risk. The stated timescales and funding arrangements between Scottish Water and the Highland Council will take the Study through the Scoping and Modelling phases to define the significant flooding issues in the catchment. It is expected that the ICS partnerships will remain after this period, to establish the preferred solution(s) to the significant flooding issues.		
Funding	The Integrated Catchment Study is being jointly funded by Scottish Water and The Highland Council. Scottish Water funding is committed in its capital programme through Q&S 4a (2015-2021) which is approved by its regulators and customers. The Highland Council's Capital Programme includes funding to develop the ICS within the cycle (approved June 2015).		
Co-ordination	Scottish Water will work collaboratively with project partners throughout the studies. Scottish Water will provide project partners with the outputs of the Integrated Catchment Study which, where relevant, may be used to inform surface water management plans. The Highland Council will coordinate the development of the ICS with actions of other responsible authorities and engage local community groups.		

Action ID	Strategic Mapping And Modelling (1000020016)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	2018
Description	SEPA will be seeking to incorporate additional surface water hazard mapping information into the flood maps to improve understanding of flood risk. Approximately 2,100km^2 of improved data is currently available within this Local Plan District.		
Funding	SEPA's strategic mapping and modelling activities are funded by Scottish Government through SEPA's grant in aid settlement.		
Co-ordination	SEPA's strategic mapping activities will be co-ordinated with the activities of other responsible authorities as required.		

Action ID	Maintain Flood Protection Scheme (1021010017)		
Object ID	**Maintain the River Ness Flood Alleviation Scheme (Tidal Section) and accept existing levels of flood risk in the north of Inverness due to flooding from the River Ness, downstream of Ness Bridge, and the Moray Firth (102101)**		
Delivery Lead	The Highland Council	Indicative Delivery	Ongoing
Description	The River Ness Flood Alleviation Scheme (Tidal Section) was completed in 2015. The Scheme included the construction of flood walls and embankments along both banks of the river; construction of flood gates, and surface/ groundwater pumping stations. The scheme provides protection to 790 residential and 200 non-residential properties on the east and west banks of the River Ness- north of Ness Bridge. The Scheme has been designed to a 1:100 year standard of protection and includes allowances for climate change and freeboard. The Scheme will be operated, inspected and maintained by The Highland Council to ensure the current level of protection continues.		
Funding	Funding to maintain all existing Highland Council Flood Protection Schemes is allocated through the Council's annual revenue budget.		
Co-ordination	The Highland Council will coordinate its actions with landowners and SEPA as required.		

Action ID	Maintain Flood Protection Scheme (1021020017)		
Object ID	**Maintain the South West Inverness Flood Protection Scheme and accept existing levels of flood risk to properties in the south west of Inverness from various rivers (102102)**		
Delivery Lead	The Highland Council	Indicative Delivery	Ongoing
Description	The South West Inverness Flood Relief Channel was completed in 2006. The Scheme intercepts flood flows from 5 watercourses these being the Ault na Skiah, Culduthel Burn, Slackbuie Springs, Slackbuie Channel, Lochardil Burn and transfers peak flows safely to the River Ness via the Holm Burn. The Scheme provides protection to approximately 600 properties in the south west of Inverness. The Scheme has been designed to a 1:100 year standard of protection and includes allowances for climate change and freeboard. The Scheme will be operated, inspected and maintained by The Highland Council to ensure the current level of protection continues.		
Funding	Funding to maintain all existing Highland Council Flood Protection Schemes is allocated through the Council's annual revenue budget.		
Co-ordination	The Highland Council will coordinate its actions with landowners and SEPA as required.		

Action ID	Maintain Flood Protection Scheme (1021040017)		
Object ID	**Maintain the Fort Augustus Flood Protection Scheme and accept existing levels of flood risk in Fort Augustus (102104)**		
Delivery Lead	The Highland Council	Indicative Delivery	Ongoing
Description	The Fort Augustus Flood Prevention Scheme on the River Oich was completed in 1994. The scheme provides protection to infrastructure, property and the community of The Riggs area in Fort Augustus. The Scheme was designed to a 1 in 100 year standard of protection, however revisions in hydrological assessments and requirements for freeboard suggest this has been reduced to 1 in 25 years. The Scheme will be operated, inspected and maintained by The Highland Council to ensure the current level of protection continues		
Funding	Funding to maintain all existing Highland Council Flood Protection Schemes is allocated through the Council's annual revenue budget.		
Co-ordination	The Highland Council will coordinate its actions with landowners and SEPA as required.		

Action ID	Maintain Flood Warning (1000020030)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing
Description	Continue to maintain the 'Drumnadrochit', 'Glen Urquhart', 'Invermoriston', 'Ness-side' and 'The Riggs, Fort Augustus' flood warning areas which are part of the Ness river flood warning scheme and provide warnings to low lying land, roads and properties. Continue to maintain the 'Inverness City (Ness Bridge to Friars Bridge)', which takes into account river and tidal interactions, and the 'Inverness Harbour and South Kessock' flood warning areas. Both are part of the Moray Firth coastal flood warning scheme.		
Funding	The maintenance of SEPA's flood warning service is funded by Scottish Government through SEPA's grant in aid settlement		
Co-ordination	A Flood Protection Scheme for Drumnadrochit and another for the Mill Burn in Inverness are proposed. Additionally, Flood Protection Studies for South Kessoch in Inverness and Inverness (Ness Bridge to Ness Islands) are proposed for this PVA. SEPA will work with the local authority to ensure that changes to hydrology and flood risk as a result of the proposed Flood Protection Schemes and new information about flood risk resulting from the proposed flood protection studies are fully considered in the existing flood warning system.		

Action ID	Flood Forecasting (1000020009)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing

Action ID	Self Help (1000020011)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	General Public	Indicative Delivery	Ongoing

Action ID	Awareness Raising (1000020013)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Maintenance (1000020007)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

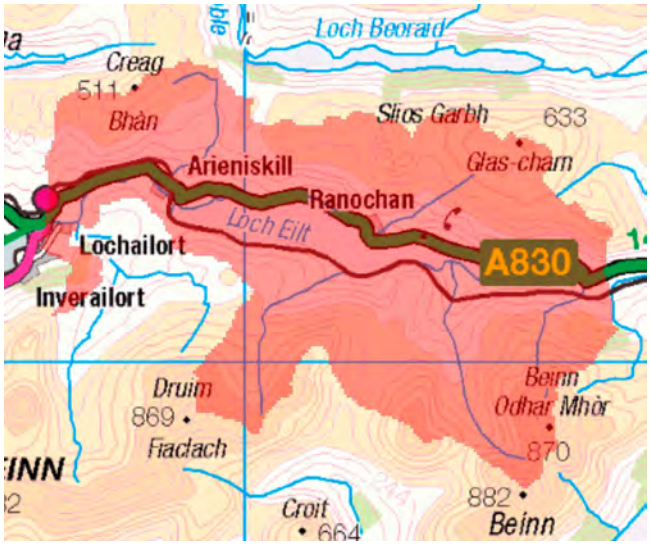
Action ID	Emergency Plan/ Response (1000020014)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Planning Policies (1000010001)*		
Object ID	**Reduce overall flood risk (100002)** **Avoid an overall increase in flood risk (100001)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

* These Actions apply to all PVA's and across the whole of the LPD area. More information regarding these Actions can be found in Section 2.4.

3.22 Lochailort (Potentially Vulnerable Area 01/22)

This Potentially Vulnerable Area covers the mainly rural area surrounding Loch Eilt, including Lochailort, Arieniskill and Ranochan (shown below). It is approximately 38km^2.



The main river in the area is the River Ailort which connects Loch Eilt to the sea at Loch Ailort. There are fewer than 10 residential and non-residential properties at risk of flooding.

The Annual Average Damages are approximately £14,000 with the majority caused by river flooding.

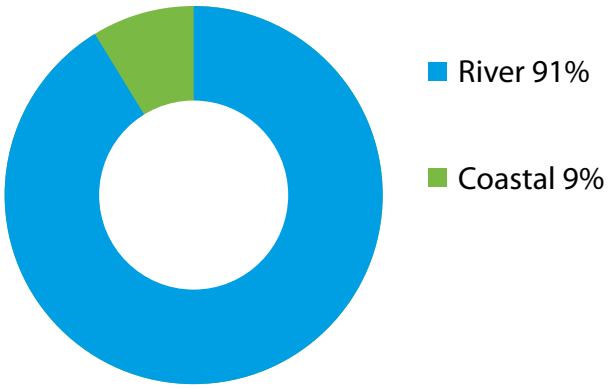


Figure 27
Annual Average Damages by flood source

Objective(s)	ID	Indicator
Avoid an overall increase in flood risk	100001	• <10 residential properties • £14,000 Annual Average Damages
Reduce overall flood risk	100002	• <10 residential properties • £14,000 Annual Average Damages
Reduce the physical or disruption risk related to the transport network for roads	1306	• 3 locations on the A830 with a total length of 410m

Actions to be carried out within this PVA					
Flood Protection Scheme/Works	Natural Flood Management Works	New Flood Warning	Community Flood Action Groups	Property Level Protection	Site Protection Plans
Flood Protection Study	Natural Flood Management Study	Maintain Flood Warning	Awareness Raising	Surface Water Plan/Study	Emergency Plans/Response
Maintain Flood Protection Scheme	Strategic Mapping and Modelling	Flood Forecasting	Self Help	Maintenance	Planning Policies

Action ID	Flood Protection Scheme/Works (1306021)		
Object ID	**Reduce the physical risk related to the transport network for roads (1306)**		
Delivery Lead	Transport Scotland	Indicative Delivery	2016-2021
Description	Transport Scotland will carry out civil engineering work which will reduce flood risk to identified sections of the A830.		
Funding	Grant in aid settlement from Scottish Government.		
Co-ordination	Transport Scotland will consult with appropriate authorities through its statutory processes.		

Action ID	Flood Forecasting (1000020009)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing

Action ID	Self Help (1000020011)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	General Public	Indicative Delivery	Ongoing

Action ID	Awareness Raising (1000020013)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Maintenance (1000020007)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Emergency Plan/ Response (1000020014)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

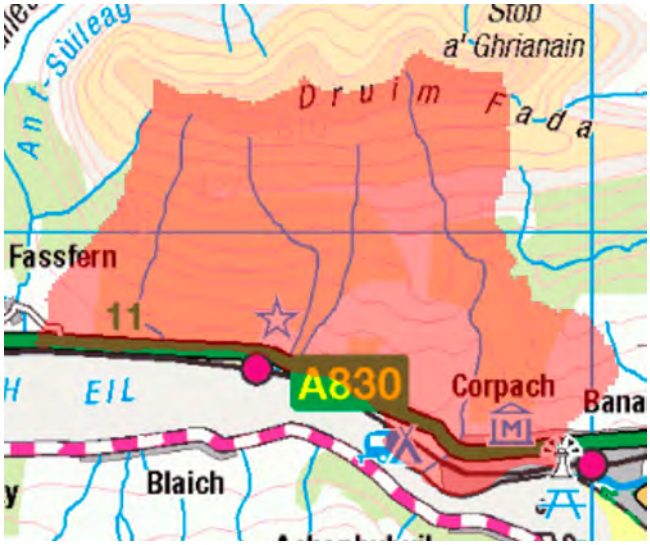
Action ID	Planning Policies (1000010001)*		
Object ID	**Reduce overall flood risk (100002)** **Avoid an overall increase in flood risk (100001)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

* These Actions apply to all PVA's and across the whole of the LPD area. More information regarding these Actions can be found in Section 2.4.

3.23 Corpach (Potentially Vulnerable Area 01/23)

This Potentially Vulnerable Area is located on the north shore of Loch Eil and includes the west part of Corpach (shown below). It is approximately 27km^2.

The A830 road runs through the area.



The main river is the Allt Dogha, though there are several smaller watercourses culverted through the area.

There are fewer than 10 residential and non-residential properties at risk of flooding.

The Annual Average Damages are approximately £94,000 with the majority caused by surface water flooding.

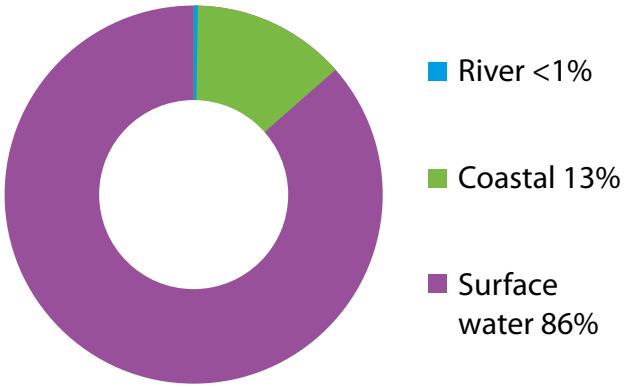


Figure 28
Annual Average Damages by flood source

Objective(s)	ID	Indicator
Avoid an overall increase in flood risk	100001	• <10 residential properties • £94,000 Annual Average Damages
Reduce overall flood risk	100002	• <10 residential properties • £94,000 Annual Average Damages
Reduce the physical or disruption risk related to the transport network for roads	1307	• 14 locations on the A830 with a total length of 440m
Reduce risk from surface water flooding in Corpach	102305	• This Objective will be monitored using surface water flood risk across the Potentially Vulnerable Area. For 01/23 there are <10 residential properties at risk and Annual Average Damages of £82,000.

Actions to be carried out within this PVA					
Flood Protection Scheme/Works	Natural Flood Management Works	New Flood Warning	Community Flood Action Groups	Property Level Protection	Site Protection Plans
Flood Protection Study	Natural Flood Management Study	Maintain Flood Warning	Awareness Raising	Surface Water Plan/Study	Emergency Plans/Response
Maintain Flood Protection Scheme	Strategic Mapping and Modelling	Flood Forecasting	Self Help	Maintenance	Planning Policies

Action ID	Surface Water Management Plan (1023050018)		
Object ID	**Reduce risk from surface water flooding in Corpach (102305)**		
Delivery Lead	The Highland Council	Indicative Delivery	2016-2022
Description	The Highland Council will develop a Highland-wide Surface Water Management Plan (SWMP) that will describe existing and future actions to reduce the flood risk from small watercourses (less than 3km^2) and surface water runoff (e.g. overland flows across roads, fields and other areas). The plan will describe existing activities such as watercourse inspections, assessments and gully maintenance and identify appropriate specific actions to alleviate surface water flooding in Corpach. 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.		
Funding	The Highland Council's Capital Programme includes funding to develop the Study within the cycle (approved June 2015).		
Co-ordination	The Highland Council will lead the development of the Surface Water Management Plan and will work with other responsible authorities and engage local community groups to understand the problems caused by surface water run-off and urban drainage and agree appropriate objectives and actions to alleviate flooding. Scottish Water will work with and support surface water management planning through ensuring that best available knowledge and data is used to input into the surface water management plans.		

Action ID	Flood Protection Scheme/Works (1307021)		
Object ID	**Reduce the physical risk related to the transport network for roads (1307)**		
Delivery Lead	Transport Scotland	Indicative Delivery	2016 - 2021
Description	Transport Scotland will carry out civil engineering work which will reduce flood risk to identified sections of the A830.		
Funding	Grant in aid settlement from Scottish Government.		
Co-ordination	Transport Scotland will consult with appropriate authorities through its statutory processes.		

Action ID	Maintain Flood Warning (1000020030)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing
Description	Continue to maintain the 'Corpach and Caol' coastal flood warning area which is part of the Firth of Lorn and Loch Linnhe coastal flood warning scheme. This flood warning area also benefits properties in Lochybridge. When flood events occur in an area with an existing flood warning service, SEPA will seek to verify the flood forecasts and warnings. SEPA will use feedback and post-event data to ensure that our flood warning service is timely and accurate.		
Funding	The maintenance of SEPA's flood warning service is funded by Scottish Government through SEPA's grant in aid settlement		
Co-ordination	SEPA will work with the local authority to ensure that any new information is considered in the existing flood warning system.		

Action ID	Strategic Mapping and Modelling (1000020019)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Scottish Water	Indicative Delivery	2018 - 2020
Description	Scottish Water will undertake further investigation and modelling in the Corpach sewer catchments to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009. Any outputs from this modelling work may feed into the surface water management plan for Corpach		
Funding	Scottish Water funding is committed in its capital programme through Q&S 4a (2015-2021) which is approved by its regulators and customers.		
Co-ordination	Scottish Water will work with responsible authorities to incorporate relevant information into these studies and by regularly keeping the responsible authorities informed of their progress. Scottish Water will provide responsible authorities with the outputs of the Section 16 assessment which, where relevant, may be used to inform surface water management plans and SEPA flood hazard and risk maps.		

Action ID	Flood Forecasting (1000020009)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing

Action ID	Self Help (1000020011)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	General Public	Indicative Delivery	Ongoing

Action ID	Awareness Raising (1000020013)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Maintenance (1000020007)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

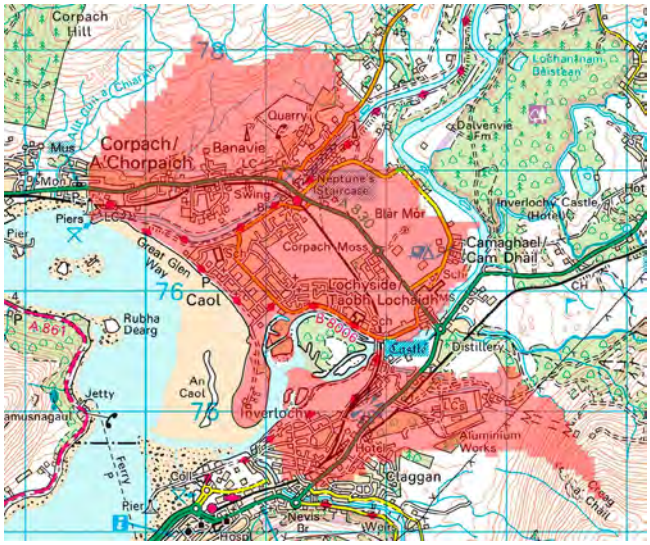
Action ID	Emergency Plan/ Response (1000020014)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Planning Policies (1000010001)*		
Object ID	**Reduce overall flood risk (100002)** **Avoid an overall increase in flood risk (100001)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

* These Actions apply to all PVA's and across the whole of the LPD area. More information regarding these Actions can be found in Section 2.4.

3.24 Caol and Inverlochy (Potentially Vulnerable Area 01/24)

This Potentially Vulnerable Area is approximately 7km^2. It is located immediately to the north of Fort William. It includes Banavie, Caol and east Corpach (shown below). The A830 and A82 pass through the area.



The main watercourses are the River Lochy and the Caledonian Canal.

There are approximately 170 residential and 40 non-residential properties at risk of flooding.

The Annual Average Damages are approximately £250,000 with the majority caused by coastal flooding.

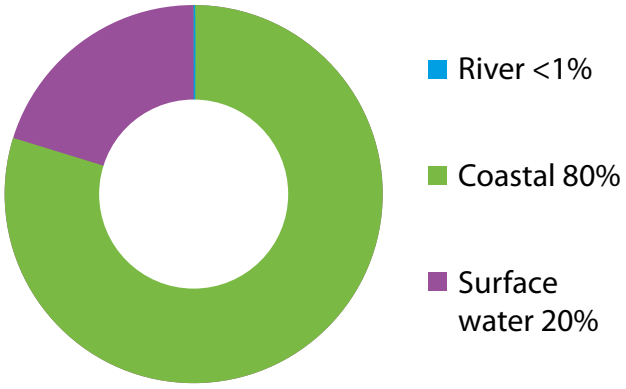


Figure 29
Annual Average Damages by flood source

Objective(s)	ID	Indicator
Avoid an overall increase in flood risk	100001	• 170 residential properties • £250,000 Annual Average Damages
Reduce overall flood risk	100002	• 170 residential properties • £250,000 Annual Average Damages
Reduce flood risk in Caol from Loch Linnhe	102401	• 340 people • £150,000 Annual Average Damages from residential properties • 1 educational building • 1 nursing home • 1 emergency service
Reduce risk from surface water flooding in Corpach and Caol	102407	• This Objective will be monitored using surface water flood risk across the Potentially Vulnerable Area. For 01/24 there are <10 residential properties at risk and Annual Average Damages of £51,000.

Actions to be carried out within this PVA					
Flood Protection Scheme/Works	Natural Flood Management Works	New Flood Warning	Community Flood Action Groups	Property Level Protection	Site Protection Plans
Flood Protection Study	Natural Flood Management Study	Maintain Flood Warning	Awareness Raising	Surface Water Plan/Study	Emergency Plans/Response
Maintain Flood Protection Scheme	Strategic Mapping and Modelling	Flood Forecasting	Self Help	Maintenance	Planning Policies

Action ID	Flood Protection Scheme (1024010006)		
Object ID	**Reduce flood risk in Caol from Loch Linnhe (102401)**		
Delivery Lead	The Highland Council	Indicative Delivery	2016-2020
Description	The Caol Flood Protection Scheme, providing protection to properties a risk of flooding from Loch Linnhe and the River Lochy, will be completed within the cycle (subject to receiving all necessary permissions). The Flood Protection Scheme includes the sections of embankments, sheet piled and concrete retaining walls, and rock armour revetments along the embankment to reduce wave overtopping and protect against erosion. Detailed design of the scheme will be progressed and a formal Flood Protection Scheme will be promoted in 2016. The construction of scheme (assumed to be before 2020) will provide protection to the community up to and including a 0.5% AEP (1 in 200 year) flood event.		
Funding	The Highland Council's Capital Programme includes funding to develop and construct the Flood Protection Scheme within the cycle (approved June 2015). Scottish Government has confirmed that this Flood Protection Scheme will be eligible for 80% grant funding (subject to future spending reviews).		
Co-ordination	The Highland Council will coordinate the development of the Scheme and any awareness raising opportunities with other responsible authorities and local community groups.		

Action ID	Maintain Flood Warning (1000020030)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing
Description	Continue to maintain the 'Corpach and Caol' coastal flood warning area which is part of the Firth of Lorn and Loch Linnhe coastal flood warning scheme. This flood warning area also benefits properties in Lochybridge. Continue to maintain the 'Lochybridge' flood warning area which is part of the Lochy river flood warning scheme. This flood warning area provides warnings for properties in Lochybridge as well as low lying farmland and access tracks along the River Lochy.		
Funding	The maintenance of SEPA's flood warning service is funded by Scottish Government through SEPA's grant in aid settlement		
Co-ordination	A Flood Protection Scheme is proposed for Caol. SEPA will work with the local authority to ensure that changes to hydrology and flood risk as a result of the proposed Flood Protection Scheme are fully considered in the existing flood warning system.		

Action ID	Surface Water Management Plan (1024070018)		
Object ID	**Reduce risk from surface water flooding in Caol and Inverlochy (102407)**		
Delivery Lead	The Highland Council	Indicative Delivery	2016-2022
Description	The Highland Council will develop a Highland-wide Surface Water Management Plan (SWMP) that will describe existing and future actions to reduce the flood risk from small watercourses (less than 3km^2) and surface water runoff (e.g. overland flows across roads, fields and other areas). The plan will describe existing activities such as watercourse inspections, assessments and gully maintenance and identify appropriate specific actions to alleviate surface water flooding in high priority areas. It is expected that only the general SWMP actions will be applied to Caol and Inverlochy and specific actions will not be required. 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.		
Funding	The Highland Council's Capital Programme includes funding to develop the Study within the cycle (approved June 2015).		
Co-ordination	The Highland Council will lead the development of the Surface Water Management Plan and will work with other responsible authorities and engage local community groups to understand the problems caused by surface water run-off and urban drainage and agree appropriate objectives and actions to alleviate flooding. Scottish Water will work with and support surface water management planning through ensuring that best available knowledge and data is used to input into the surface water management plans.		

Action ID	Strategic Mapping and Modelling (1000020019)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Scottish Water	Indicative Delivery	2016 - 2020
Description	Scottish Water will undertake further investigation and modelling in the Corpach and Fort William sewer catchments to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009. Any outputs from this modelling work may feed into the surface water management plan for Caol and Inverlochy.		
Funding	Scottish Water funding is committed in its capital programme through Q&S 4a (2015-2021) which is approved by its regulators and customers.		
Co-ordination	Scottish Water will work with responsible authorities to incorporate relevant information into these studies and by regularly keeping the responsible authorities informed of their progress. Scottish Water will provide responsible authorities with the outputs of the Section 16 assessment which, where relevant, may be used to inform surface water management plans and SEPA flood hazard and risk maps.		

Action ID	Flood Forecasting (1000020009)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing

Action ID	Self Help (1000020011)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	General Public	Indicative Delivery	Ongoing

Action ID	Awareness Raising (1000020013)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Maintenance (1000020007)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Emergency Plan/ Response (1000020014)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

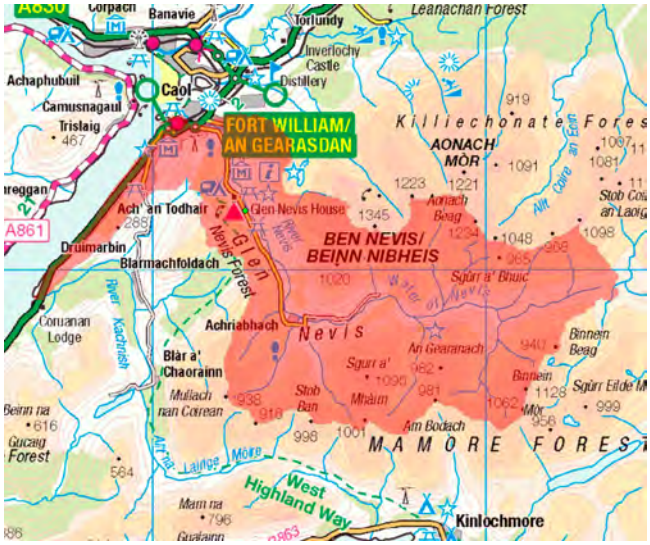
Action ID	Planning Policies (1000010001)*		
Object ID	**Reduce overall flood risk (100002)** **Avoid an overall increase in flood risk (100001)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

* These Actions apply to all PVA's and across the whole of the LPD area. More information regarding these Actions can be found in Section 2.4.

3.25 Fort William (Potentially Vulnerable Area 01/25)

This Potentially Vulnerable Area is approximately 75km^2. It is located at the north east end of Loch Linnhe and includes Fort William (shown below).

The A82 passes through the area.



The main river in this area is the River Nevis and the Water of Nevis system. There are also several smaller tributaries. There are approximately 100 residential and 80 non-residential properties at risk of flooding.

The Annual Average Damages are approximately £520,000 with the majority caused by surface water flooding.

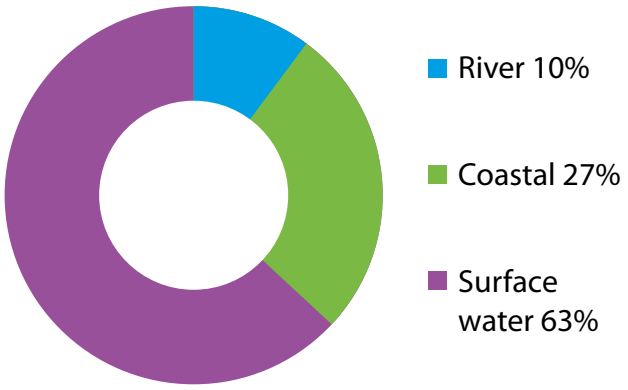


Figure 30
Annual Average Damages by flood source

Objective(s)	ID	Indicator
Avoid an overall increase in flood risk	100001	• 100 residential properties • £520,000 Annual Average Damages
Reduce overall flood risk	100002	• 100 residential properties • £520,000 Annual Average Damages
Reduce the physical or disruption risk related to the transport network for roads	1308	• 14 locations on the A82 with a total length of 130m
Reduce risk from surface water flooding in Fort William	102506	• This Objective will be monitored using surface water flood risk across the Potentially Vulnerable Area. For 01/25 there are 30 residential properties at risk and Annual Average Damages of £330,000.
Reduce coastal flood risk in Fort William from Loch Linnhe	102502	• 110 people • £110,000 Annual Average Damages from non-residential properties • 1 school • 1 emergency services building
Reduce flood risk in Fort William from the River Nevis	102501	• 40 people • £16,000 Annual Average Damages from residential properties

Actions to be carried out within this PVA					
Flood Protection Scheme/Works	Natural Flood Management Works	New Flood Warning	Community Flood Action Groups	Property Level Protection	Site Protection Plans
Flood Protection Study	Natural Flood Management Study	Maintain Flood Warning	Awareness Raising	Surface Water Plan/Study	Emergency Plans/Response
Maintain Flood Protection Scheme	Strategic Mapping and Modelling	Flood Forecasting	Self Help	Maintenance	Planning Policies

Action ID	Flood Protection Study (1025010005)		
Object ID	**Reduce coastal flood risk in Fort William from Loch Linnhe (102502)** **Reduce flood risk in Fort William from the River Nevis (102501)**		
Delivery Lead	The Highland Council	Indicative Delivery	2016-2019
Description	A Flood Protection Study is required to further investigate the feasibility of developing a Flood Protection Scheme (or Works) for Fort William. A hydraulic study will be carried out to further improve the understanding of flood risk in Fort William taking account of the tidal influence on river flooding. Following the development of this model and an improved understanding of the potential damages from the river and Loch Linnhe, a Flood Protection Study will investigate the potential benefits of providing direct defences, revetments and property level protection. Other Actions will also be considered in order to develop the most sustainable range of options. The Study will confirm the length and size of defences needed and the business case for a Flood Protection Scheme (or Works). This Flood Protection Study will not have an adverse effect on the Ben Nevis SAC.		
Funding	The Highland Council's Capital Programme includes funding to develop the Flood Protection Study within the cycle (approved June 2015).		
Co-ordination	The Highland Council will coordinate the development of the Study and any awareness raising opportunities with other responsible authorities and local community groups.		

Action ID	Flood Protection Scheme/Works (1308021)		
Object ID	**Reduce the physical risk related to the transport network for roads (1308)**		
Delivery Lead	Transport Scotland	Indicative Delivery	2016-2021
Description	Transport Scotland will carry out civil engineering work which will reduce flood risk to identified sections of the A82.		
Funding	Grant in aid settlement from Scottish Government.		
Co-ordination	Transport Scotland will consult with appropriate authorities through its statutory processes.		

Action ID	Surface Water Management Plan (1025060018)		
Object ID	**Reduce risk from surface water flooding in Fort William (102506)**		
Delivery Lead	The Highland Council	Indicative Delivery	2016-2022
Description	The Highland Council will develop a Highland-wide Surface Water Management Plan (SWMP) that will describe existing and future actions to reduce the flood risk from small watercourses (less than 3km^2) and surface water runoff (e.g. overland flows across roads, fields and other areas). The plan will describe existing activities such as watercourse inspections, assessments and gully maintenance and identify appropriate specific actions to alleviate surface water flooding in Fort William. 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.		
Funding	The Highland Council's Capital Programme includes funding to develop the Study within the cycle (approved June 2015).		
Co-ordination	The Highland Council will lead the development of the Surface Water Management Plan and will work with other responsible authorities and engage local community groups to understand the problems caused by surface water run-off and urban drainage and agree appropriate objectives and actions to alleviate flooding. Scottish Water will work with and support surface water management planning through ensuring that best available knowledge and data is used to input into the surface water management plans.		

Action ID	Strategic Mapping and Modelling (1000020019)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Scottish Water	Indicative Delivery	2016 – 2020
Description	Scottish Water will undertake further investigation and modelling in the Fort William sewer catchments to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009. Any outputs from this modelling work may feed into the surface water management plan for Fort William.		
Funding	Scottish Water funding is committed in its capital programme through Q&S 4a (2015-2021) which is approved by its regulators and customers.		
Co-ordination	Scottish Water will work with responsible authorities to incorporate relevant information into these studies and by regularly keeping the responsible authorities informed of their progress. Scottish Water will provide responsible authorities with the outputs of the Section 16 assessment which, where relevant, may be used to inform surface water management plans and SEPA flood hazard and risk maps.		

Action ID	Maintain Flood Warning (1000020030)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing
Description	Continue to maintain the 'Fort William' coastal flood warning area which is part of the Firth of Lorn and Loch Linnhe coastal flood warning scheme. Continue to maintain the 'Glen Nevis' flood warning area which is part of the Nevis river flood warning scheme. This flood warning area provides a flood warning for properties in Glen Nevis at risk of flooding, as well as the road.		
Funding	The maintenance of SEPA's flood warning service is funded by Scottish Government through SEPA's grant in aid settlement		
Co-ordination	A Flood Protection Scheme is proposed for Caol. SEPA will work with the local authority to ensure that changes to hydrology and flood risk as a result of the proposed Flood Protection Scheme are fully considered in the existing flood warning system.		

Action ID	Flood Forecasting (1000020009)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing

Action ID	Self Help (1000020011)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	General Public	Indicative Delivery	Ongoing

Action ID	Awareness Raising (1000020013)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Maintenance (1000020007)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Emergency Plan/ Response (1000020014)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Planning Policies (1000010001)*		
Object ID	**Reduce overall flood risk (100002)** **Avoid an overall increase in flood risk (100001)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

* These Actions apply to all PVA's and across the whole of the LPD area. More information regarding these Actions can be found in Section 2.4.

3.26 Sunart and Moidart (Potentially Vulnerable Area 01/26)

This Potentially Vulnerable Area is approximately 79km^2. It is located on the Ardnamurchan peninsula along the north east shore of Loch Sunart (shown below). The A861 and B8007 pass through the area.

There are no major rivers in this area. However, there are several smaller rivers such as the Dig Bhan and the Allt Camas a Choirce.

There are fewer than 10 residential and non-residential properties at risk of flooding.

The Annual Average Damages are approximately £69,000 with the majority caused by coastal and river flooding.

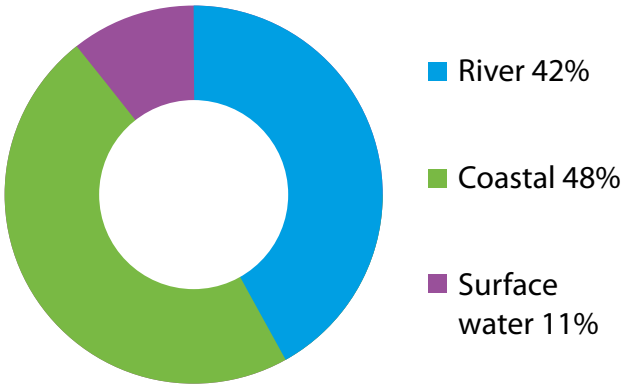


Figure 31
Annual Average Damages by flood source

Objective(s)	ID	Indicator
Avoid an overall increase in flood risk	100001	• <10 residential properties • £69,000 Annual Average Damages
Reduce overall flood risk	100002	• <10 residential properties • £69,000 Annual Average Damages

Actions to be carried out within this PVA					
Flood Protection Scheme/Works	Natural Flood Management Works	New Flood Warning	Community Flood Action Groups	Property Level Protection	Site Protection Plans
Flood Protection Study	Natural Flood Management Study	Maintain Flood Warning	Awareness Raising	Surface Water Plan/Study	Emergency Plans/Response
Maintain Flood Protection Scheme	Strategic Mapping and Modelling	Flood Forecasting	Self Help	Maintenance	Planning Policies

Action ID	Flood Forecasting (1000020009)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing

Action ID	Self Help (1000020011)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	General Public	Indicative Delivery	Ongoing

Action ID	Awareness Raising (1000020013)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Maintenance (1000020007)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

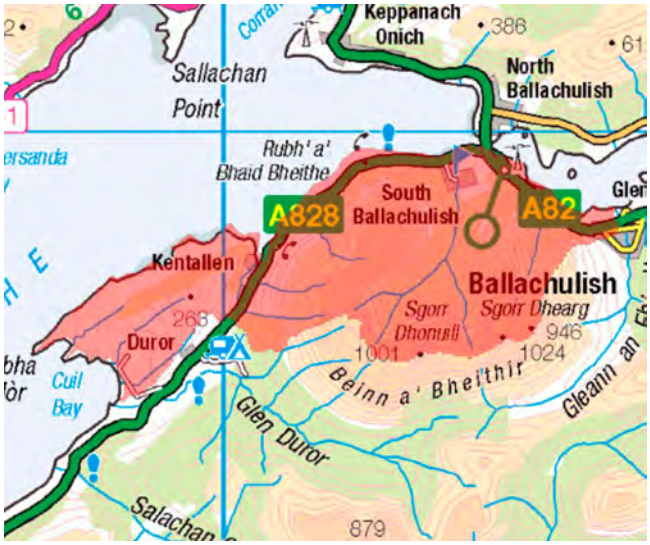
Action ID	Emergency Plan/ Response (1000020014)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Planning Policies (1000010001)*		
Object ID	**Reduce overall flood risk (100002)** **Avoid an overall increase in flood risk (100001)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

* These Actions apply to all PVA's and across the whole of the LPD area. More information regarding these Actions can be found in Section 2.4.

3.27 South Ballachulish (Potentially Vulnerable Area 01/27)

This Potentially Vulnerable Area is located on the eastern shore of Loch Linnhe and covers South Ballachulish, Kentallen and part of Balluchulish (shown below). It is approximately 29km^2.



There are no major rivers in this area. However, there are several small rivers such as the Abhainn Greadhain and Kentallen Burn.

There are approximately 20 residential and 40 non-residential properties are at risk of flooding.

The Annual Average Damages are approximately £130,000 with the majority caused by surface water flooding.

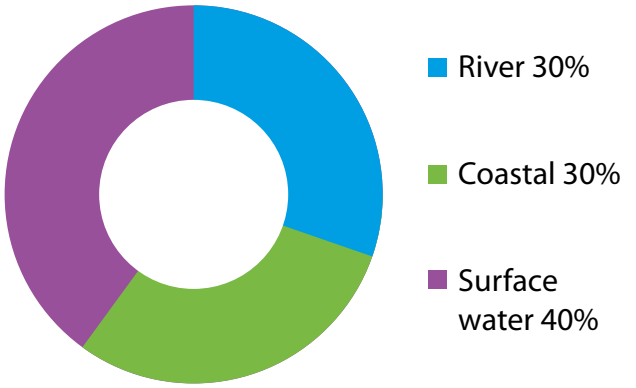


Figure 32
Annual Average Damages by flood source

Objective(s)	ID	Indicator
Avoid an overall increase in flood risk	100001	• 20 residential properties • £130,000 Annual Average Damages
Reduce overall flood risk	100002	• 20 residential properties • £130,000 Annual Average Damages

Actions to be carried out within this PVA					
Flood Protection Scheme/Works	Natural Flood Management Works	New Flood Warning	Community Flood Action Groups	Property Level Protection	Site Protection Plans
Flood Protection Study	Natural Flood Management Study	Maintain Flood Warning	Awareness Raising	Surface Water Plan/Study	Emergency Plans/Response
Maintain Flood Protection Scheme	Strategic Mapping and Modelling	Flood Forecasting	Self Help	Maintenance	Planning Policies

Action ID	Flood Forecasting (1000020009)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing

Action ID	Self Help (1000020011)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	General Public	Indicative Delivery	Ongoing

Action ID	Awareness Raising (1000020013)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Maintenance (1000020007)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Emergency Plan/ Response (1000020014)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Planning Policies (1000010001)*		
Object ID	**Reduce overall flood risk (100002)** **Avoid an overall increase in flood risk (100001)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

* These Actions apply to all PVA's and across the whole of the LPD area. More information regarding these Actions can be found in Section 2.4.

3.28 Ballachulish and Glencoe (Potentially Vulnerable Area 01/28)

This Potentially Vulnerable Area is located on the south of Loch Leven and covers Ballachulish and Glencoe (shown below). It is approximately 16km^2. The A82 passes through the area.

The River Laroch which flows through Ballachulish into Loch Leven is the largest river in the area.

There are approximately 50 residential and 20 non-residential properties at risk of flooding.

The Annual Average Damages are approximately £180,000 with the majority caused by river flooding.

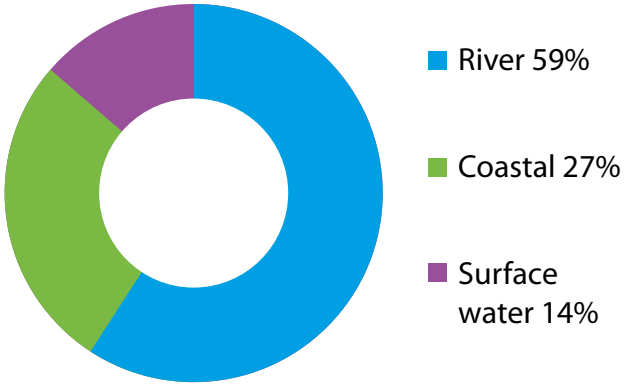


Figure 33
Annual Average Damages by flood source

Objective(s)	ID	Indicator
Avoid an overall increase in flood risk	100001	• 50 residential properties • £180,000 Annual Average Damages
Reduce overall flood risk	100002	• 50 residential properties • £180,000 Annual Average Damages
Reduce the physical or disruption risk related to the transport network for roads	1309	• 80m of the A82 in 1 location
Reduce flood risk in Ballachulish from the River Laroch	102801	• 40 people • £31,000 Annual Average Damages from residential properties • £58,000 Annual Average Damages from non-residential properties
Reduce flood risk in Glencoe from Loch Leven	102802	• 40 people • 1 educational building

Actions to be carried out within this PVA					
Flood Protection Scheme/Works	Natural Flood Management Works	New Flood Warning	Community Flood Action Groups	Property Level Protection	Site Protection Plans
Flood Protection Study	Natural Flood Management Study	Maintain Flood Warning	Awareness Raising	Surface Water Plan/Study	Emergency Plans/Response
Maintain Flood Protection Scheme	Strategic Mapping and Modelling	Flood Forecasting	Self Help	Maintenance	Planning Policies

Action ID	Flood Protection Study (1028010005)		
Object ID	**Reduce flood risk in Ballachulish from the River Laroch (102801)**		
Delivery Lead	The Highland Council	Indicative Delivery	2022-2027 (Cycle 2)
Description	A Flood Protection Study is required to further investigate the feasibility of developing a Flood Protection Scheme (or Works) for Ballachulish. A hydraulic study will be carried out to further improve the understanding of flood risk in Ballachulish from the River Laroch. Following the development of this model and an improved understanding of the potential damages from the river, a Flood Protection Study will investigate the potential benefits of providing direct defences and channel modifications between Laroch Beag and Albert Road, and consideration of property level protection. The Study will also include an investigation into the potential benefits of using Natural Flood Management techniques to help reduce flood risk in high likelihood events. Such techniques may include sediment management to reduce bank erosion and deposition. Other actions will be considered in order to develop the most sustainable range of options. The Study will confirm the business case for a Flood Protection Scheme (or Works). The Study will be carried out in cycle 2 as there is no known history of significant flooding in Ballachulish from the River Laroch. This Flood Protection Study will not have an adverse effect on the Glen Etive and Glen Fyne SPA.		
Funding	Funding to develop this Study will be secured from The Highland Council's Capital Programme in 2022.		
Co-ordination	The Highland Council will coordinate the development of the Study, in particular any Natural Flood Management aspects that include the alteration (including enhancement) or restoration of natural features and characteristics with any actions of other responsible authorities and local community groups.		

Action ID	Flood Protection Scheme/Works (1309021)		
Object ID	**Reduce the physical risk related to the transport network for roads (1309)**		
Delivery Lead	Transport Scotland	Indicative Delivery	2016-2021
Description	Transport Scotland will carry out civil engineering work which will reduce flood risk to identified sections of the A82.		
Funding	Grant in aid settlement from Scottish Government.		
Co-ordination	Transport Scotland will consult with appropriate authorities through its statutory processes.		

Action ID	Flood Protection Study (1028020005)		
Object ID	**Reduce flood risk in Glencoe from Loch Leven (102802)**		
Delivery Lead	The Highland Council	Indicative Delivery	2022-2027 (Cycle 2)
Description	A Flood Protection Study is required to further investigate the feasibility of developing a Flood Protection Scheme (or Works) for Glencoe. The Study will investigate the potential benefits of providing direct defences, coastal revetments and consideration of property level protection for residual risk. Other actions will be considered in order to develop the most sustainable range of options. The Study will confirm the business case for a Flood Protection Scheme (or Works).		
Funding	Funding to develop this Study will be secured from The Highland Council's Capital Programme in 2022.		
Co-ordination	The Highland Council will coordinate the development of the Study with actions of other responsible authorities and engage local community groups.		

Action ID	Flood Forecasting (1000020009)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing

Action ID	Self Help (1000020011)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	General Public	Indicative Delivery	Ongoing

Action ID	Awareness Raising (1000020013)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Maintenance (1000020007)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Emergency Plan/ Response (1000020014)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

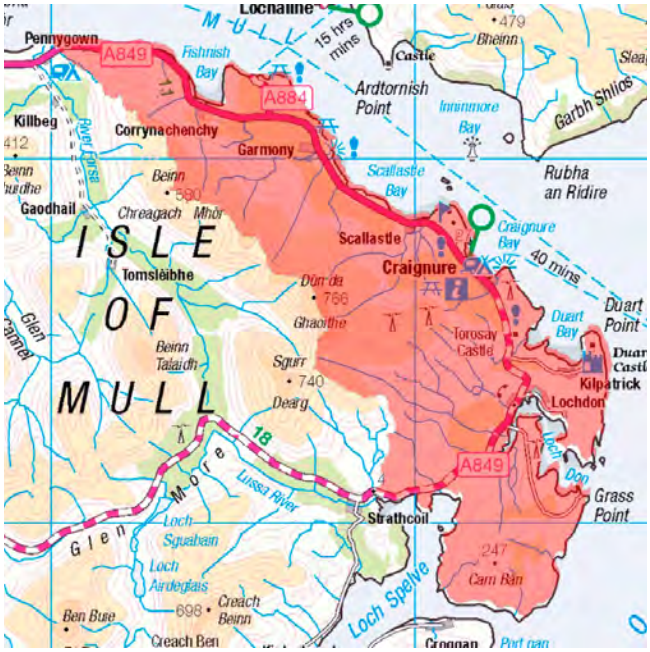
Action ID	Planning Policies (1000010001)*		
Object ID	**Reduce overall flood risk (100002)** **Avoid an overall increase in flood risk (100001)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

* These Actions apply to all PVA's and across the whole of the LPD area. More information regarding these Actions can be found in Section 2.4.

Photo by Joe Foster

3.29 Isle of Mull, Craignure (Potentially Vulnerable Area 01/29)

This Potentially Vulnerable Area is located on the north east coast of Mull and includes Craignure, Lochdon, Fishnish, Balmeanach and Scallastle (shown below). It is approximately 78km^2.



The A849, an important transport link connecting coastal settlements to each other and to the Oban ferry, passes through the area.

There are fewer than 10 residential and non-residential properties at risk of flooding.

The Annual Average Damages are approximately £69,000 with the majority caused by coastal flooding.

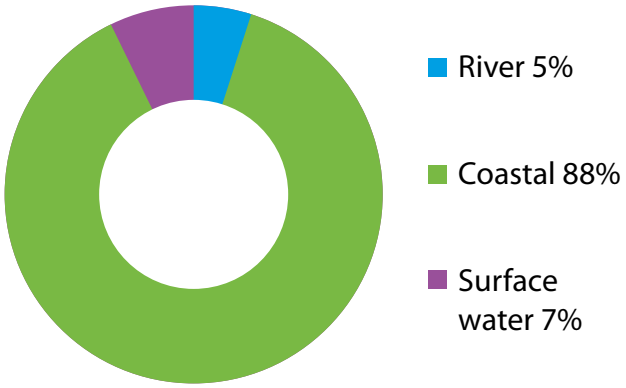


Figure 34
Annual Average Damages by flood source

Objective(s)	ID	Indicator
Avoid an overall increase in flood risk	100001	• <10 residential properties • £69,000 Annual Average Damages
Reduce overall flood risk	100002	• <10 residential properties • £69,000 Annual Average Damages

Actions to be carried out within this PVA					
Flood Protection Scheme/Works	Natural Flood Management Works	New Flood Warning	Community Flood Action Groups	Property Level Protection	Site Protection Plans
Flood Protection Study	Natural Flood Management Study	Maintain Flood Warning	Awareness Raising	Surface Water Plan/Study	Emergency Plans/Response
Maintain Flood Protection Scheme	Strategic Mapping and Modelling	Flood Forecasting	Self Help	Maintenance	Planning Policies

Action ID	Flood Forecasting (1000020009)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing

Action ID	Self Help (1000020011)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	General Public	Indicative Delivery	Ongoing

Action ID	Awareness Raising (1000020013)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Maintenance (1000020007)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Emergency Plan/ Response (1000020014)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Planning Policies (1000010001)*		
Object ID	**Reduce overall flood risk (100002)** **Avoid an overall increase in flood risk (100001)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

* These Actions apply to all PVA's and across the whole of the LPD area. More information regarding these Actions can be found in Section 2.4.

3.30 Ross of Mull (Potentially Vulnerable Area 01/30)

This Potentially Vulnerable Area is approximately 194km^2 and is situated on the south of the Isle of Mull (shown below). It includes the village of Fionnphort and a number of smaller settlements.

The A849, an important transport link connecting settlements in Mull to each other and to neighbouring islands, passes through this area.

There are fewer than 10 residential and non-residential properties at risk of flooding.

The Annual Average Damages are approximately £110,000 with the majority caused by coastal flooding.

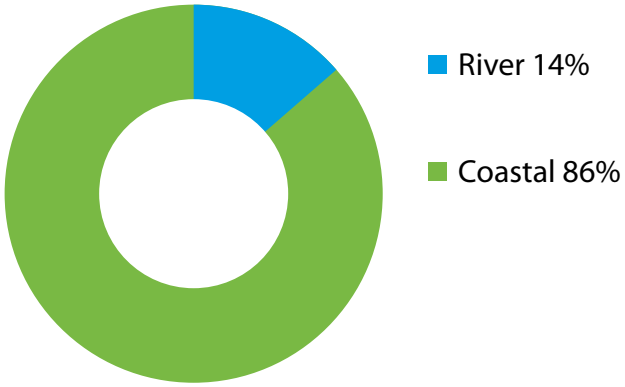


Figure 35
Annual Average Damages by flood source

Objective(s)	ID	Indicator
Avoid an overall increase in flood risk	100001	• <10 residential properties • £110,000 Annual Average Damages
Reduce overall flood risk	100002	• <10 residential properties • £110,000 Annual Average Damages

Actions to be carried out within this PVA					
Flood Protection Scheme/Works	Natural Flood Management Works	New Flood Warning	Community Flood Action Groups	Property Level Protection	Site Protection Plans
Flood Protection Study	Natural Flood Management Study	Maintain Flood Warning	Awareness Raising	Surface Water Plan/Study	Emergency Plans/Response
Maintain Flood Protection Scheme	Strategic Mapping and Modelling	Flood Forecasting	Self Help	Maintenance	Planning Policies

Action ID	Flood Forecasting (1000020009)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing

Action ID	Self Help (1000020011)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	General Public	Indicative Delivery	Ongoing

Action ID	Awareness Raising (1000020013)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Maintenance (1000020007)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

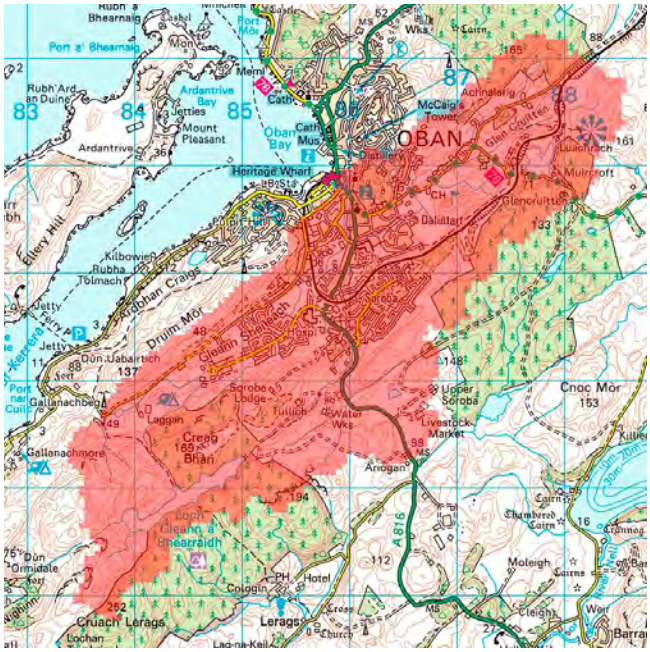
Action ID	Emergency Plan/ Response (1000020014)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Planning Policies (1000010001)*		
Object ID	**Reduce overall flood risk (100002)** **Avoid an overall increase in flood risk (100001)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

* These Actions apply to all PVA's and across the whole of the LPD area. More information regarding these Actions can be found in Section 2.4.

3.31 Oban (Potentially Vulnerable Area 01/31)

This Potentially Vulnerable Area includes Oban and the mainly rural area to the south (shown below). It is approximately 11km^2. The A816 runs through the area.



The main river in Oban is the Black Lynn Burn.

There are approximately 320 residential and 310 non-residential properties at risk of flooding.

The Annual Average Damages are approximately £1.8million with the majority due to river flooding.

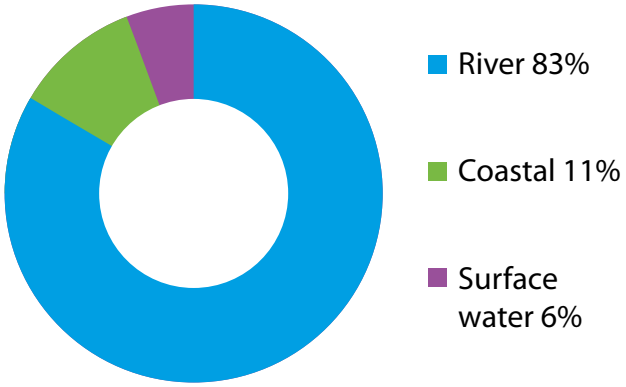


Figure 36
Annual Average Damages by flood source

Objective(s)	ID	Indicator
Avoid an overall increase in flood risk	100001	• 320 residential properties • £1.8 million Annual Average Damages
Reduce overall flood risk	100002	• 320 residential properties • £1.8 million Annual Average Damages
Reduce risk from surface water flooding in Oban	103106	• This objective will be monitored using surface water flood risk across the Potentially Vulnerable Area. For 01/31 there are 20 residential properties at risk and AnnualAverage Damages of £100,000.
Reduce river and coastal flooding in Oban from the Black Lynn Burn	103102	• 650 people • £280,000 Annual Average Damages from residential properties • £1.2 million Annual Average Damages from non-residential properties
Reduce the risk along the Oban Bay frontage from coastal flooding	103101	• £2,700 Annual Average Damages from residential properties • £17,000 Annual Average Damages from non-residential properties

Actions to be carried out within this PVA					
Flood Protection Scheme/Works	Natural Flood Management Works	New Flood Warning	Community Flood Action Groups	Property Level Protection	Site Protection Plans
Flood Protection Study	Natural Flood Management Study	Maintain Flood Warning	Awareness Raising	Surface Water Plan/Study	Emergency Plans/Response
Maintain Flood Protection Scheme	Strategic Mapping and Modelling	Flood Forecasting	Self Help	Maintenance	Planning Policies

Action ID	Flood Protection Study (1031020005)		
Object ID	**Reduce river and coastal flooding in Oban from the Black Lynn Burn (103102)** **Reduce risk along the Oban Bay frontage from coastal flooding (103101)**		
Delivery Lead	Argyll and Bute Council	Indicative Delivery	2016-2021
Description	A Study is recommended to assess flood risk from the Black Lynn Burn, including tidal effects in the Black Lynn Burn and coastal flooding in Oban Bay. The Study should focus on direct defences, Natural Flood Management (including flood storage, runoff control, sediment management), increasing storage on the existing lochs (Loch Gleann a Bhearraidh and Luachrach Loch), property level protection and individual property relocation for residual risk. Other Actions may also be considered to develop the most sustainable flood risk management options.		
Funding	It is expected that the study will be funded from Argyll and Bute Council's budget. However approval of the necessary funds has not been confirmed (April 2016).		
Co-ordination	Argyll and Bute Council will work with other Responsible Authorities and stakeholders to develop the Flood Protection Study.		

Action ID	Surface Water Management Plan (1031060018)		
Object ID	**Reduce risk from surface water flooding in Oban (103106)**		
Delivery Lead	Argyll and Bute Council	Indicative Delivery	2016-2019
Description	The area will be covered by a surface water management plan or plans, produced by Argyll and Bute Council, which set objectives for the management of surface water flood risk and identify the most sustainable Actions to achieve the Objectives. Scottish Water will provide local knowledge and understanding of the sewer network. This includes Scottish Water corporate data (as applicable) and, where available, outputs of Section 16 or integrated catchment studies, to assist with the surface water management planning process.		
Funding	It is expected that the study will be funded from Argyll and Bute Council's budget. However approval of the necessary funds has not been confirmed (April 2016).		
Co-ordination	Argyll and Bute Council will work with Scottish Water, other Responsible Authorities and stakeholders to develop the Surface Water Management Plan		

Action ID	Maintain Flood Warning (1000020030)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing
Description	Continue to maintain the 'Oban' coastal flood warning area which is part of the Firth of Lorn and Loch Linnhe coastal flood warning scheme		
Funding	The maintenance of SEPA's flood warning service is funded by Scottish Government through SEPA's grant in aid settlement.		
Co-ordination	A Flood Protection Study is proposed for Oban. SEPA will work with the local authority to ensure that any new information about flood risk resulting from the proposed Flood Protection Study is considered in the existing flood warning system.		

Action ID	Strategic Mapping And Modelling (1000020019)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Scottish Water	Indicative Delivery	2017-2020
Description	Scottish Water will undertake further investigation and modelling in the Oban sewer catchments to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.		
Funding	Scottish Water funding is committed in its capital programme through Q&S 4a (2015-2021) which is approved by its regulators and customers.		
Co-ordination	Scottish Water will work with responsible authorities to incorporate relevant information into these studies and by regularly keeping the responsible authorities informed of their progress. Scottish Water will provide responsible authorities with the outputs of the Section 16 assessment which, where relevant, may be used to inform surface water management plans and SEPA flood hazard and risk maps.		

Action ID	Flood Forecasting (1000020009)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing

Action ID	Self Help (1000020011)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	General Public	Indicative Delivery	Ongoing

Action ID	Awareness Raising (1000020013)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Maintenance (1000020007)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

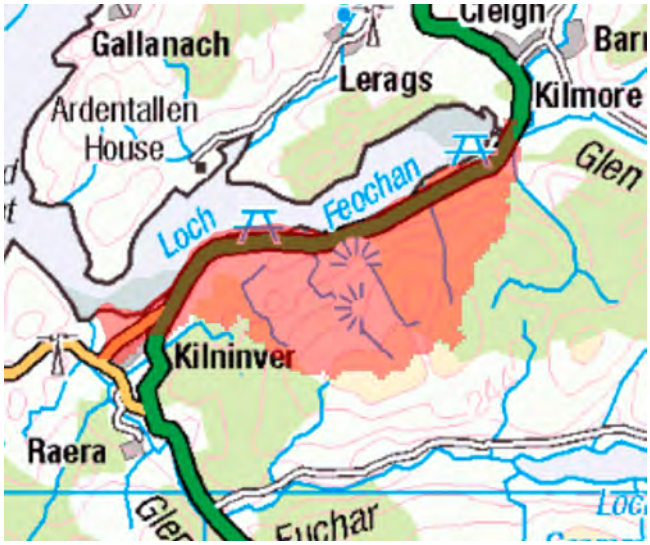
Action ID	Emergency Plan/ Response (1000020014)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Planning Policies (1000010001)*		
Object ID	**Reduce overall flood risk (100002)** **Avoid an overall increase in flood risk (100001)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

* These Actions apply to all PVA's and across the whole of the LPD area. More information regarding these Actions can be found in Section 2.4.

3.32 Loch Feochan (Potentially Vulnerable Area 01/32)

This Potentially Vulnerable Area is approximately 7km^2. It is located on the southern shore of Loch Feochan approximately 8km south of Oban (shown below).



The A816 and B844 pass through the Potentially Vulnerable Area.

There are fewer than 10 residential and non-residential properties at risk of flooding.

The Annual Average Damages are approximately £19,000 with the majority caused by coastal flooding.

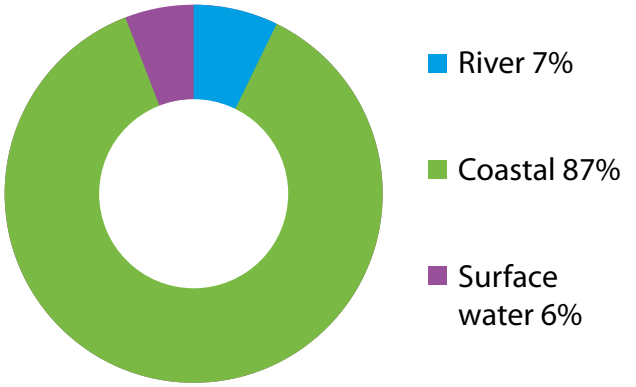


Figure 37
Annual Average Damages by flood source

Objective(s)	ID	Indicator
Avoid an overall increase in flood risk	100001	• <10 residential properties • £19,000 Annual Average Damages
Reduce overall flood risk	100002	• <10 residential properties • £19,000 Annual Average Damages

Actions to be carried out within this PVA					
Flood Protection Scheme/Works	Natural Flood Management Works	New Flood Warning	Community Flood Action Groups	Property Level Protection	Site Protection Plans
Flood Protection Study	Natural Flood Management Study	Maintain Flood Warning	Awareness Raising	Surface Water Plan/Study	Emergency Plans/Response
Maintain Flood Protection Scheme	Strategic Mapping and Modelling	Flood Forecasting	Self Help	Maintenance	Planning Policies

Action ID	Flood Forecasting (1000020009)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing

Action ID	Self Help (1000020011)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	General Public	Indicative Delivery	Ongoing

Action ID	Awareness Raising (1000020013)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Maintenance (1000020007)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Emergency Plan/ Response (1000020014)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

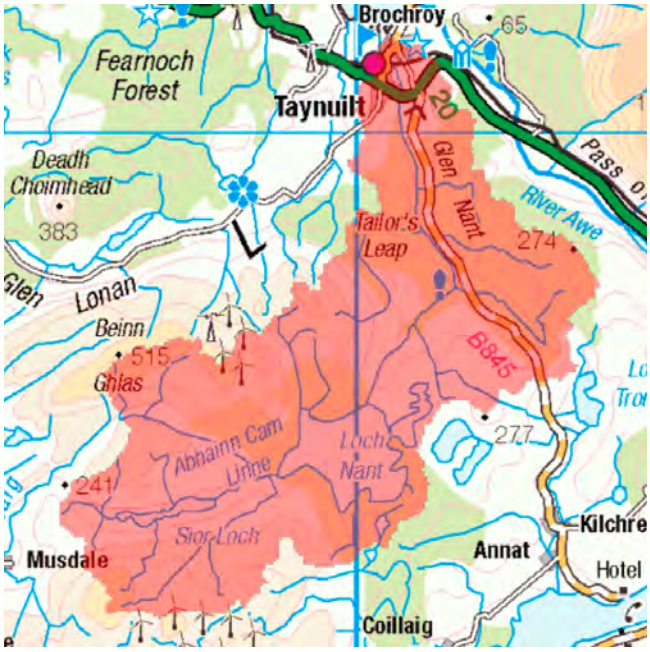
Action ID	Planning Policies (1000010001)*		
Object ID	**Reduce overall flood risk (100002)** **Avoid an overall increase in flood risk (100001)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

* These Actions apply to all PVA's and across the whole of the LPD area. More information regarding these Actions can be found in Section 2.4.

3.33 Taynuilt (Potentially Vulnerable Area 01/33)

This Potentially Vulnerable Area is located to the south of Loch Etive and includes the village of Taynuilt (shown below). It is approximately 45km^2.

The A85 road runs through the area.



The River Nant is the largest river in this Potentially Vulnerable Area.

There are approximately 40 residential and fewer than 10 non-residential properties at risk of flooding.

The Annual Average Damages are approximately £130,000 with the majority caused by river and coastal flooding.

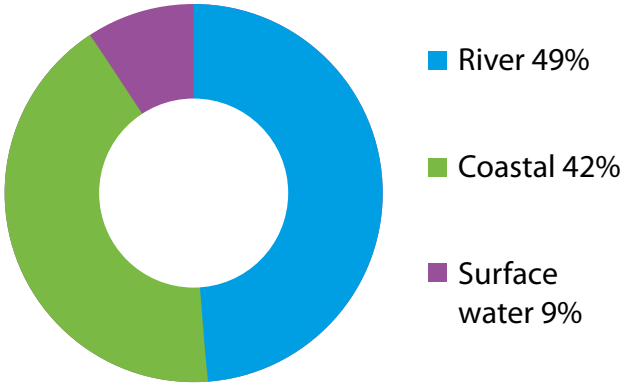


Figure 38
Annual Average Damages by flood source

Objective(s)	ID	Indicator
Avoid an overall increase in flood risk	100001	• 40 residential properties • £130,000 Annual Average Damages
Reduce overall flood risk	100002	• 40 residential properties • £130,000 Annual Average Damages
Reduce flood risk in Taynuilt from Loch Etive	103302	• £49,000 Annual Average Damages from non-residential properties
Reduce flood risk in Taynuilt from the River Nant	103301	• 90 people £42,000 Annual Average Damages from residential properties
Reduce the physical or disruption risk related to the transport network for roads	1310	• 5 locations on the A85 with a total length of 120m

Actions to be carried out within this PVA					
Flood Protection Scheme/Works	Natural Flood Management Works	New Flood Warning	Community Flood Action Groups	Property Level Protection	Site Protection Plans
Flood Protection Study	Natural Flood Management Study	Maintain Flood Warning	Awareness Raising	Surface Water Plan/Study	Emergency Plans/Response
Maintain Flood Protection Scheme	Strategic Mapping and Modelling	Flood Forecasting	Self Help	Maintenance	Planning Policies

Action ID	Strategic Mapping and Modelling (1033020016)		
Object ID	**Reduce flood risk in Taynuilt from the River Nant (103301)** **Reduce flood risk in Taynuilt from Loch Etive (103302)**		
Delivery Lead	SEPA	Indicative Delivery	River: 2016 Coastal: 2016 - 2019
Description	SEPA will review existing coastal and river modelling and data in this area, to determine if any improvements can be made to the coastal and river flood maps. SEPA will support the local authority if further work beyond a strategic scale required.		
Funding	SEPA's strategic mapping and modelling activities are funded by Scottish Government through SEPA's grant in aid settlement.		
Co-ordination	SEPA's strategic mapping activities will be co-ordinated with the activities of other responsible authorities as required.		

Action ID	Strategic Mapping and Modelling (1000020019)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Scottish Water	Indicative Delivery	2016-2017
Description	Scottish Water will undertake further investigation and modelling in the Taynuilt sewer catchment to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.		
Funding	Scottish Water funding is committed in its capital programme through Q&S 4a (2015-2021) which is approved by its regulators and customers.		
Co-ordination	Scottish Water will work with responsible authorities to incorporate relevant information into these studies and by regularly keeping the responsible authorities informed of their progress. Scottish Water will provide responsible authorities with the outputs of the Section 16 assessment which, where relevant, may be used to inform surface water management plans and SEPA flood hazard and risk maps.		

Action ID	Flood Protection Scheme/Works (1310021)		
Object ID	**Reduce the physical or disruption risk related to the transport network for roads (1310)**		
Delivery Lead	Transport Scotland	Indicative Delivery	2016-2021
Description	Transport Scotland will carry out civil engineering work which will reduce flood risk to identified sections of the A85.		
Funding	Grant in aid settlement from Scottish Government.		
Co-ordination	Transport Scotland will consult with appropriate authorities through its statutory processes.		

Action ID	Flood Forecasting (1000020009)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing

Action ID	Self Help (1000020011)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	General Public	Indicative Delivery	Ongoing

Action ID	Awareness Raising (1000020013)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Maintenance (1000020007)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Emergency Plan/ Response (1000020014)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

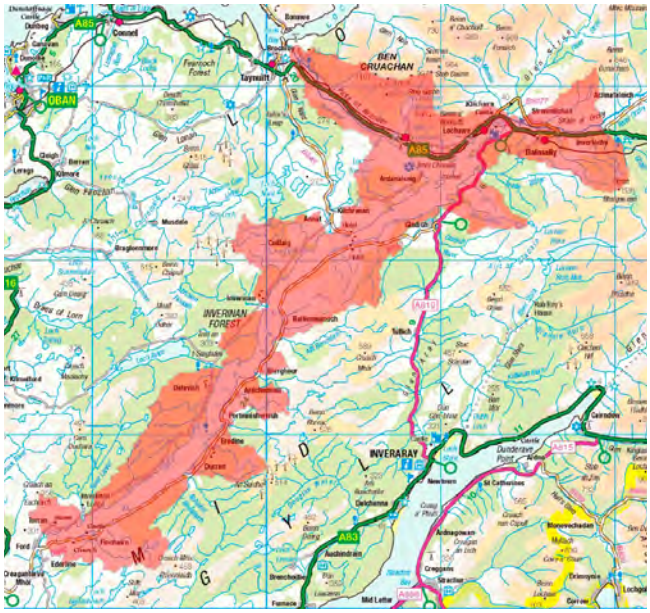
Action ID	Planning Policies (1000010001)*		
Object ID	**Reduce overall flood risk (100002)** **Avoid an overall increase in flood risk (100001)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

* These Actions apply to all PVA's and across the whole of the LPD area. More information regarding these Actions can be found in Section 2.4.

3.34 Loch Awe (Potentially Vulnerable Area 01/34)

This Potentially Vulnerable Area is located around Loch Awe and includes Dalmally (shown below). It is approximately 230km^2.

The A85 and A819 roads and the Glasgow to Oban railway line pass through the area.



The main rivers are the Awe and the Orchy.

There are approximately 20 residential and 30 non-residential properties at risk of flooding.

The Annual Average Damages are approximately £100,000 with the majority caused by river flooding.

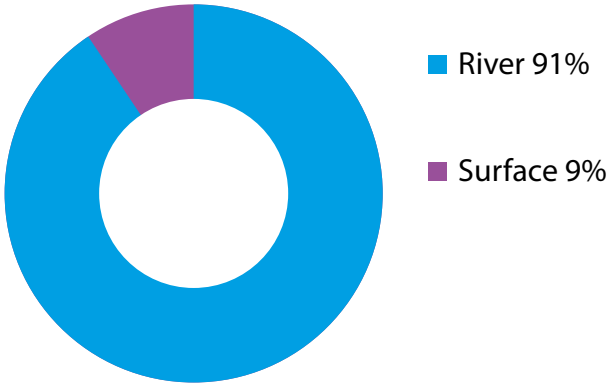


Figure 39
Annual Average Damages by flood source

Objective(s)	ID	Indicator
Avoid an overall increase in flood risk	100001	• 20 residential properties • £100,000 Annual Average Damages
Reduce overall flood risk	100002	• 20 residential properties • £100,000 Annual Average Damages
Reduce the physical or disruption risk related to the transport network for roads	1311	• 19 locations on the A85 with a total length of 720m

Actions to be carried out within this PVA					
Flood Protection Scheme/Works	Natural Flood Management Works	New Flood Warning	Community Flood Action Groups	Property Level Protection	Site Protection Plans
Flood Protection Study	Natural Flood Management Study	Maintain Flood Warning	Awareness Raising	Surface Water Plan/Study	Emergency Plans/Response
Maintain Flood Protection Scheme	Strategic Mapping and Modelling	Flood Forecasting	Self Help	Maintenance	Planning Policies

Action ID	Strategic Mapping and Modelling (1000020016)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	2018
Description	SEPA will be seeking to incorporate additional surface water hazard mapping information into the flood maps to improve understanding of flood risk. Approximately 2,100km^2 of improved data is currently available within this Local Plan District.		
Funding	SEPA's strategic mapping and modelling activities are funded by Scottish Government through SEPA's grant in aid settlement.		
Co-ordination	SEPA's strategic mapping activities will be co-ordinated with the activities of other responsible authorities as required.		

Action ID	Flood Protection Scheme/Works (1311021)		
Object ID	**Reduce the physical or disruption risk related to the transport network for roads (1311)**		
Delivery Lead	Transport Scotland	Indicative Delivery	2016-2021
Description	Transport Scotland will carry out civil engineering work which will reduce flood risk to identified sections of the A85.		
Funding	Grant in aid settlement from Scottish Government.		
Co-ordination	Transport Scotland will consult with appropriate authorities through its statutory processes.		

Action ID	Flood Forecasting (1000020009)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing

Action ID	Self Help (1000020011)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	General Public	Indicative Delivery	Ongoing

Action ID	Awareness Raising (1000020013)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Maintenance (1000020007)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

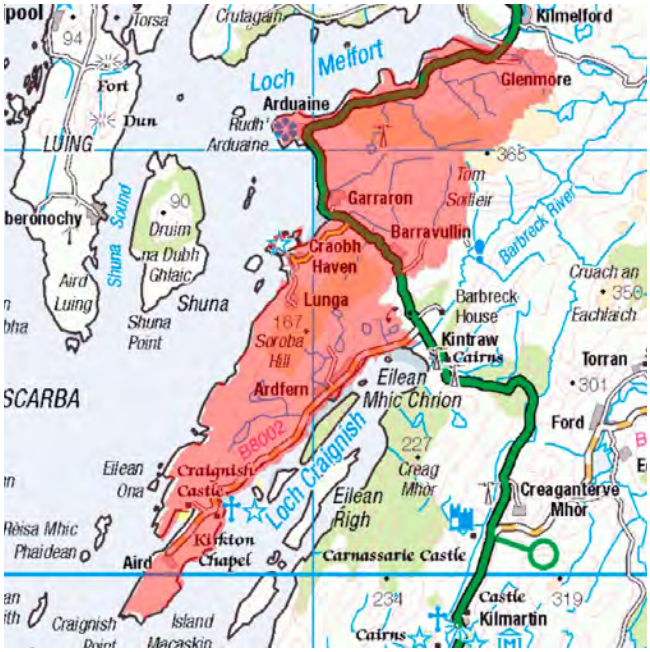
Action ID	Emergency Plan/ Response (1000020014)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Planning Policies (1000010001)*		
Object ID	**Reduce overall flood risk (100002)** **Avoid an overall increase in flood risk (100001)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

* These Actions apply to all PVA's and across the whole of the LPD area. More information regarding these Actions can be found in Section 2.4.

3.35 Craignish (Potentially Vulnerable Area 01/35)

This Potentially Vulnerable Area is located between Loch Craignish and Loch Melfort and includes Glenmore, Arduaine and Aird (shown below). It is largely rural and is approximately 38km^2.



There are fewer than 10 residential and approximately 10 non-residential properties at risk of flooding.

The Annual Average Damages are approximately £93,000 with the majority caused by coastal flooding.

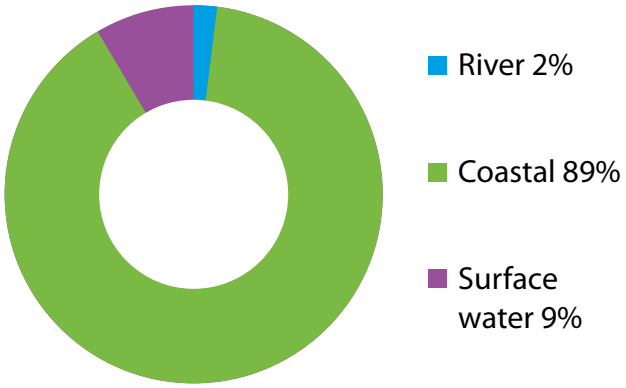


Figure 40
Annual Average Damages by flood source

Objective(s)	ID	Indicator
Avoid an overall increase in flood risk	100001	• <10 residential properties • £93,000 Annual Average Damages
Reduce overall flood risk	100002	• <10 residential properties • £93,000 Annual Average Damages

Actions to be carried out within this PVA					
Flood Protection Scheme/Works	Natural Flood Management Works	New Flood Warning	Community Flood Action Groups	Property Level Protection	Site Protection Plans
Flood Protection Study	Natural Flood Management Study	Maintain Flood Warning	Awareness Raising	Surface Water Plan/Study	Emergency Plans/Response
Maintain Flood Protection Scheme	Strategic Mapping and Modelling	Flood Forecasting	Self Help	Maintenance	Planning Policies

Action ID	Flood Forecasting (1000020009)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing

Action ID	Self Help (1000020011)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	General Public	Indicative Delivery	Ongoing

Action ID	Awareness Raising (1000020013)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Maintenance (1000020007)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

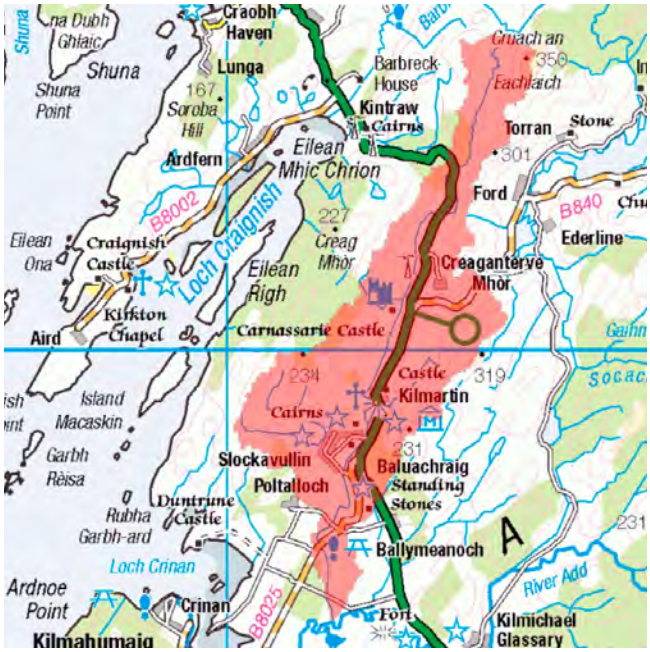
Action ID	Emergency Plan/ Response (1000020014)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Planning Policies (1000010001)*		
Object ID	**Reduce overall flood risk (100002)** **Avoid an overall increase in flood risk (100001)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

* These Actions apply to all PVA's and across the whole of the LPD area. More information regarding these Actions can be found in Section 2.4.

3.36 Kilmartin (Potentially Vulnerable Area 01/36)

This Potentially Vulnerable Area covers Poltalloch, Kilmartin and surrounding rural areas (shown below). It is approximately 29km^2. The A816 passes through the area.



The Kilmartin Burn is the main watercourse in this area.

There are fewer than 10 residential and non-residential properties at risk of flooding.

The Annual Average Damages are approximately £49,000 with the majority are caused by river flooding.

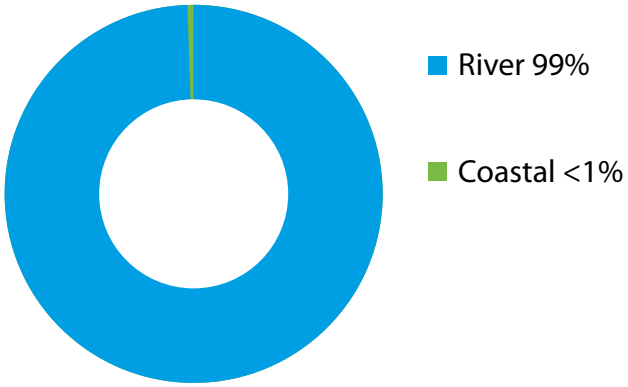


Figure 41
Annual Average Damages by flood source

Objective(s)	ID	Indicator
Avoid an overall increase in flood risk	100001	• <10 residential properties • £49,000 Annual Average Damages
Reduce overall flood risk	100002	• <10 residential properties • £49,000 Annual Average Damages

Actions to be carried out within this PVA					
Flood Protection Scheme/Works	Natural Flood Management Works	New Flood Warning	Community Flood Action Groups	Property Level Protection	Site Protection Plans
Flood Protection Study	Natural Flood Management Study	Maintain Flood Warning	Awareness Raising	Surface Water Plan/Study	Emergency Plans/Response
Maintain Flood Protection Scheme	Strategic Mapping and Modelling	Flood Forecasting	Self Help	Maintenance	Planning Policies

Action ID	Flood Forecasting (1000020009)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing

Action ID	Self Help (1000020011)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	General Public	Indicative Delivery	Ongoing

Action ID	Awareness Raising (1000020013)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Maintenance (1000020007)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Emergency Plan/ Response (1000020014)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

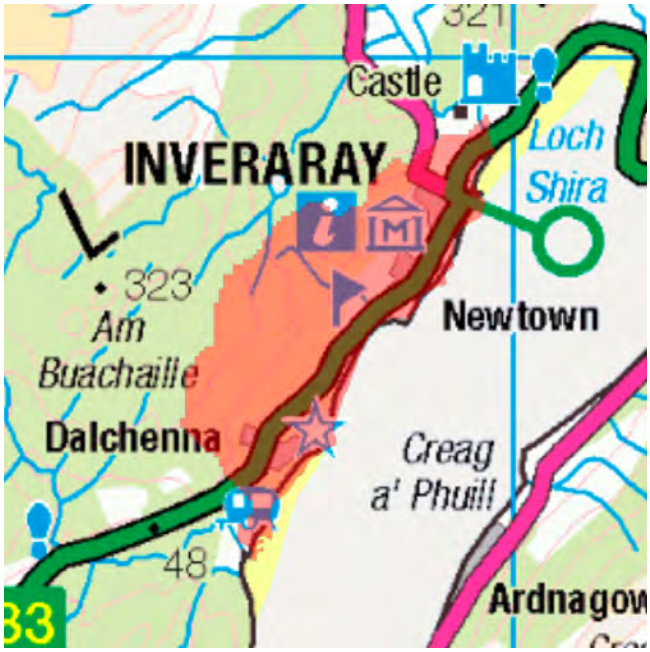
Action ID	Planning Policies (1000010001)*		
Object ID	**Reduce overall flood risk (100002)** **Avoid an overall increase in flood risk (100001)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

* These Actions apply to all PVA's and across the whole of the LPD area. More information regarding these Actions can be found in Section 2.4.

3.37 Inveraray (Potentially Vulnerable Area 01/37)

This Potentially Vulnerable Area is approximately 6km^2 and is centred on the town of Inveraray, close to the head of Loch Fyne.

It also includes the community of Dalchenna (shown below). The A83 and A819 pass through the area



The River Aray passes to the north; otherwise there are no significant watercourses in the area.

There are approximately 40 residential and 50 non-residential properties at risk of flooding.

The Annual Average Damages are approximately £390,000 with the majority caused by coastal flooding.

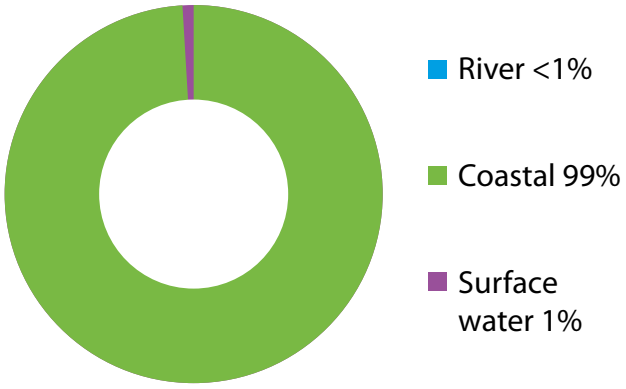


Figure 42
Annual Average Damages by flood source

Objective(s)	ID	Indicator
Avoid an overall increase in flood risk	100001	• 40 residential properties • £390,000 Annual Average Damages
Reduce overall flood risk	100002	• 40 residential properties • £390,000 Annual Average Damages
Reduce the physical or disruption risk related to the transport network for roads	1312	• 8 locations on the A83 with a total length of 1.3km
Reduce risk in Inveraray from coastal flooding	103701	• 100 people • £150,000 Annual Average Damages from residential properties • £160,000 Annual Average Damages from non-residential properties

Actions to be carried out within this PVA					
Flood Protection Scheme/Works	Natural Flood Management Works	New Flood Warning	Community Flood Action Groups	Property Level Protection	Site Protection Plans
Flood Protection Study	Natural Flood Management Study	Maintain Flood Warning	Awareness Raising	Surface Water Plan/Study	Emergency Plans/Response
Maintain Flood Protection Scheme	Strategic Mapping and Modelling	Flood Forecasting	Self Help	Maintenance	Planning Policies

Action ID	Strategic Mapping and Modelling (1037020016)		
Object ID	**Reduce risk in Inveraray from coastal flooding (103701)**		
Delivery Lead	SEPA	Indicative Delivery	2016-2019
Description	SEPA will review existing modelling for this area in partnership with Argyll and Bute Council to determine if any improvements can be made to the coastal flood maps. SEPA will support the local authority if further work beyond a strategic scale is required.		
Funding	SEPA's strategic mapping and modelling activities are funded by Scottish Government through SEPA's grant in aid settlement.		
Co-ordination	SEPA's strategic mapping activities will be co-ordinated with the activities of other responsible authorities as required.		

Action ID	Flood Protection Scheme/Works (1312021)		
Object ID	**Reduce the physical or disruption risk related to the transport network for roads (1312)**		
Delivery Lead	Transport Scotland	Indicative Delivery	2016-2021
Description	Transport Scotland will carry out civil engineering work which will reduce flood risk to identified sections of the A83.		
Funding	Grant in aid allocation from Scottish Government.		
Co-ordination	Transport Scotland will consult with appropriate authorities through its statutory processes.		

Action ID	Flood Forecasting (1000020009)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing

Action ID	Self Help (1000020011)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	General Public	Indicative Delivery	Ongoing

Action ID	Awareness Raising (1000020013)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Maintenance (1000020007)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

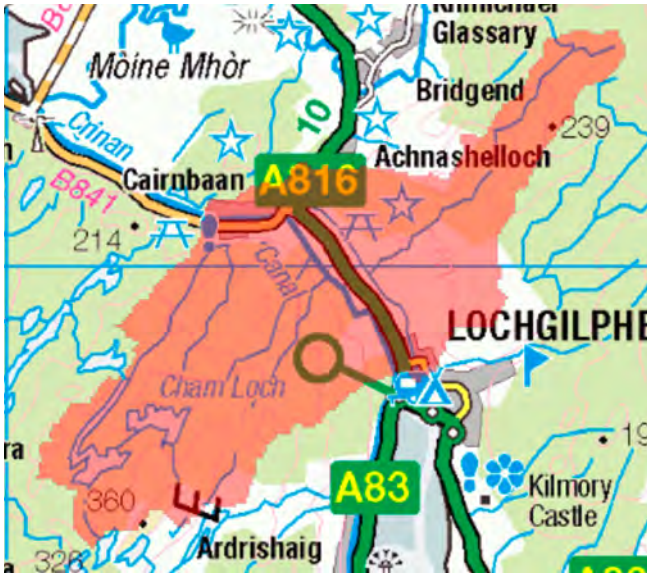
Action ID	Emergency Plan/ Response (1000020014)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Planning Policies (1000010001)*		
Object ID	**Reduce overall flood risk (100002)** **Avoid an overall increase in flood risk (100001)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

* These Actions apply to all PVA's and across the whole of the LPD area. More information regarding these Actions can be found in Section 2.4.

3.38 Lochgilphead (Potentially Vulnerable Area 01/38)

This Potentially Vulnerable Area covers the northern part of Lochgilphead, Cairnbaan and surrounding rural areas (shown below). It is approximately 23km^2 and the A816 passes through the area.



The Crinan Canal and the Badden Burn are the main watercourses in the area.

There are approximately 20 residential and 10 non-residential properties at risk of flooding.

The Annual Average Damages are approximately £69,000 with the majority caused by river flooding.

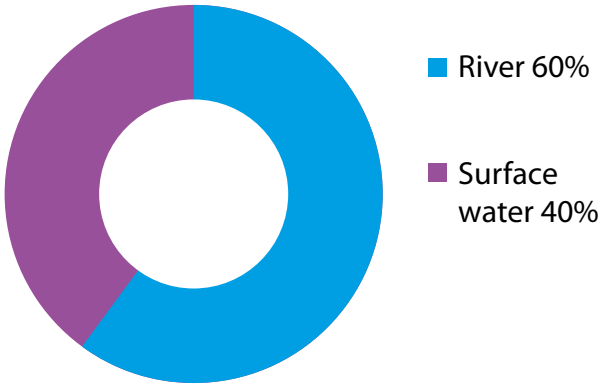


Figure 43
Annual Average Damages by flood source

Objective(s)	ID	Indicator
Avoid an overall increase in flood risk	100001	• 20 residential properties • £69,000 Annual Average Damages
Reduce overall flood risk	100002	• 20 residential properties • £69,000 Annual Average Damages
Reduce flood risk in Lochgilphead from the Badden Burn	103801	• 20 people • A816

Actions to be carried out within this PVA					
Flood Protection Scheme/Works	Natural Flood Management Works	New Flood Warning	Community Flood Action Groups	Property Level Protection	Site Protection Plans
Flood Protection Study	Natural Flood Management Study	Maintain Flood Warning	Awareness Raising	Surface Water Plan/Study	Emergency Plans/Response
Maintain Flood Protection Scheme	Strategic Mapping and Modelling	Flood Forecasting	Self Help	Maintenance	Planning Policies

Action ID	Flood Protection Study (1038010005)		
Object ID	**Reduce flood risk in Lochgilphead from the Badden Burn (103801)**		
Delivery Lead	Argyll and Bute Council	Indicative Delivery	2016-2021
Description	A hydraulic study is required to investigate river and coastal flooding in Lochgilphead. The flood risk in the Lochgilphead area is complex due to the interaction of different sources, which are not thought to be currently represented accurately in the baseline flood modelling. A better understanding of the interaction of the Badden Burn with the Crinan Canal and the tide is needed before the feasibility of Actions can be appraised in greater detail. Due to the frequency history of flooding that results in annual road closures and significant disruption to travel, this study will to be progressed in cycle 1.		
Funding	It is expected that the study will be funded from Argyll and Bute Council's budget. However approval of the necessary funds has not been confirmed (April 2016).		
Co-ordination	Argyll and Bute Council will work with other Responsible Authorities and stakeholders such as Scottish Canals to develop the Flood Protection Study		

Action ID	Maintain Flood Warning (1000020017)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing
Description	Continue to maintain the 'Lochgilphead A83' flood warning area which is part of the Firth of Clyde coastal flood warning scheme.		
Funding	The maintenance of SEPA's flood warning service is funded by Scottish Government through SEPA's grant in aid settlement.		
Co-ordination	A Flood Protection Study is proposed for Lochgilphead. SEPA will work with the local authority to ensure that any new information about flood risk resulting from the proposed Flood Protection Study is considered in the existing flood warning system.		

Action ID	Strategic Mapping and Modelling (1000020019)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Scottish Water	Indicative Delivery	2016-2020
Description	Scottish Water will undertake further investigation and modelling in the Lochgilphead sewer catchment to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.		
Funding	Scottish Water funding is committed in its capital programme through Q&S 4a (2015-2021) which is approved by its regulators and customers.		
Co-ordination	Scottish Water will work with responsible authorities to incorporate relevant information into these studies and by regularly keeping the responsible authorities informed of their progress. Scottish Water will provide responsible authorities with the outputs of the Section 16 assessment which, where relevant, may be used to inform surface water management plans and SEPA flood hazard and risk maps.		

Action ID	Flood Forecasting (1000020009)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing

Action ID	Self Help (1000020011)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	General Public	Indicative Delivery	Ongoing

Action ID	Awareness Raising (1000020013)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Maintenance (1000020007)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Emergency Plan/ Response (1000020014)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

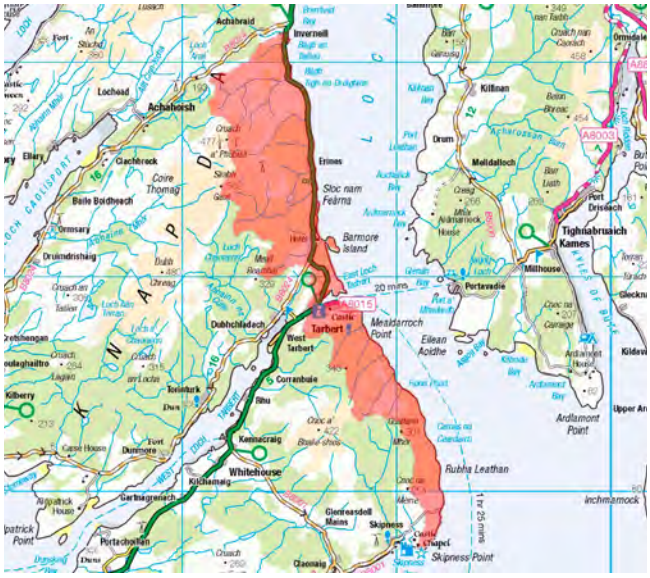
Action ID	Planning Policies (1000010001)*		
Object ID	**Reduce overall flood risk (100002)** **Avoid an overall increase in flood risk (100001)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

* These Actions apply to all PVA's and across the whole of the LPD area. More information regarding these Actions can be found in Section 2.4.

3.39 Tarbert (Potentially Vulnerable Area 01/39)

This Potentially Vulnerable Area is centred around Tarbert on the west shore of Loch Fyne (shown below). It is approximately 61km^2.

The A83 is an important transport link and passes through the area.



The Inverneil, Stronchullin, Artilligan and Abhainn Strathainn burns are the main watercourses in the area.

There are approximately 10 residential and 20 non-residential properties at risk of flooding.

The Annual Average Damages are approximately £110,000 with the majority caused by coastal and river flooding.

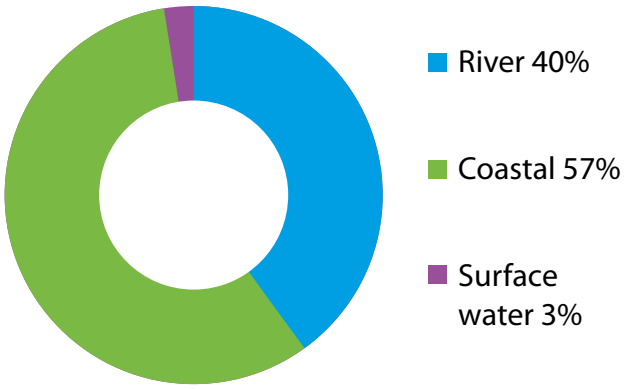


Figure 44
Annual Average Damages by flood source

Objective(s)	ID	Indicator
Avoid an overall increase in flood risk	100001	• 10 residential properties • £110,000 Annual Average Damages
Reduce overall flood risk	100002	• 10 residential properties • £110,000 Annual Average Damages
Reduce risk in Tarbert from coastal flooding	103901	• £6,000 Annual Average Damages from residential properties • £19,000 Annual Average Damages from non-residential properties

Actions to be carried out within this PVA					
Flood Protection Scheme/Works	Natural Flood Management Works	New Flood Warning	Community Flood Action Groups	Property Level Protection	Site Protection Plans
Flood Protection Study	Natural Flood Management Study	Maintain Flood Warning	Awareness Raising	Surface Water Plan/Study	Emergency Plans/Response
Maintain Flood Protection Scheme	Strategic Mapping and Modelling	Flood Forecasting	Self Help	Maintenance	Planning Policies

Action ID	Flood Protection Study (139010005)		
Object ID	**Reduce risk in Tarbert from coastal flooding (103901)**		
Delivery Lead	Argyll and Bute Council	Indicative Delivery	2016-2021
Description	A Study is recommended to further investigate the feasibility of a Flood Protection Scheme for coastal flooding in Tarbert, focusing on direct defences, coastal revetments and consideration of property level protection for residual risk. Other Actions may also be considered to develop the most sustainable range of options. The Study should look to confirm the length and size of defences needed, and the business case for a Flood Protection Scheme (or Works). The flood mapping for Tarbert should be refined as part of the Study as it is currently thought to underestimate the flood risk.		
Funding	It is expected that the study will be funded from Argyll and Bute Council's budget. However approval of the necessary funds has not been confirmed (April 2016).		
Co-ordination	Argyll and Bute will work with other Responsible Authorities and stakeholders to develop the Flood Protection Study		

Action ID	Maintain Flood Warning (1000020030)		
Object ID	**Reduce overall flood risk (100002))**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing
Description	Continue to maintain the 'Tarbert Harbour' flood warning area which is part of the Firth of Clyde coastal flood warning scheme.		
Funding	The maintenance of SEPA's flood warning service is funded by Scottish Government through SEPA's grant in aid settlement.		
Co-ordination	A Flood Protection Study is proposed for Tarbert. SEPA will work with the local authority to ensure that any new information about flood risk resulting from the proposed Flood Protection Study is considered in the existing flood warning system.		

Action ID	Strategic Mapping and Modelling (1000020019)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Scottish Water	Indicative Delivery	2016-2017
Description	Scottish Water will undertake further investigation and modelling in the Tarbert sewer catchment to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.		
Funding	Scottish Water funding is committed in its capital programme through Q&S 4a (2015-2021) which is approved by its regulators and customers.		
Co-ordination	Scottish Water will work with responsible authorities to incorporate relevant information into these studies and by regularly keeping the responsible authorities informed of their progress. Scottish Water will provide responsible authorities with the outputs of the Section 16 assessment which, where relevant, may be used to inform surface water management plans and SEPA flood hazard and risk maps.		

Action ID	Flood Forecasting (1000020009)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing

Action ID	Self Help (1000020011)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	General Public	Indicative Delivery	Ongoing

Action ID	Awareness Raising (1000020013)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Maintenance (1000020007)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Emergency Plan/ Response (1000020014)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Planning Policies (1000010001)*		
Object ID	**Reduce overall flood risk (100002)** **Avoid an overall increase in flood risk (100001)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

* These Actions apply to all PVA's and across the whole of the LPD area. More information regarding these Actions can be found in Section 2.4.

Photo by Joe Foster

3.40 Campbeltown (Potentially Vulnerable Area 01/40)

This Potentially Vulnerable Area is centred around Campbeltown which is located on the west shore of Campbeltown Loch (shown below). It has an area of approximately 51km^2.

A number of small rivers drain into Campbeltown Loch and the Firth of Clyde.

There are approximately 360 residential and 350 non-residential properties at risk of flooding.

The Annual Average Damages are approximately £550,000 with the majority caused by river flooding.

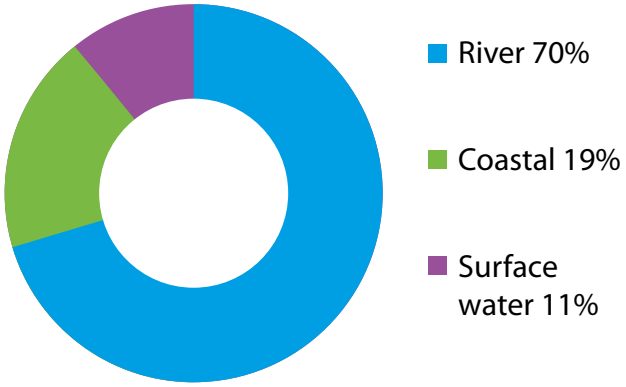


Figure 45
Annual Average Damages by flood source

Objective(s)	ID	Indicator
Avoid an overall increase in flood risk	100001	• 360 residential properties • £550,000 Annual Average Damages
Reduce overall flood risk	100002	• 360 residential properties • £550,000 Annual Average Damages
Reduce flood risk in Campbeltown from river flooding	104001	• 560 people • £91,000 Annual Average Damages from residential properties • £160,000 Annual Average Damages from non-residential properties • 2 emergency services
Reduce risk in Campbeltown from coastal flooding	104002	• 210 people • £25,000 Annual Average Damages from residential properties • £39,000 Annual Average Damages from non-residential properties
Reduce risk from surface water flooding in Campbeltown	104005	• This Objective will be monitored using surface water flood risk across the Potentially Vulnerable Area. For 01/40 there are <10 residential properties at risk and Annual Average Damages of £60,000.

Actions to be carried out within this PVA					
Flood Protection Scheme/Works	Natural Flood Management Works	New Flood Warning	Community Flood Action Groups	Property Level Protection	Site Protection Plans
Flood Protection Study	Natural Flood Management Study	Maintain Flood Warning	Awareness Raising	Surface Water Plan/Study	Emergency Plans/Response
Maintain Flood Protection Scheme	Strategic Mapping and Modelling	Flood Forecasting	Self Help	Maintenance	Planning Policies

Action ID	Flood Protection Scheme/Works (1040010006)		
Object ID	**Reduce flood risk in Campbeltown from river flooding (104001)**		
Delivery Lead	Argyll and Bute Council	Indicative Delivery	2016-2021
Description	A Flood Protection Scheme is to be developed for Campbeltown to reduce flood risk from small watercourses. Feasibility studies indicate that the scheme should include temporary storage of flood water on two burns plus a relief culvert in the town to a standard of 1 in 200 years. There have been a number of floods in Campbeltown in recent years including incidence of sewer flooding which the scheme should contributes to reducing. The detailed design should also include consideration of runoff reduction (woodland planting, land management techniques) and the creation of wetlands and ponds. Other Natural Flood Management techniques may also be considered in order to develop the most sustainable solution.		
Funding	It is expected that the scheme will be funded from Argyll and Bute Council's capital budget. However approval of the necessary funds has not been confirmed (April 2016). Further it is expected that the scheme will be eligible for 80% grant funding from the Scottish Government (subject to future spending reviews).		
Co-ordination	Argyll and Bute Council will work with other Responsible Authorities and stakeholders to develop and construct the Flood Protection Scheme		

Action ID	Flood Protection Study (1040020005)		
Object ID	**Reduce flood risk in Campbeltown from coastal flooding (104002)**		
Delivery Lead	Argyll and Bute Council	Indicative Delivery	2022-2027 (Cycle 2)
Description	A Flood Protection Study is recommended to further investigate the feasibility of a Flood Protection Scheme for the coastal frontage of Campbeltown, focusing on direct defences. The Study should look to confirm the existing defence levels of structures and the promenade to identify where structures need to be raised and where gaps in the defences need to be filled (i.e. at the piers). Other Actions may also be considered to develop the most sustainable range of options.		
Funding	It is expected that the study will be funded from Argyll and Bute Council's budget. However approval of the necessary funds has not been confirmed (April 2016).		
Co-ordination	Argyll and Bute Council will work with other Responsible Authorities and stakeholders to develop the Flood Protection Study.		

Action ID	Maintain Flood Warning (1000020030)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing
Description	Continue to maintain the 'Campbeltown Hall Street and Esplanade' flood warning area which is part of the Firth of Clyde coastal flood warning scheme.		
Funding	The maintenance of SEPA's flood warning service is funded by Scottish Government through SEPA's grant in aid settlement.		
Co-ordination	A Flood Protection Scheme is proposed for Campbeltown. SEPA will work with the local authority to ensure that changes to hydrology and flood risk as a result of the proposed Flood Protection Scheme are fully considered in the existing flood warning system.		

Action ID	Surface Water Management Plan (1040050018)		
Object ID	**Reduce risk from surface water flooding in Campbeltown (104005)**		
Delivery Lead	Argyll and Bute Council	Indicative Delivery	2016-2019
Description	The area will be covered by a surface water management plan or plans, produced by Argyll and Bute Council, which set Objectives for the management of surface water flood risk and identify the most sustainable Actions to achieve the Objectives. Scottish Water will provide local knowledge and understanding of the sewer network. This includes Scottish Water corporate data (as applicable) and, where available, outputs of Section 16 or integrated catchment studies, to assist with the surface water management planning process.		
Funding	It is expected that the study will be funded from Argyll and Bute Council's budget. However approval of the necessary funds has not been confirmed (April 2016).		
Co-ordination	Argyll and Bute Council will work with Scottish Water, other Responsible Authorities and stakeholders to develop the Surface Water Management Plan		

Action ID	Strategic Mapping and Modelling (1000020019)		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Scottish Water	Indicative Delivery	2016-2019
Description	Scottish Water will undertake further investigation and modelling in the Campbeltown sewer catchment to improve knowledge and understanding of flood risk in this area as required under Section 16 of the Flood Risk Management (Scotland) Act 2009.		
Funding	Scottish Water funding is committed in its capital programme through Q&S 4a (2015-2021) which is approved by its regulators and customers.		
Co-ordination	Scottish Water will work with responsible authorities to incorporate relevant information into these studies and by regularly keeping the responsible authorities informed of their progress. Scottish Water will provide responsible authorities with the outputs of the Section 16 assessment which, where relevant, may be used to inform surface water management plans and SEPA flood hazard and risk maps.		

Action ID	Flood Forecasting (1000020009)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	SEPA	Indicative Delivery	Ongoing

Action ID	Self Help (1000020011)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	General Public	Indicative Delivery	Ongoing

Action ID	Awareness Raising (1000020013)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Maintenance (1000020007)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Emergency Plan/ Response (1000020014)*		
Object ID	**Reduce overall flood risk (100002)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

Action ID	Planning Policies (1000010001)*		
Object ID	**Reduce overall flood risk (100002)** **Avoid an overall increase in flood risk (100001)**		
Delivery Lead	Responsible Authorities	Indicative Delivery	Ongoing

* These Actions apply to all PVA's and across the whole of the LPD area. More information regarding these Actions can be found in Section 2.4.

3.41 Other areas

Inevitably, other flood risk management activities will be undertaken in the Local Plan District outside Potentially Vulnerable Areas during the first cycle. These activities will only be undertaken by the responsible authority so long as the implementation of such will not affect the delivery of the Actions described in this Plan.

The Highland Council has identified within its capital programme, funding for 'Minor Flood Works' which shall be used to deliver minor works outside Potentially Vulnerable Areas.

3.42 Other flood risk activities by local authorities in Highland and Argyll Local Plan District

The Plan presents the Actions to manage flood risk in Highland and Argyll Local Plan District. These Actions are at a LPD-wide scale or are targeted at specific PVA. In addition to the Actions in this Plan, responsible authorities are undertaking other activities to manage flood risk. There are activities included in the Flood Risk Management (Scotland) Act 2009 that are undertaken by each local authority in the LPD. The main activities that have a significant effect and should be considered in conjunction with the Plan are summarised as follows:

Section 18 and 59: Works of Clearance and Repair

Based on an assessment of the condition of a body of water, local authorities must prepare a 'Schedule of clearance and repair works' that would substantially reduce the risk of flooding of land. This Schedule is made available by each local authority for public inspection. Under Section 59 of the Act, the local authority must carry out the works identified in the Schedule if it considers that to do so would substantially reduce the risk of flooding; would contribute to the implementation of Actions in the Plan or would not adversely affect implementation of Actions in this Plan. Details of how to access each local authority's 'Schedule of clearance and repair works' are included in Annex 2 of the Plan.

Section 56: General Power to manage flood risk

Without affecting the implementation of Actions in this Plan, a local authority may, from time to time, do anything which it considers will contribute to the implementation of Actions in the Plan or is necessary to reduce the risk of a flood which is likely to occur imminently and have serious adverse consequences for human health, the environment, cultural heritage or economic activity in its area. This may include carrying out minor improvement works on small watercourses.

Section 4: Raising Awareness and Resilience

The Highland Council and Argyll & Bute Council will work with all responsible authorities to raise awareness and help prepare individuals, homes and businesses for the risk of flooding. The Highland Council currently works with Scottish and Southern Energy and the Scottish Flood Forum to engage communities at risk, and help them to develop Community Resilience Plans.

www.scottishfloodforum.org

Our Ward Managers and Emergency Planners will continue to support community resilience groups working with SEPA, utility providers, responsible authorities, and the Scottish Flood Forum. Our Flood Risk Management teams are available to provide specific advice about the flood risks in each community and help develop response plans appropriate to each location.

The Highland Council will support efforts to raise awareness of resilience and flooding in the curriculum, by providing resources and examples of best practice to Education Scotland's campaign 'Ready for Emergencies':

www.educationscotland.gov.uk/readyforemergencies/flooding/index.asp

Flood Risk Management covers a broad range of academic subjects so where Flood Protection Schemes are being developed or constructed, The Highland Council will engage local schools to develop curriculum links with the work of the Council.

From 2016 SEPA will engage with the community through local participation in national initiatives, including partnership working with Neighbourhood Watch Scotland. In addition, SEPA will engage with local authorities and community resilience groups where possible.

Across Scotland, SEPA will create and share communication and education resources with other responsible authorities. These resources will include awareness campaigns, media and marketing activity and promotion of SEPA's flood forecasting and warning services (Floodline). Where they exist, SEPA will engage with community resilience groups and community safety partnerships.

Scottish Water will support SEPA and responsible authorities with their awareness raising activities as required and provide targeted flooding communications for Scottish Water specific activities. Scottish Water will raise awareness by producing and supplying targeted information to the public on large capital projects and detailed local studies. More general information and flooding guidance will be available on the website at:

www.scottishwater.co.uk/you-and-your-home/your-home/flooding-information

Section 5: Next Steps and Monitoring

The Plan runs for six years from June 2016. Over this period the Highland and Argyll Local Plan District partnership will continue to meet periodically to monitor progress towards implementing the Actions detailed in Sections 2 and 3 of the Plan.

Between years 2 and 3 of the first Flood Risk Management cycle (i.e. before June 2019), The Highland Council, as lead authority will publish a report on the conclusions of a review of the Plan, including information on the progress that has been made towards implementing the measures identified in the implementation part of the Plan.

Between years 5 and 6 of the first Flood Risk Management cycle (i.e. before June 2022), The Highland Council, as lead authority will publish a report on the Plan containing an assessment of the progress made towards implementing the current measures, a summary of the current measures which were not implemented, with reasons for their non-implementation, and a description of any other measures implemented since the plan was finalised which the lead authority considers have contributed to the achievement of the Objectives summarised in the Plan.

The Highland Council will make these reports available for public inspection.

Annex 1: LPD roles and responsibilities

Roles and responsibilities for flood risk management planning

Individuals are the first line of defence against flooding. However, public and private bodies have responsibilities too and are working together to reduce the impacts of flooding in Scotland. SEPA, local authorities and Scottish Water are predominantly responsible for flood risk management planning. However, individuals have a personal responsibility to protect themselves and their property.

Some of the key roles are outlined below and more information is available from the SEPA website.

Your responsibilities

Organisations and individuals have responsibilities to protect themselves from flooding. Being prepared by knowing what to do and who to contact if flooding happens can help you reduce the damage and disruption flooding can have on your life.

The first step to being prepared is signing up to Floodline so you can receive messages to let you know where and when flooding is likely to happen. Other useful tools and advice on how to be prepared are available on the Floodline website including a quick guide to who to contact in the event of a flood. You can also check how your area could be affected by flooding by looking at SEPA's flood maps.

SEPA

SEPA is Scotland's national flood forecasting, flood warning and strategic flood risk management authority. SEPA has a statutory duty to produce Scotland's Flood Risk Management Strategies. SEPA works closely with other organisations responsible for managing flood risk through a network of partnerships and stakeholder groups to ensure that a nationally consistent approach to flood risk management is adopted.

SEPA also has a responsibility to identify where in Scotland there is the potential for natural flood management techniques to be introduced. Natural flood management is the use of the natural features of the land to store and slow down the flow of water.

Floodline provides live flooding information and advice on how to prepare for or cope with the impacts of flooding 24 hours a day, seven days a week. To help SEPA forecast for flooding they work closely with the Met Office.

To raise awareness of flooding at a national level SEPA runs education initiatives, community engagement programmes and an annual campaign to promote the useful advice and information available through Floodline. SEPA work in partnership with local authorities, Neighbourhood Watch Scotland, Ready Scotland and others to share our resources and help to promote preparedness and understanding of how flood risk is managed.

Local Authorities

Local Authorities have worked together and with SEPA and other responsible authorities for flood risk management planning purposes through a single lead authority which has the responsibility to produce a Local Flood Risk Management Plan. It is the responsibility of each local authority to implement its flood protection Actions agreed within the Flood Risk Management Strategy and in turn set out in this plan, including Flood Protection Schemes or Works, operations and maintenance and the clearance and repair of water bodies. You can help your local authority to manage flooding by letting them know if debris is blocking watercourses or if flood defences are tampered with.

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

The lead authority for the Highland and Argyll Local Plan District is The Highland Council. The other responsible local authority in this district is Argyll and Bute Council.

Scottish Water

Scottish Water has the public drainage duty and is responsible for foul drainage and the drainage of rainwater run-off from roofs and any paved ground surface from the boundary of properties. Additionally, Scottish Water helps to protect homes from flooding caused by sewers either overflowing or becoming blocked. Scottish Water is not responsible for private pipework or guttering within the property boundary.

National parks

The two National Park Authorities, Loch Lomond and Trossachs National Park and Cairngorms National Park, were designated as responsible authorities for flood risk management purposes in 2012. Both have worked with SEPA, local authorities and Scottish Water to help develop Flood Risk Management Strategies and Local Flood Risk Management Plans. They also fulfil an important role in land use planning, carrying out or granting permission for activities that can play a key role in managing and reducing flood risk.

Both National Park Authorities are responsible authorities for this Local Plan District.

Other organisations

- **The Scottish Government** oversees the implementation of the Flood Risk Management (Scotland) Act 2009 which requires the production of Flood Risk Management Strategies and Local Flood Risk Management Plans. Scottish Ministers are responsible for setting the policy framework for how organisations collectively manage flooding in Scotland. Scottish Government has also approved the Flood Risk Management Strategy for this local plan district.
- **Scottish Natural Heritage** has provided general and local advice in the development of this Flood Risk Management Strategies. Flooding is seen as natural process that can maintain the features of interest at many designated sites, so Scottish Natural Heritage helps to ensure that any changes to patterns of flooding do not adversely affect the environment. Scottish Natural Heritage also provides advice on the impact of Flood Protection Schemes and other land use development on designated sites and species.
- **Forestry Commission Scotland** was designated in 2012 as a responsible authority for flood risk management planning purposes and has engaged in the development of the Flood Risk Management Strategies through national and local advisory groups. This reflects the widely held view that forestry can play a significant role in managing flooding.
- During the preparation of the first flood risk management plans **Network Rail** and **Transport Scotland** have agreed works to address flooding at a number of frequently flooded sites. Further engagement is planned with SEPA and local authorities to identify areas of future work. There is the opportunity for further works to be undertaken during the first flood risk management planning cycle although locations for these works are yet to be confirmed.
- **Utility companies** have undertaken site specific flood risk studies for their primary assets and have management plans in place to mitigate the effects of flooding to their assets and also minimise the impacts on customers.
- The **Met Office** provides a wide range of forecasts and weather warnings. SEPA and the Met Office work together through the Scottish Flood Forecasting Service.
- The **emergency services** provide emergency relief when flooding occurs and can coordinate evacuations. You should call the emergency services on 999 if you are concerned about your safety or the safety of others and act immediately on any advice provided.

- **Historic Environment Scotland** considers flooding as part of their regular site assessments. As such, flooding is considered as one of the many factors which inform the development and delivery of its management and maintenance programmes.
- The **Scottish Flood Forum** is a Scottish charitable organisation that provides support for those who are affected by, or are at risk of, flooding. It provides flood advice, information, awareness, education and training to individuals and communities to help reduce the risk of flooding; in partnership with the local authority, provides support during the recovery process following a flood incident and aims to support the development of resilient communities.

Annex 2: Links to other plans, policies, strategies and legislative requirements

S18 Schedule of Clearance and Repair

The following are links for each local authority to access schedules of clearance and repair under Section 18 of the Flood Risk Management (Scotland) Act 2009:

The Highland Council

www.highland.gov.uk/info/1210/environment/81/flooding/5

Argyll and Bute Council

Argyll and Bute Council will publish a schedule of clearance and repair works online. At present the council responds to requests on an individual basis. A request for details of clearance and repair at a specific location can be made online at

floodingenquiries@argyll-bute.gov.uk,

Annex 3: Supporting information

Sources of flooding described in the Strategy

The Flood Risk Management Strategy addresses the risk of flooding from rivers, the coast and surface water. The risk of flooding from rivers is usually due to rainfall causing a river to rise above bank level spreading out and inundating adjacent areas. Coastal flooding is where the risk is from the sea. Sea levels can change in response to tidal cycles or atmospheric conditions. Over the longer term sea levels and coastal flood risk may change due to climate change. Surface water flooding happens when rainwater does not drain away through the normal drainage systems or soak into the ground, but lies on or flows over the ground instead. There can be interactions between these sources of flooding, but for the purposes of this Strategy they are dealt with independently.

The following aspects of flooding have not been incorporated into the Strategy:

- **Groundwater** is generally a contributing factor to flooding rather than the primary source. It is caused by water rising up from underlying rocks or flowing from springs.
- **Reservoir breaches** have been assessed under separate legislation (Reservoirs (Scotland) Act 2011). Further information and maps can be found on SEPA's website.
- The Flood Risk Management (Scotland) Act 2009 does not require SEPA or responsible authorities to assess or manage **coastal erosion**. However, SEPA has included consideration of erosion in the Flood Risk Management Strategies by identifying areas that are likely to be susceptible to erosion and where erosion can exacerbate flood risk. As part of considering where actions might deliver multiple benefits, we have looked to see where the focus of coastal flood risk management studies coincides with areas of high susceptibility to coastal erosion. Subsequent detailed studies and scheme design will need to consider coastal erosion in these areas.
- **Coastal flood modelling**. The information on coastal flooding used to set objectives and identify actions is based on SEPA modelling using simplified coastal processes and flooding mechanisms at work during a storm. Wave overtopping cannot be accurately modelled at a national scale due to the importance of local factors such as prevailing wind conditions, the depth and profile of the near-shore sea bed or the influence of any existing defences or management structures. As a result, coastal flood risk may be underestimated in some areas. Conversely, in locations with wide and flat floodplains, the modelling may overestimate flood risk. To address this, in a number of locations where more detailed local models were available they have been incorporated into the development of the Flood Risk Management Strategies. Where wave overtopping has been specifically identified as a concern – but where no further detailed modelling is available – particular compensation has been made in the selecting actions to address coastal flood risk.

Commonly used terms

Below are explanatory notes for commonly used terms in the Strategy. A glossary of terms is also available.

- **Reference to flood risk**. During the development of the Strategy flood risk has been assessed over a range of likelihoods. For consistency in reporting information within the Strategies, unless otherwise stated, all references to properties or other receptors being 'at risk of flooding' refer to a medium likelihood flood (up to a 1 in 200 chance of flooding in any given year). By exception, references will be made to high or low risk flooding, which should be taken to mean a 1 in 10 chance/likelihood or 1 in 1000 chance/likelihood of flooding in any given year respectively.

Chance/likelihood or flooding	
High	1 in 10 year
Medium	1 in 200 year
Low	1 in 1000 year

- **Annual Average Damages** have been used to assess the potential economic impact of flooding within an area. Depending on its size or severity each flood will cause a different amount of damage to a given area. Annual Average Damages are the theoretical average economic damages caused by flooding when considered over a very long period of time. It does not mean that damage will occur every year: in many years there will be no damages, in some years minor damages and in a few years major damages may occur.

  High likelihood events, which occur more regularly, contribute proportionally more to Annual Average Damages than rarer events. Within the Flood Risk Management Strategies Annual Average Damages incorporate economic damages to the following receptors: residential properties, non-residential properties, vehicles, emergency services, agriculture and roads. They have been calculated based on the principles set out in the Flood Hazard Research Centre Multi-Coloured Handbook (2010).
- **History of flooding**. The history of flooding sections of this document report floods that have occurred up to July 2015.

Flood risk management planning process

Flood risk management in Scotland aims to manage flooding in a sustainable way. Sustainable flood risk management considers where floods are likely to occur in the future and takes action to reduce their impact without moving the problem elsewhere. It considers all sources of flooding, whether from rivers, the sea or from surface water. It delivers actions that will meet the needs of present and future generations whilst also protecting and enhancing the environment.

The sustainable approach to managing flood risk works on a six year planning cycle, progressing through the key stages outlined below.

Identifying priority areas at significant flood risk

The first step to delivering a risk-based, sustainable and plan-led approach to flood risk management was SEPA's **National Flood Risk Assessment**, which was published in 2011. The assessment considered the likelihood of flooding from rivers, groundwater and the sea, as well as flooding caused when heavy rainfall is unable to enter drainage systems or the river network. The likelihood of flooding was examined alongside the estimated impact on people, the economy, cultural heritage and the environment. It significantly improved our understanding of the causes and consequences of flooding, and identified areas most vulnerable to floods.

Based on the National Flood Risk Assessment, SEPA identified areas where flooding was considered to be nationally significant. These areas are based on catchment units as it is within the context of the wider catchment that flooding can be best understood and managed. These nationally significant catchments are referred to as **Potentially Vulnerable Areas**. In Scotland, 243 Potentially Vulnerable Areas were identified. They are estimated to contain 92% of the total number of properties at risk.

A small number of Candidate Potentially Vulnerable Areas were identified after the National Flood Risk Assessment in light of new information that warranted further assessment and appraisal. They are included in the flood risk management planning process. The National Flood Risk Assessment will be updated to inform each subsequent planning cycle.

Improving the understanding of flooding

SEPA developed **flood hazard and flood risk maps** between 2012 and 2014. These maps improved our understanding of flooding and helped inform the subsequent selection of actions to manage flood risk in Potentially Vulnerable Areas. The flood hazard maps show information such as the extent of flooding, water level, as well as depth and velocity where appropriate. The flood risk maps provide detail on the impacts on people, the economy, cultural heritage and the environment.

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

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

www.sepa.org.uk

Identifying objectives and selecting actions

The objectives and actions to manage flooding will provide the long-term vision and practical steps for delivering flood risk management in Scotland.

Working collaboratively with local partnerships, SEPA has agreed the objectives for addressing the main flooding impacts. Actions that could deliver these agreed objectives have been appraised for their costs and benefits to ensure the right combinations are identified and prioritised. The actions considered in the development of this Strategy include structural actions (such as building floodwalls, restoring flood plains, or clearance and repair works to rivers) and non-structural actions (such as flood warning, land use planning or improving our emergency response). Structural and non-structural actions should be used together to manage flood risk effectively.

An assessment of the potential for natural flood management was used to help identify opportunities for using the land and coast to slow down and store water. Natural flood management actions were recommended in areas where they could contribute to the management of flood risk. In such instances these actions were put forward as part of flood protection or natural flood management studies.

Annex 4: Glossary

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

Term	Definition
Benefit Cost Ratio (BCR)	A benefit cost ratio summarises the overall value for money of an Action or project. It is expressed as the ratio of benefits to costs (both expressed as present value monetary values). A ratio of greater than 1:1 indicates that the economic benefits associated with an Action are greater than the economic costs of implementation; therefore this is taken as the threshold of economic viability. It should be acknowledged that it is not always possible to accurately estimate economic values for all elements of benefit, and BCR is just one a number of techniques used in appraisal.
Catchment	All the land drained by a river and its tributaries.
Category 1 and 2 Responders (Cat 1/2)	Category 1 and 2 Responders are defined as part of the Civil Contingencies Act 2004 which seeks to minimise disruption in the event of an emergency. Category 1 Responders are 'core' responders: local authorities, police, fire and rescue services, ambulance service, NHS health boards, SEPA and the Maritime and Coastguard Agency. Category 2 Responders are key co-operating responders in support of Category 1 Responders. These include gas and electricity companies, rail and air transport operators, harbour authorities, telecommunications providers, Scottish Water, the Health and Safety Executive and NHS National Services Scotlandiv.
Characterisation	Provides a description of the natural characteristics of catchments, coastlines and urban areas in terms of hydrology, geomorphology, topography and land use. It also includes the characterisation of existing levels of flood risk and existing flood risk management activity.
Coastal flooding	Flooding that results from high sea levels or a combination of high sea levels and stormy conditions. The term coastal flooding is used under the Flood Risk Management (Scotland) Act 2009, but in some areas it is also referred to as tidal flooding and covers areas such as estuaries and river channels that are influenced by tidal flows.
Community flood action groups	Community flood action groups are community based resilience groups which, on behalf of local residents and business, help to prepare for and minimise the effects of flooding. They reflect the interests of their local communities and may differ in composition and remit. There are over 60 groups already established in Scotland. The Scottish Flood Forum provides support for both new and existing groups.
Culvert	A pipe, channel or tunnel used for the conveyance of a watercourse or surface drainage water under a road, railway, canal or other obstacle.

Term	Definition
Damages	Flood damages are categorised as direct or indirect i.e. as a result of the flood water itself, or subsequent knock on effects. Damage to buildings and contents caused by flood water are an example of direct damages, whilst loss of industrial production, travel disruption or stress and anxiety are indirect. Some damages can be quantified in monetary terms, and others can only be described. The potential damages avoided by implementation of a flood risk management action are commonly referred to as the benefits of that Action. When comparing the effectiveness of different Actions, it is useful to consider estimated damages and damages avoided across the lifespan of the Action. Within the FRM Strategies, a 100 year appraisal period has been used as standard. This allows costs, damages and benefits across this time frame to be compared in present value terms. See also 'Annual Average Damages'
Economic impact	An assessment of the economic value of the positive and negative effects of flooding and / or the Actions taken to manage floods.
Embankment	Flood embankments are engineered earthfill structures designed to contain high river levels or protect against coastal flooding. They are commonly grass-covered, but may need additional protection against erosion by swiftly flowing water, waves or overtopping.
Emergency plans / response	Emergency response plans are applicable for all types of flooding. They set out the steps to be taken during flooding in order to maximise safety and minimise impacts where possible. Under the Civil Contingencies Act, Category 1 Responders have a duty to maintain emergency plans. Emergency plans may also be prepared by individuals, businesses, organisations or communities.
Environmental impact	A change in the environment as a result of an Action or activity. Impacts can be positive or negative and may vary in significance, scale and duration.
Erosion	A natural process leading to the removal of sediment from a river bed, bank or floodplain or coastline.
Flood	In the terms of the FRM Act, 'flood' means a temporary covering by water, from any source, of land not normally covered by water. This does not include a flood solely from a sewerage system, as a result of normal weather or infrastructure drainage. A flood can cause significant adverse impacts on people, property and the environment. drainage.
Flood defence	Infrastructure, such as flood walls, embankments or flood storage intended to protect an area against flooding to a specified standard of protection.
Flood extent	The area that has been affected by flooding, or is at risk of flooding from one or more sources for a particular likelihood.

Term	Definition
Flood forecasting	SEPA operates a network of over 250 rainfall, river and coastal monitoring stations throughout Scotland that generate data 24 hours a day. This hydrological information is combined with meteorological information from the Met Office. A team of experts then predict the likelihood and timing of river, coastal and surface water flooding. This joint initiative between SEPA and the Met Office forms the Scottish Flood Forecasting Service.
Flood frequency	The probability that a particular size/severity of flood will occur in a given year (see likelihood).
Flood hazard	In terms of the FRM Act, hazard refers to the characteristics (extent, depth, velocity) of a flood.
Flood hazard map	Flood hazard maps are required by the FRM Act to show information that describes the nature of a flood in terms of the source, extent, water level or depth and, where appropriate, velocity of water. Flood hazard and risk maps are referred to collectively as flood maps and are available on the SEPA website.
Flood Prevention Scheme / Flood Protection Scheme (FPS)	A Flood Protection Scheme, as defined by the FRM Act, is a scheme by a local authority for the management of flood risk within the authority area. This includes defence measures (flood prevention schemes) formerly promoted under the Flood Prevention (Scotland) Act 1961.
Flood Protection Study	Flood Protection Studies aim to refine understanding of the hazard and risk associated with flooding in a particular area, catchment or coastline. They will involve detailed assessment of flood hazard and / or risk and may develop options for managing flood risk.
Flood protection Works	Flood Protection Works can include the same flood defence measures that would make up a formal Flood Protection Scheme but without the legal process and requirements that would come by delivering the works as a scheme.
Flood risk	A measure of the combination of the likelihood of flooding occurring and the associated impacts on people, the economy and the environment.
Flood Risk Assessment (FRA)	Flood Risk Assessments are detailed studies of an area where flood risk may be present. These are often used to inform planning decisions, may help to develop flood schemes and have also contributed to the National Flood Risk Assessment.
Flood Risk Management (Scotland) Act 2009 (FRM Act)	The flood risk management legislation for Scotland. It transposes the EC Floods Directive into Scots Law and aims to reduce the adverse consequences of flooding on communities, the environment, cultural heritage and economic activity.
Flood risk management cycle	Under the FRM Act flood risk management planning is undertaken in six year cycles. The first planning cycle is 2015 – 2021. The first delivery cycle is lagged by approximately 6 months and is from 2016 - 2022.

Term	Definition
Flood Prevention (Scotland) Act 1961	The Flood Prevention (Scotland) Act 1961 gave local authorities discretionary powers to make and build flood prevention schemes. It was superseded by the Flood Risk Management (Scotland) Act 2009.
Flood Risk Management Local Advisory Groups	FRM Local Advisory Groups are stakeholder groups convened to advise SEPA and lead local authorities in the preparation of Flood Risk Management Plans. SEPA and lead local authorities must have regard to the advice they provide.
Flood Risk Management Plans (FRM Plans)	A term used in the FRM Act. FRM Plans set out the Actions that will be taken to reduce flood risk in a Local Plan District. They comprise Flood Risk Management Strategies, developed by SEPA, and Local Flood Risk Management Plans produced by lead local authorities.
Flood Risk Management Strategy (FRM Strategy)	Sets out a long-term vision for the overall reduction of flood risk. They contain a summary of flood risk in each Local Plan District, together with information on catchment characteristics and a summary of Objectives and Actions for Potentially Vulnerable Areas.
Flood risk map	Complements the flood hazard maps published on the SEPA website providing detail on the impacts of flooding on people, the economy and the environment. Flood hazard and risk maps are referred to collectively as flood maps and are available on the SEPA website.
Flood wall	A flood defence feature used to defend an area from flood water to a specified standard of protection.
Flood Warning Area (FWA)	A Flood Warning area is where SEPA operates a formal Flood Monitoring Scheme to issue targeted Flood Warning messages for properties located in the area.
Flood warning scheme	A flood warning scheme is the network of monitoring on a coastal stretch or river, which provides SEPA with the ability to issue Flood Warnings.
Floods Directive	European Directive 2007/60/EC on the Assessment and Management of Flood Risks builds on and is closely related to the Water Framework Directive (see river basin management planning). It was transposed into Scots Law by the Flood Risk Management (Scotland) Act 2009. The Directive requires Member States to assess if all watercourses and coastlines are at risk from flooding, to map the flood extent, assets and humans at risk in these areas and to take adequate and coordinated measures to reduce this flood risk.
Floodplain	Area of land that borders a watercourse, an estuary or the sea, over which water flows in time of flood, or would naturally flow but for the presence of flood defences and other structures where they exist.

Term	Definition
Integrated Catchment Study (ICS)	In urban areas, the causes of flooding are complex because of the interactions between rivers, surface water drainage and combined sewer systems and tidal waters. Scottish Water works with SEPA and local authorities to assess these interactions through detailed studies.
Land Use Planning (LUP)	The process undertaken by public authorities to identify, evaluate and decide on different options for the use of land, including consideration of long term economic, social and environmental Objectives and the implications for different communities and interest groups.
Lead Local Authority (LLA)	A local authority responsible for leading the production, consultation, publication and review of a Local Flood Risk Management Plan.
Likelihood of flooding	The chance of flooding occurring. **High likelihood**: A flood is likely to occur in the defined area on average once in every ten years (1:10). Or a 10% chance of happening in any one year. **Medium likelihood**: A flood is likely to occur in the defined area on average once in every two hundred years (1:200). Or a 0.5% chance of happening in any one year. **Low likelihood**: A flood is likely to occur in the defined area on average once in every thousand years (1:1000). Or a 0.1% chance of happening in any one year.
Local Flood Risk Management Plans (Local FRM Plans)	Local Flood Risk Management Plans, produced by lead local authorities, will take forward the Objectives and Actions set out in Flood Risk Management Strategies. They will provide detail on the funding, timeline of delivery, arrangements and co-ordination of Actions at the local level during each six year FRM planning cycle.
Local Plan District (LPD)	Geographical areas for the purposes of flood risk management planning. There are 14 Local Plan Districts in Scotland.
Local Plan District partnerships	Each LPD has established a local partnership comprised of local authorities, SEPA, Scottish Water and others as appropriate. These partnerships are distinct from the FRM Local Advisory Groups and they retain clear responsibility for delivery of the FRM Actions set out in the Local Flood Risk Management Plans. It is the local partnership that makes decisions and supports the delivery of these plans.
Maintenance	Sections 18 and 59 of the Flood Risk Management (Scotland) Act 2009 put duties of watercourse inspection, clearance and repair on local authorities. In addition, local authorities may also be responsible for maintenance of existing Flood Protection Schemes or defences.
National Flood Management Advisory Group (NFMAG)	The National Flood Management Advisory Group provides advice and support to SEPA and, where required, Scottish Water, local authorities and other responsible authorities on the production of FRM Strategies and Local FRM Plans.

Term	Definition
National Flood Risk Assessment (NFRA)	A national analysis of flood risk from all sources of flooding which also considers climate change impacts. Completed in December 2011 this provides the information required to undertake a strategic approach to flood management that identifies areas at flood risk that require further appraisal. The NFRA will be reviewed and updated for the second cycle of FRM Planning by December 2018.
Natural Flood Management (NFM)	A set of flood management techniques that aim to work with natural processes (or nature) to manage flood risk.
Non-residential properties	Properties that are not used for people to live in, such as shops or other public, commercial or industrial buildings.
Objectives	Objectives provide a common goal and shared ambition for managing floods. These Objectives have been set by SEPA and agreed with flood risk management authorities following consultation. They were identified through an assessment of the underlying evidence of the causes and impacts of flooding.
Planning policies	Current national planning policies, Scottish Planning Policy and accompanying Planning Advice notes restrict development within the floodplain and limit exposure of new receptors to flood risk. In addition to national policies, local planning policies may place further requirements within their area of operation to restrict inappropriate development and prevent unacceptable risk.
Potentially Vulnerable Areas (PVA)	Catchments identified as being at risk of flooding and where the impact of flooding is sufficient to justify further assessment and appraisal. There were 243 PVAs identified by SEPA in the National Flood Risk Assessment and these are the focus of the first FRM planning cycle.
Q&S	Quality and Standards (Q&S) is the process, governing costs and outputs, through which the planning and delivery of improvements to the public drinking water and sewerage services in Scotland is carried out.
Receptor	Refers to the entity that may be impacted by flooding (a person, property, infrastructure or habitat). The vulnerability of a receptor can be reduced by increasing its resilience to flooding.
Residual risk	The risk that remains after risk management and mitigation. This may include risk due to very severe (above design standard) storms or risks from unforeseen hazards.
Resilience	The ability of an individual, community or system to recover from flooding.
Responsible authority	Designated under the FRM (Scotland) Act 2009 and associated legislation as local authorities, Scottish Water and, from 21 December 2013, the National Park Authorities and Forestry Commission Scotland. Responsible authorities, along with SEPA and Scottish Ministers, have specific duties in relation to their flood risk related functions.

Term	Definition
Return period	A measure of the rarity of a flood event. It is the statistical average length of time separating flood events of a similar size. (see likelihood)
River Basin Management Planning (RBMP)	The Water Environment and Water Services (Scotland) Act 2003 transposed the European Water Framework Directive into Scots law. The Act created the River Basin Management Planning process to achieve environmental improvements to protect and improve our water environment. It also provided the framework for regulations to control the negative impacts of all activities likely to have an impact on the water environment.
Sediment management	Sediment management covers a wide range of activities that includes anything from the small scale removal of dry gravels to the dredging of whole river channels and the reintroduction of removed sediment into the water environment. Historically, sediment management has been carried out for several reasons, including reducing flood risk, reducing bank erosion, for use as aggregate and to improve land drainage.
Sewer flooding (and other artificial drainage system flooding)	Flooding as a result of the sewer or other artificial drainage system (e.g. road drainage) capacity being exceeded by rainfall runoff or when the drainage system cannot discharge water at the outfall due to high water levels (river and sea levels) in receiving waters.
Source of flooding	The type of flooding. This can be coastal, river, surface water or groundwater.
Standard of protection	All flood protection structures are designed to be effective up to a specified flood likelihood (Standard of Protection). For events beyond this standard, flooding will occur. The chosen Standard of Protection will determine the required defence height and / or capacity.
Strategic Environmental Assessment (SEA)	A process for the early identification and assessment of the likely significant environmental effects, positive and negative, of activities. Often considered before actions are approved or adopted.
Strategic mapping and modelling	Strategic mapping and modelling Actions have been identified in locations where SEPA is planning to undertake additional modelling or analysis of catchments and coastlines, working collaboratively with local authorities where appropriate, to improve the national understanding of flood risk.
Surface water flooding	Flooding that occurs when rainwater does not drain away through the normal drainage systems or soak into the ground, but lies on or flows over the ground instead
Surface Water Management Plan (SWMP)	A plan that takes an integrated approach to drainage accounting for all aspects of urban drainage systems and produces long term and sustainable Actions. The aim is to ensure that during a flood the flows created can be managed in a way that will cause minimum harm to people, buildings, the environment and business.

Term	Definition
Surface water plan/study	The management of flooding from surface water sewers, drains, small watercourses and ditches that occurs, primarily in urban areas, during heavy rainfall. FRM Strategy Actions in this category include: Surface Water Management Plans, Integrated Catchment Studies and assessment of flood risk from sewerage systems (FRM Act Section 16) by Scottish Water. These have been selected as appropriate for each Potentially Vulnerable Area.
Sustainable flood risk management	The sustainable flood risk management approach aims to meet human needs, whilst preserving the environment so that these needs can be met not only in the present, but also for future generations. The delivery of sustainable development is generally recognised to reconcile three pillars of sustainability – environmental, social and economic.
Utility assets	Within the FRM Strategies this refers to electricity sub stations, mineral and fuel extraction sites, telephone assets, television and radio assets.
Vulnerability	A measure of how likely someone or something is to suffer long-term damage as a result of flooding. It is a combination of the likelihood of suffering harm or damage during a flood (susceptibility) and the ability to recover following a flood (resilience).
Wave overtopping	Wave overtopping occurs when water passes over a flood wall or other structure as a result of wave action. Wave overtopping may lead to flooding particularly in exposed coastal locations.

Annex 5: Acknowledgements

The Highland Council gratefully acknowledges the cooperation and input that various parties have provided, including inter alia, the following organisations:

SEPA

Local authorities acknowledge the inclusion of text generated by SEPA in preparation of the Highland & Argyll Flood Risk Management Strategy. Figures and Maps produced by SEPA for the Highland & Argyll Flood Risk Management Strategy have been reproduced in the Highland & Argyll Local Flood Risk Management Plan with authorisation from SEPA under SEPA Licence number 100016991 (2015).

Ordnance Survey

These reproduced maps are based upon Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown Copyright. Any unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. SEPA Licence number 100016991 (2015). The Highland Council Licence number 100023369 (2016).

The Centre for Ecology and Hydrology

Some features of these reproduced maps are based upon digital spatial data licensed from the Centre for Ecology and Hydrology © NERC (CEH) and third party licensors.

The Met Office

Data provided by The Met Office has been used by SEPA under licence in some areas of flood risk information production. ©Crown Copyright (2015), the Met Office.

The James Hutton Institute

Data provided to SEPA under license from the James Hutton Institute has been applied in production of flood risk management information. Copyright © The James Hutton Institute and third party licensors.

British Geological Survey

Flood risk information has been derived by SEPA from BGS digital data under license. British Geological Survey ©NERC

Scottish Water

Provision of sewer flooding data generated by Scottish Water in preparation of Surface Water flood risk information.

Scotavia Images

Provison of aerial photographs.

Annex 6: SEA Determination

The following determination was made in April 2016, and published online and in local press.

THE HIGHLAND COUNCIL
FLOOD RISK MANAGEMENT (SCOTLAND) ACT (2009)
ENVIRONMENTAL ASSESSMENT (SCOTLAND) ACT 2005

The Highland Council, as Lead Local Authority of the Highland & Argyll Local Plan District, has determined in accordance with Section 8 (1) of the above Act that a Strategic Environmental Assessment is not required for the following document.

The Highland & Argyll Local Flood Risk Management Plan

This notice is hereby known as the 'The Determination'.

Copies of The Determination, Screening Report and Statement of Reasons can be obtained at no cost and during normal office from the address at the bottom of this advert or online.

The Highland Council, Flood Risk Management Team, Development & Infrastructure Service, Council Buildings, High Street, Dingwall, IV15 9QN

frm@highland.gov.uk

CC1617-9