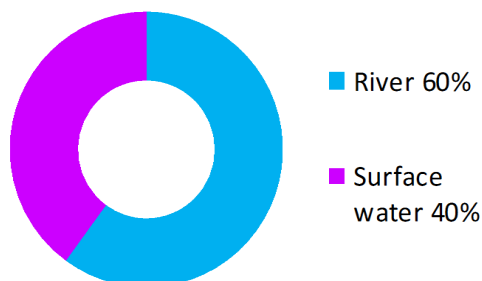


Lochgilphead (Potentially Vulnerable Area 01/38)

Local Plan District	Local authority	Main catchment
Highland and Argyll	Argyll and Bute Council	Loch Fyne coastal

Summary of flooding impacts



At risk of flooding

- 20 residential properties
- 10 non-residential properties
- £69,000 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.

<i>Flood protection scheme/works</i>	<i>Natural flood management works</i>	<i>New flood warning</i>	<i>Community flood action groups</i>	<i>Property level protection scheme</i>	<i>Site protection plans</i>
Flood protection study	<i>Natural flood management study</i>	Maintain flood warning	Awareness raising	<i>Surface water plan/study</i>	Emergency plans/response
<i>Maintain flood protection scheme</i>	Strategic mapping and modelling	Flood forecasting	Self help	Maintenance	Planning policies

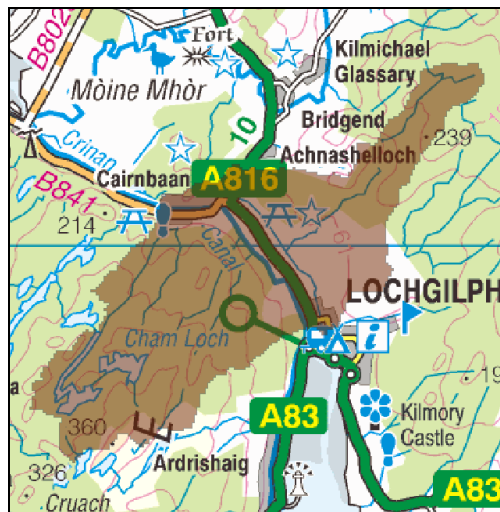
Actions

Lochgilhead (Potentially Vulnerable Area 01/38)

Local Plan District	Local authority	Main catchment
Highland and Argyll	Argyll and Bute Council	Loch Fyne coastal

Background

This Potentially Vulnerable Area covers the northern part of Lochgilhead, Cairnbaan and surrounding rural areas (shown below). It is approximately 23km² and the A816 passes through the area.



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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.

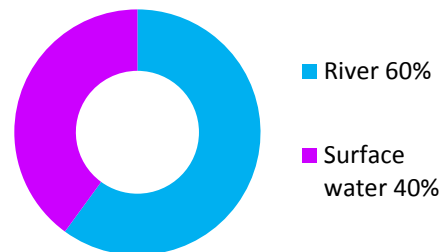


Figure 1: Annual Average Damages by flood source

Summary of flooding impacts

The Badden Burn and Crinan Canal are the primary sources of river flood risk in the area affecting properties and roads in Lochgilhead.

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.

There are significant lengths of road at risk of flooding, including the A816 between Lochgilhead and Cairnbaan and the B841. Five designated cultural heritage sites and small areas of environmental importance are at risk. These include Knapdale Lochs Special Protection Area and Site of Special Scientific Interest.

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 followed by damages to roads.

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 360)	<10	20	30
Non-residential properties (total 60)	<10	10	20
People	20	40	70
Community facilities	0	0	<10 Educational buildings
Utilities assets	<10	<10	<10
Transport links (excluding minor roads)	Roads at 20 locations	Roads at 30 locations	Roads at 30 locations
Environmental designated areas (km ²)	0.3	0.3	0.3
Designated cultural heritage sites	4	5	5
Agricultural land (km ²)	0.6	0.7	0.7

Table 1: Summary of flooding impacts¹

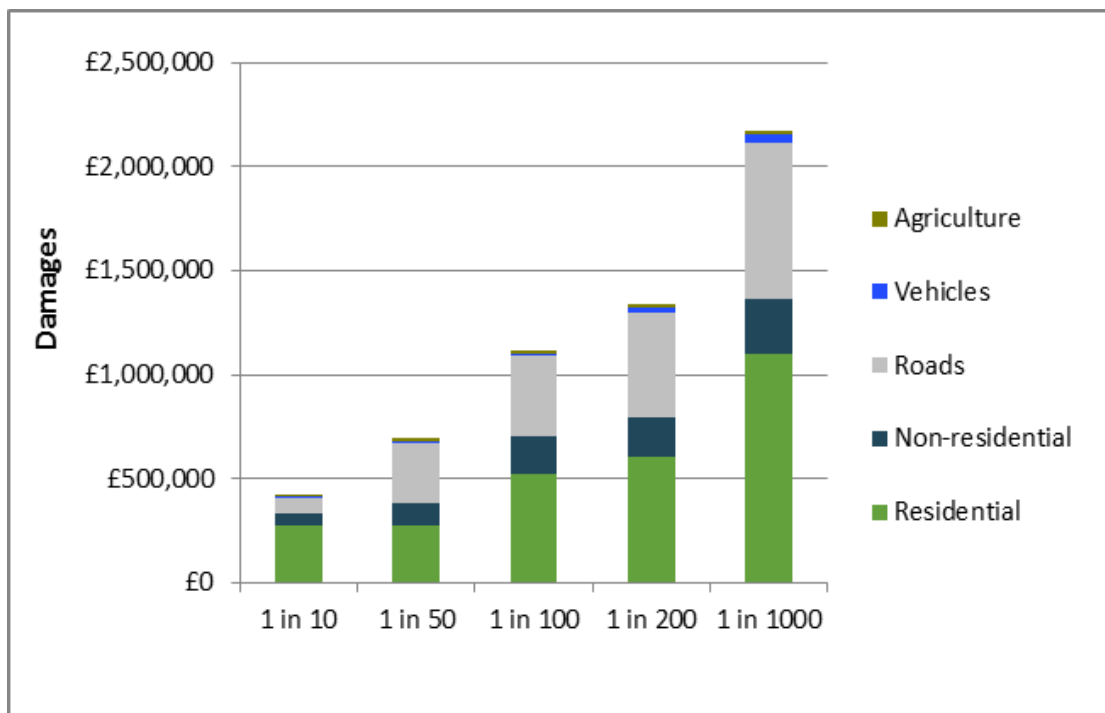


Figure 2: Damages by flood likelihood

History of flooding

The Badden Burn is known to flood regularly on the Moss and the Crinan Canal floods the A816.

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

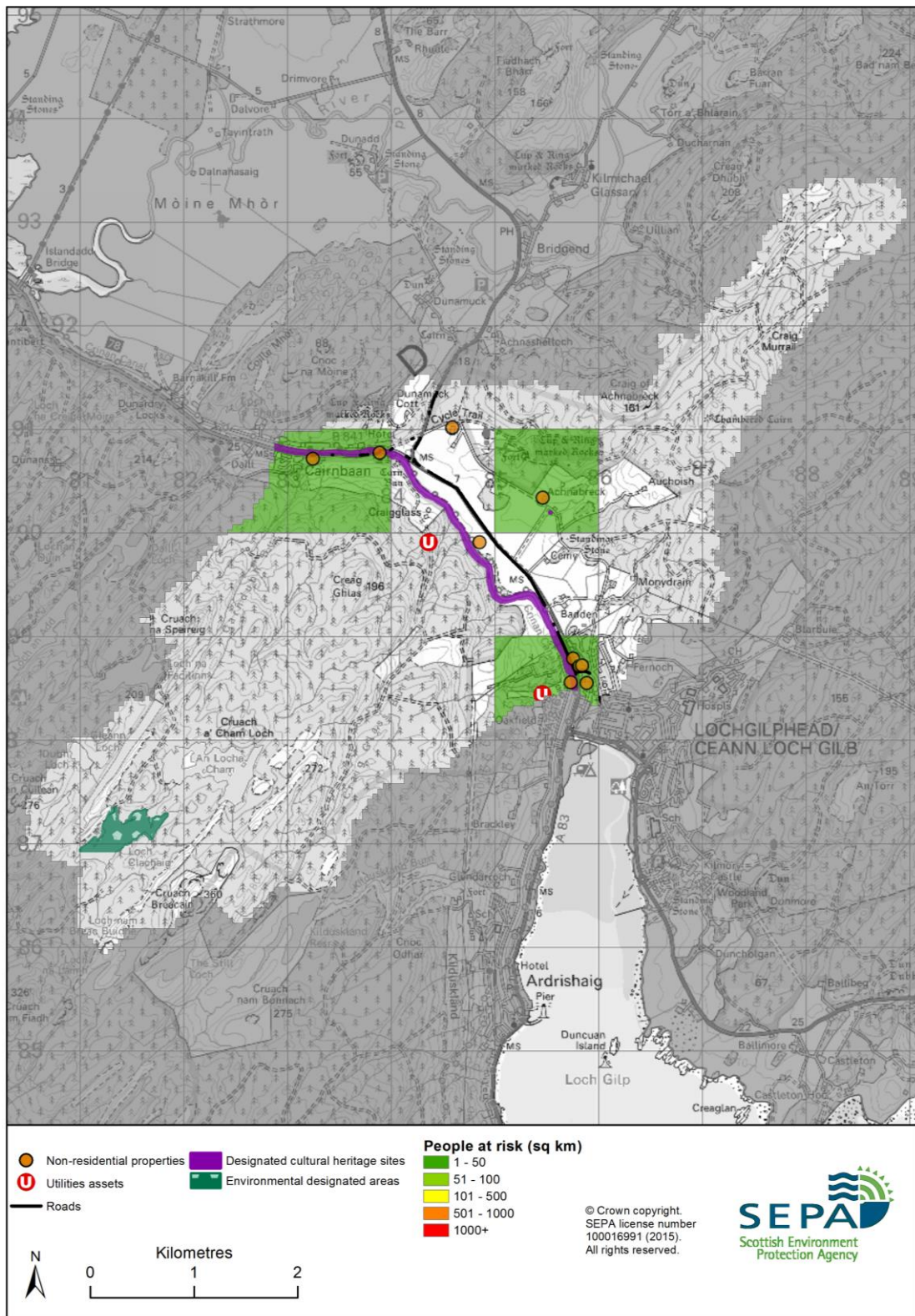


Figure 3: Impacts of flooding

Objectives to manage flooding in Potentially Vulnerable Area 01/38

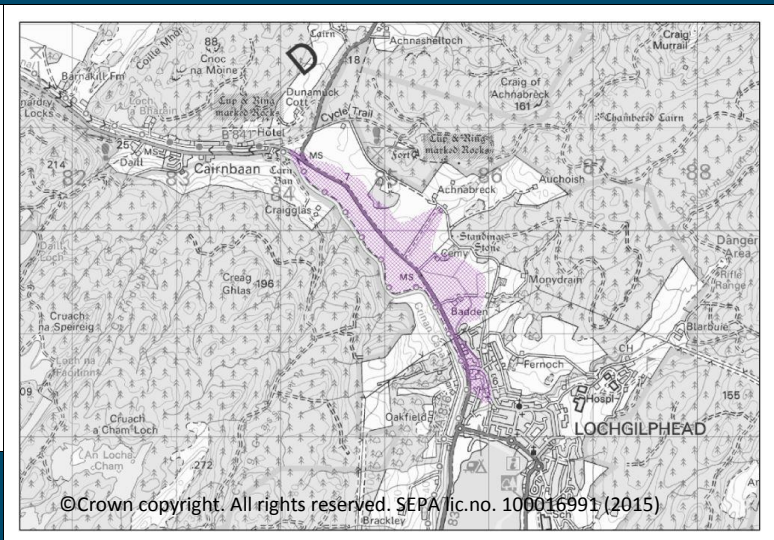
Objectives provide a common goal and shared ambition for managing floods. These objectives have been set by SEPA and agreed with flood risk management authorities following consultation. They were identified through an assessment of the underlying evidence of the causes and impacts of flooding. Target 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 Lochgilphead Potentially Vulnerable Area.

Reduce flood risk in Lochgilphead from the Badden Burn

Indicators:

Target area:

- 20 people
- A816



Objective ID: 103801

Target area	Objective	ID	Indicators within PVA
Applies across Highland and Argyll Local Plan District	Avoid an overall increase in flood risk	100001	<ul style="list-style-type: none"> • 20 residential properties • £69,000 Annual Average Damages
Applies across Highland and Argyll Local Plan District	Reduce overall flood risk	100002	<ul style="list-style-type: none"> • 20 residential properties • £69,000 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.		

Actions to manage flooding in Potentially Vulnerable Area 01/38

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 Lochgilphead Potentially Vulnerable Area.

Selected actions					
<i>Flood protection scheme/works</i>	<i>Natural flood management works</i>	<i>New flood warning</i>	<i>Community flood action groups</i>	<i>Property level protection scheme</i>	<i>Site protection plans</i>
Flood protection study	<i>Natural flood management study</i>	Maintain flood warning	Awareness raising	<i>Surface water plan/study</i>	Emergency plans/response
<i>Maintain flood protection scheme</i>	Strategic mapping and modelling	Flood forecasting	Self help	Maintenance	Planning policies

Action (ID):	FLOOD PROTECTION STUDY (1038010005)		
Objective (ID):	Reduce flood risk in Lochgilphead from the Badden Burn (103801)		
Delivery lead:	Argyll and Bute Council		
Priority:	National:		Within local authority:
	154 of 168		8 of 9
Status:	Not started	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.		
Potential impacts			
Economic:	Based on the current data, potential damages avoided of up to £180,000 can be achieved. However, this is likely to be underestimated due to the complex interactions between flood sources and a better estimate should be developed as part of the study.		
Social:	Improved understanding of the flood extents will confirm the number of properties and other receptors (such as the A816 road and the school) at risk of flooding from the Badden Burn. A reduction in flood risk would have a positive benefit to the health and wellbeing of the		

Social:	community and socially vulnerable people. Negative impacts through disturbance to the local community during the construction phase should be considered.
Environmental:	Flood protection studies should consider the positive and negative impacts of proposed actions on the ecological quality of the environment. Opportunities to mitigate any environmental impacts may include design and timing of works. There is potential for environmental impacts if any actions are progressed following the outcome of the improvements to the modelling of the flood risk. There are two scheduled monument cultural heritage sites which may benefit from any future works. There are no environmentally designated sites nearby which could be impacted by future flood protection works.

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 (1000020017)		
Objective (ID):	Reduce overall flood risk (100002)		
Delivery lead:	SEPA		
Status:	Existing	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.		

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 'Argyll and Bute' 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 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. 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:	Argyll and Bute 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> <p>Scottish Canals manage levels on the Crinan Canal which is crucial to avoiding flooding on the A816.</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> <p>A flood monitoring station has been set up on the Badden Burn close to the main flood area. This is linked to a text flood warning system for the Argyll and Bute Council area team.</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.		