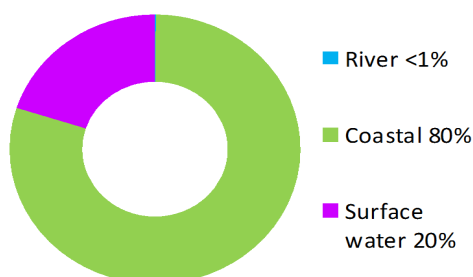


Caol and Inverlochry (Potentially Vulnerable Area 01/24)

Local Plan District	Local authority	Main catchment
Highland and Argyll	The Highland Council	Fort William coastal

Summary of flooding impacts



At risk of flooding

- 170 residential properties
- 40 non-residential properties
- £250,000 Annual Average Damages

(damages by flood source shown left)

Summary of flooding impacts

Summary of objectives to manage flooding

Objectives have been set by SEPA and agreed with flood risk management authorities. These are the aims for managing local flood risk. The objectives have been grouped in three main ways: by reducing risk, avoiding increasing risk or accepting risk by maintaining current levels of management.

Many organisations, such as Scottish Water and energy companies, actively maintain and manage their own assets including their risk from flooding. Where known, these actions are described here. Scottish Natural Heritage and Historic Environment Scotland work with site owners to manage flooding where appropriate at designated environmental and/or cultural heritage sites. These actions are not detailed further in the Flood Risk Management Strategies.

Objectives

Summary of actions to manage flooding

The actions below have been selected to manage flood risk.

Flood protection scheme/works	Natural flood management works	New flood warning	Community flood action groups	Property level protection scheme	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

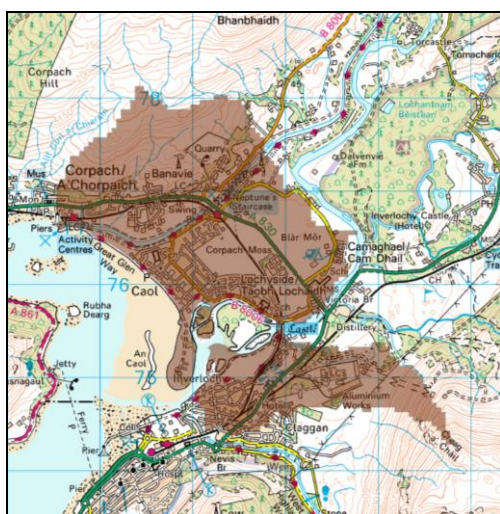
Actions

Caol and Inverlochy (Potentially Vulnerable Area 01/24)

Local Plan District	Local authority	Main catchment
Highland and Argyll	The Highland Council	Fort William coastal

Background

This Potentially Vulnerable Area is approximately 7km². 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.



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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.

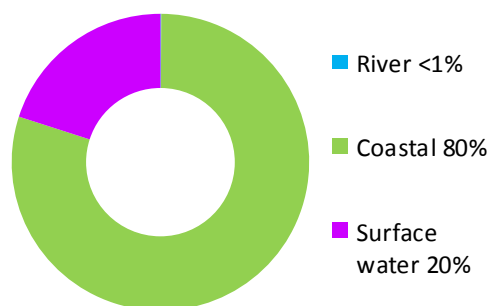


Figure 1: Annual Average Damages by flood source

Summary of flooding impacts

Coastal flood risk affects the communities of Caol and Inverlochy including the tidal section of the River Lochy.

The risk of flooding to people and property, as well as to community facilities, utilities, the transport network, designated sites and agricultural land is summarised in Table 1. A nursing home and a school are at risk of flooding. Roads potentially affected by flooding include the A830, B8004 and B8006. The Fort William to Mallaig and Fort William to Crianlarich railway lines are at risk of flooding in several locations. There are 14 designated cultural heritage sites at risk.

The risk of flooding to utilities in Table 1 does not include Scottish Water data. Scottish Water undertook a national assessment of above ground assets at medium likelihood of flooding (including water treatment works, wastewater treatment works, and pumping stations). Within this Potentially Vulnerable Area there is one asset identified as being at risk of flooding.

The damages associated with floods of different likelihood are shown in Figure 2. For this Potentially Vulnerable Area the highest damages are to residential properties. The location of the impacts of flooding is shown in Figure 3.

	1 in 10	1 in 200	1 in 1000
	High likelihood	Medium likelihood	Low likelihood
Residential properties (total 2,100)	<10	170	440
Non-residential properties (total 290)	20	40	70
People	<10	370	970
Community facilities	<10 Healthcare facilities	<10 Includes; healthcare facilities and educational buildings	<10 Includes; healthcare facilities, educational buildings and emergency services
Utilities assets	<10	10	10
Transport links (excluding minor roads)	Roads at 10 locations Rail at 30 locations	Roads at 30 locations Rail at 50 locations	Roads at 50 locations Rail at 70 locations
Environmental designated areas (km ²)	0	0	0
Designated cultural heritage sites	13	14	15
Agricultural land (km ²)	0.3	0.5	0.7

Table 1: Summary of flooding impacts¹

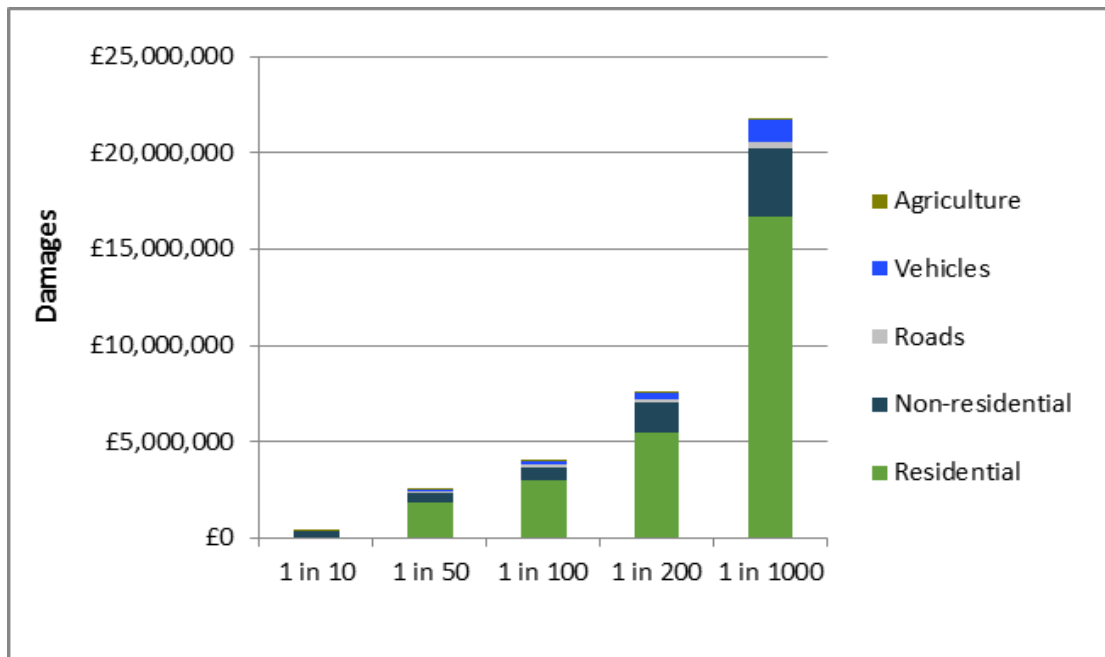


Figure 2: Damages by flood likelihood

History of flooding

Since 2001 there have been five surface water floods. In January 2005 there was a storm surge on Loch Linnhe, which caused localised flooding.

¹ Some receptors are counted more than once if flooded from multiple sources

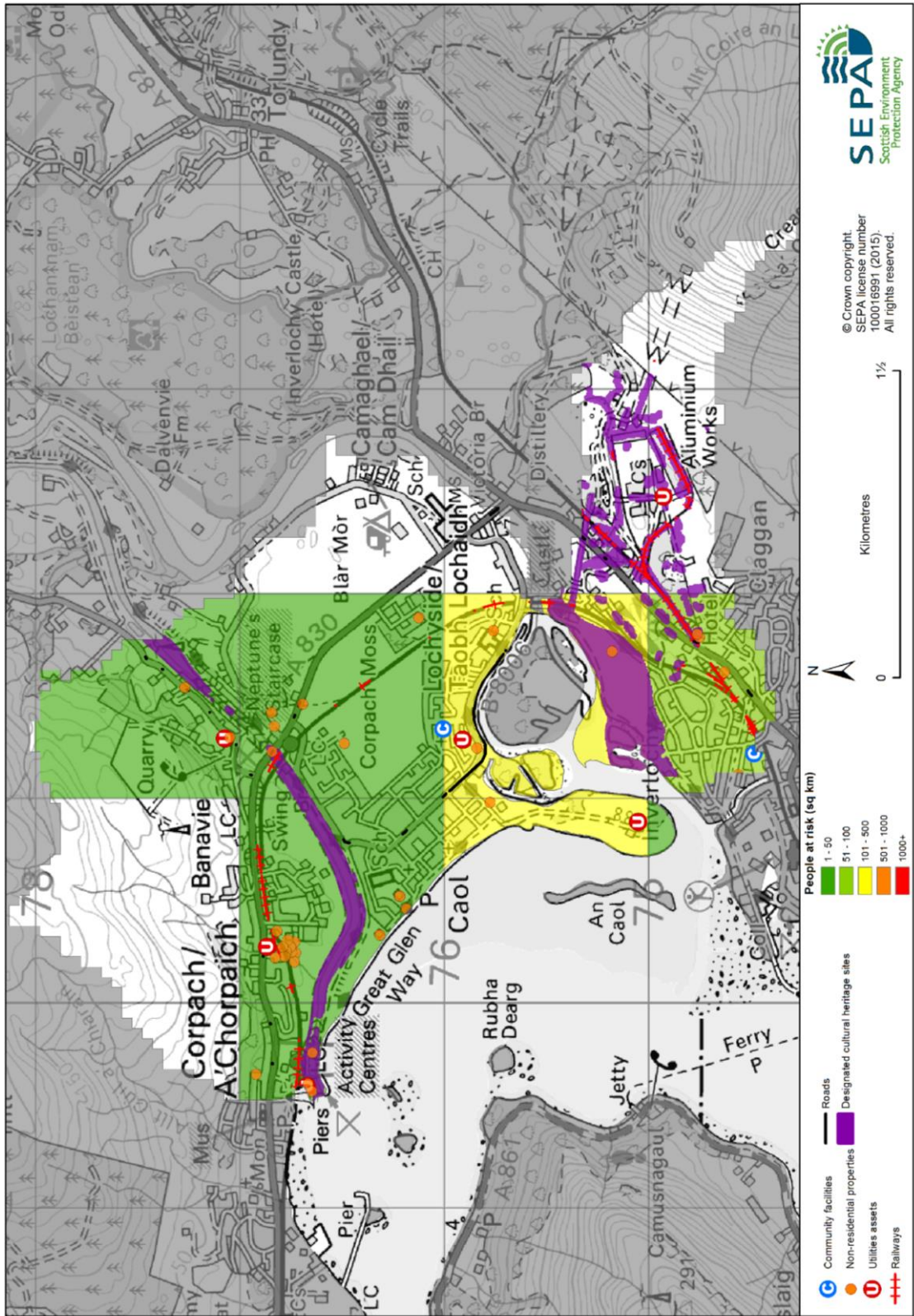


Figure 3: Impacts of flooding

Objectives to manage flooding in Potentially Vulnerable Area 01/24

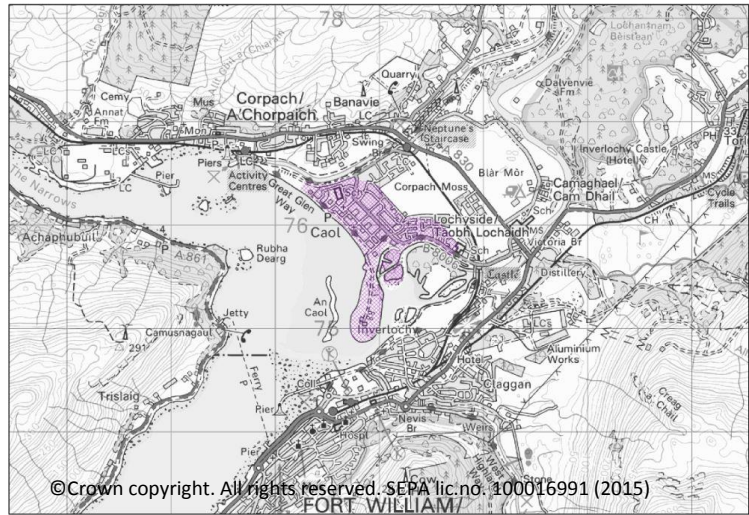
Objectives provide a common goal and shared ambition for managing floods. These objectives have been set by SEPA and agreed with flood risk management authorities following consultation. They were identified through an assessment of the underlying evidence of the causes and impacts of flooding. Target areas have been set to focus actions; they do not necessarily correspond to areas at risk in SEPA's flood map. The objectives below have been set for Caol and Inverlochy Potentially Vulnerable Area.

Reduce flood risk in Caol from Loch Linnhe

Indicators:

- 340 people
- £150,000 Annual Average Damages from residential properties
- 1 educational building
- 1 nursing home
- 1 emergency service

Target area:



Objective ID: 102401

Target area	Objective	ID	Indicators within PVA
Caol and Inverlochy	Reduce risk from surface water flooding in Caol and Inverlochy	102407	* See note below
Applies across Highland and Argyll Local Plan District	Avoid an overall increase in flood risk	100001	<ul style="list-style-type: none"> • 170 residential properties • £250,000 Annual Average Damages
Applies across Highland and Argyll Local Plan District	Reduce overall flood risk	100002	<ul style="list-style-type: none"> • 170 residential properties • £250,000 Annual Average Damages
Applies across Highland and Argyll Local Plan District	Organisations such as Scottish Water, energy companies and Historic Environment Scotland actively maintain and manage their own assets, including the risk of flooding. These actions are not detailed further in the Flood Risk Management Strategies.		

* 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 manage flooding in Potentially Vulnerable Area 01/24

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 was based on a detailed assessment and comparison of economic, social and environmental criteria. The actions shaded and then described below have been selected as the most appropriate for Caol and Inverloch Potentially Vulnerable Area.

Selected actions					
Flood protection scheme/works	Natural flood management works	New flood warning	Community flood action groups	Property level protection scheme	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 (1024010006)		
Objective (ID):	Reduce flood risk in Caol from Loch Linnhe (102401)		
Delivery lead:	The Highland Council		
Priority:	National:		Within local authority:
	23 of 42		2 of 3
Status:	Under development	Indicative delivery:	2016-2021
Description:	The Caol Flood Protection Scheme is undergoing detailed design work with a 1 in 200 year standard of protection, including an allowance for climate change. The scheme includes sections of embankments, sheet piled and concrete retaining walls, and rock armour revetments along the embankment to reduce wave overtopping and protect against erosion.		
Potential impacts			
Economic:	The Caol Flood Protection Scheme could reduce flood risk to 274 residential and 23 non-residential properties, and avoid damages of £12.2 million. The benefit-cost ratio of the proposed works is 1.97.		
Social:	Approximately 600 people may directly benefit from the Caol Flood Protection Scheme. A reduction in flood risk would have a positive benefit to the health and wellbeing of the community and socially vulnerable people. In addition two energy production/electricity utility sites and some sections of road (including B8006) may also benefit from this scheme. There are potential visual and access impacts for the community, reducing their connection to the loch and reducing the amenity value of the foreshore. Mitigation for these impacts will be considered during the detailed design, with the design of the scheme being sympathetic to the existing landscape.		

Environmental:	Flood protection works can have both positive and negative impacts on the ecological quality of the environment depending on how they are designed. There is potential for impacts on coastal habitats through increased erosion and disruption of natural processes, and impacts on landscape through disruption of views of the loch and foreshore. One scheduled monument may be affected by the works and the works will therefore require sensitive design. There are no nearby environmentally designated sites which could be impacted. The detailed design should consider how to avoid or minimise potential negative effects, and incorporate appropriate mitigation measures. An environmental impact assessment will be carried out during the detailed design, and provided as part of the planning application.
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Action (ID):	SURFACE WATER PLAN/STUDY (1024070018)		
Objective (ID):	Reduce risk from surface water flooding in Caol and Inverloch (102407)		
Delivery lead:	The Highland Council		
Status:	Ongoing	Indicative delivery:	2016-2021
Description:	The area must be covered by a surface water management plan or plans that set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives.		

Action (ID):	STRATEGIC MAPPING AND MODELLING (1000020019)		
Objective (ID):	Reduce overall flood risk (100002)		
Delivery lead:	Scottish Water		
Status:	Not started	Indicative delivery:	2016-2021
Description:	Scottish Water will review the assessment of flood risk within the highest risk sewer catchments to improve knowledge and understanding of surface water flood risk.		

Action (ID):	MAINTAIN FLOOD WARNING (1000020030)		
Objective (ID):	Reduce overall flood risk (100002)		
Delivery lead:	SEPA		
Status:	Existing	Indicative delivery:	Ongoing
Description:	<p>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.</p> <p>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.</p>		

Action (ID):	FLOOD FORECASTING (1000020009)		
Objective (ID):	Reduce overall flood risk (100002)		
Delivery lead:	SEPA		
Status:	Existing	Indicative delivery:	Ongoing
Description:	<p>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 service also provides information which allows SEPA to issue flood 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.</p> <p>The Potentially Vulnerable Area is within the 'Skye and Lochaber' flood alert area.</p>		

Action (ID):	SELF HELP (1000020011)		
Objective (ID):	Reduce overall flood risk (100002)		
Delivery lead:	—		
Status:	Existing	Indicative delivery:	Ongoing
Description:	<p>Everyone is responsible for protecting themselves and their property from flooding. Property and business owners can take simple steps to reduce damage and disruption to their homes and businesses should flooding happen. This includes preparing a flood plan and flood kit, installing property level protection, signing up to Floodline and Resilient Communities initiatives, and ensuring that properties and businesses are insured against flood damage.</p>		

Action (ID):	AWARENESS RAISING (1000020013)		
Objective (ID):	Reduce overall flood risk (100002)		
Delivery lead:	Responsible authorities		
Status:	Existing	Indicative delivery:	Ongoing
Description:	<p>SEPA and the responsible authorities have a duty to raise public awareness of flood risk. Improved awareness of flood risk and actions that prepare individuals, homes and businesses for flooding can reduce the overall impact.</p> <p>From 2016 SEPA will engage with communities and promote Floodline using most the appropriate mix of methods for the area. These could include direct mailings, education activities, participation in local events and relevant flooding messages in the media. Local authorities will be undertaking additional awareness raising activities. Further details will be set out in the Local FRM Plan.</p>		

Action (ID):	MAINTENANCE (1000020007)		
Objective (ID):	Reduce overall flood risk (100002)		
Delivery lead:	The Highland Council, asset / land managers		
Status:	Existing	Indicative delivery:	Ongoing
Description:	<p>Local authorities have a duty to assess watercourses and carry out clearance and repair works where such works would substantially reduce flood risk. They produce schedules of clearance and repair works and make these available for public inspection. Scottish Water undertake inspection and repair on the public sewer network. Asset owners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk.</p>		

Action (ID):	EMERGENCY PLANS/RESPONSE (1000020014)		
Objective (ID):	Reduce overall flood risk (100002)		
Delivery lead:	Category 1 and 2 Responders		
Status:	Existing	Indicative delivery:	Ongoing
Description:	<p>Providing an emergency response to flooding is the responsibility of many organisations, including local authorities, the emergency services and SEPA. Effective management of an emergency response relies on emergency plans that are prepared under the Civil Contingencies Act 2004 by Category 1 and 2 Responders. The emergency response by these organisations is co-ordinated through regional and local resilience partnerships. This response may be supported by the work of voluntary organisations.</p>		

Action (ID):	PLANNING POLICIES (1000010001)		
Objective (ID):	Avoid an overall increase in flood risk (100001) Reduce overall flood risk (100002)		
Delivery lead:	Planning authority		
Status:	Existing	Indicative delivery:	Ongoing
Description:	Scottish Planning Policy and accompanying Planning Advice Notes set out Scottish Ministers' priorities for the operation of the planning system and for the development and use of land. In terms of flood risk management, the policy supports a catchment-scale approach to sustainable flood risk management and aims to build the resilience of our cities and towns, encourage sustainable land management in our rural areas, and to address the long-term vulnerability of parts of our coasts and islands. Under this approach, new development in areas with medium to high likelihood of flooding should be avoided. For further information on the application of national planning policies see Annex 2.		