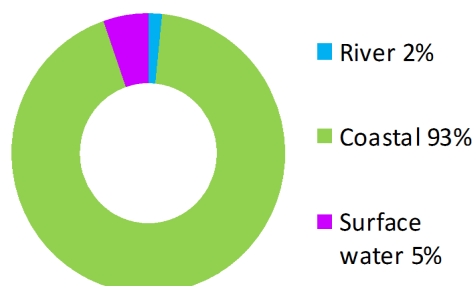


Tarbat Ness (Potentially Vulnerable Area 01/08)

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

Summary of flooding impacts



At risk of flooding

- 40 residential properties
- 10 non-residential properties
- £130,000 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

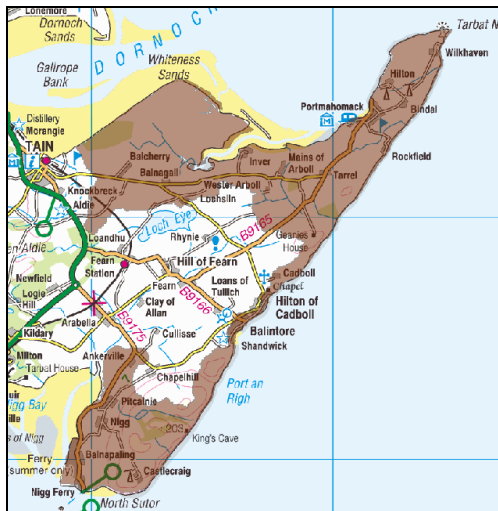
Actions

Tarbat Ness (Potentially Vulnerable Area 01/08)

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

Background

This Potentially Vulnerable Area is approximately 78km². It is situated north of the Moray Firth between the Dornoch Firth and the Cromarty Firth (shown below).



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The area is mainly rural but includes the villages of Portmahomack, Inver, 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.

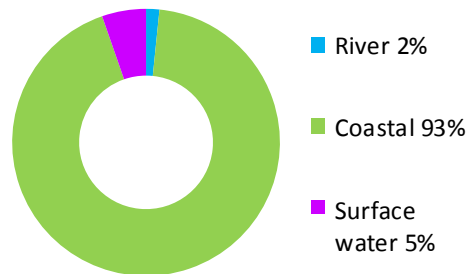


Figure 1: Annual Average Damages by flood source

Summary of flooding impacts

The main areas of coastal flood risk are in Inver, Portmahomack and to the south west of Ankerville. Flooding from wave action is not fully represented in the assessment of flood risk in this area and it is likely that the number of properties at risk and the damages from coastal flooding are underestimated as a result. Wave overtopping has been taken into account in the setting of objectives and actions.

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.

Roads affected by flooding include the B9165 at Portmahomack and the B9175 north of Nigg. Two designated cultural heritage sites and extensive areas of environmental importance are at risk. These include Dornoch Firth and Loch Fleet Special Protection Area, Dornoch Firth and Morrish More Special Areas of Conservation, Rosemarkie to Shandwick Coast Site of Special Scientific Interest (SSSI) and Tarbat Ness SSSI.

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 High likelihood	1 in 200 Medium likelihood	1 in 1000 Low likelihood
Residential properties (total 1,300)	20	40	60
Non-residential properties (total 180)	<10	10	20
People	40	100	130
Community facilities	0	0	0
Utilities assets	<10	<10	<10
Transport links (excluding minor roads)	Roads at 20 locations	Roads at 30 locations	Roads at 40 locations
Environmental designated areas (km ²)	17	21	23
Designated cultural heritage sites	2	2	2
Agricultural land (km ²)	3	4	5

Table 1: Summary of flooding impacts¹

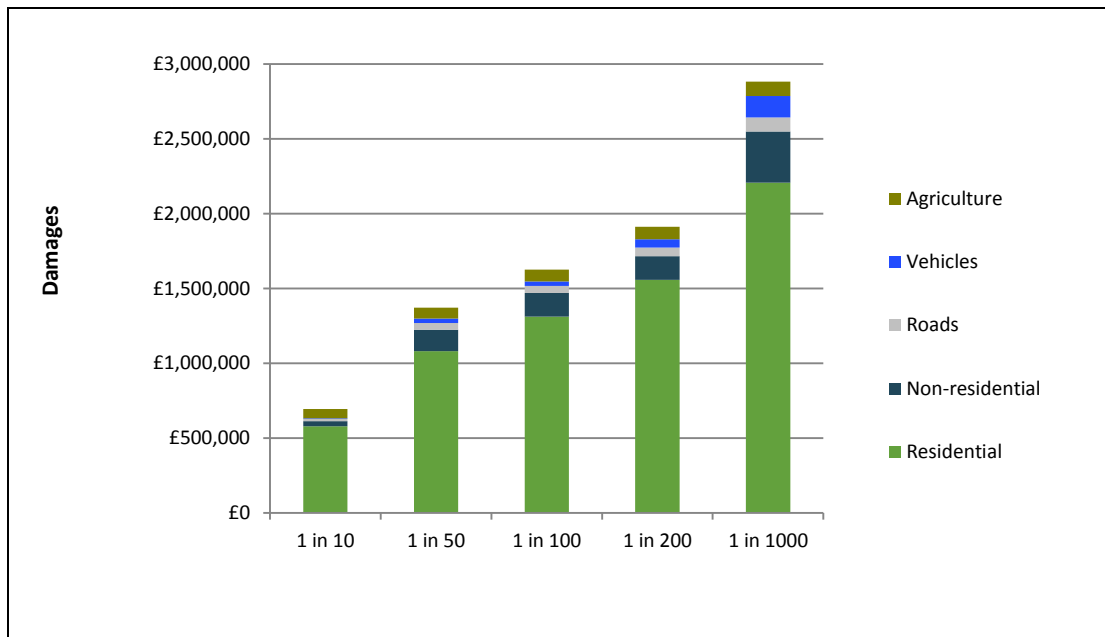


Figure 2: Damages by flood likelihood

History of flooding

Coastal flooding due to wave overtopping is known to affect communities across Tarbat Ness including Inver, Portmahomack, Rockfield and Balintore. In 2001 and 2002, surface water flooding affected a small number of properties.

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

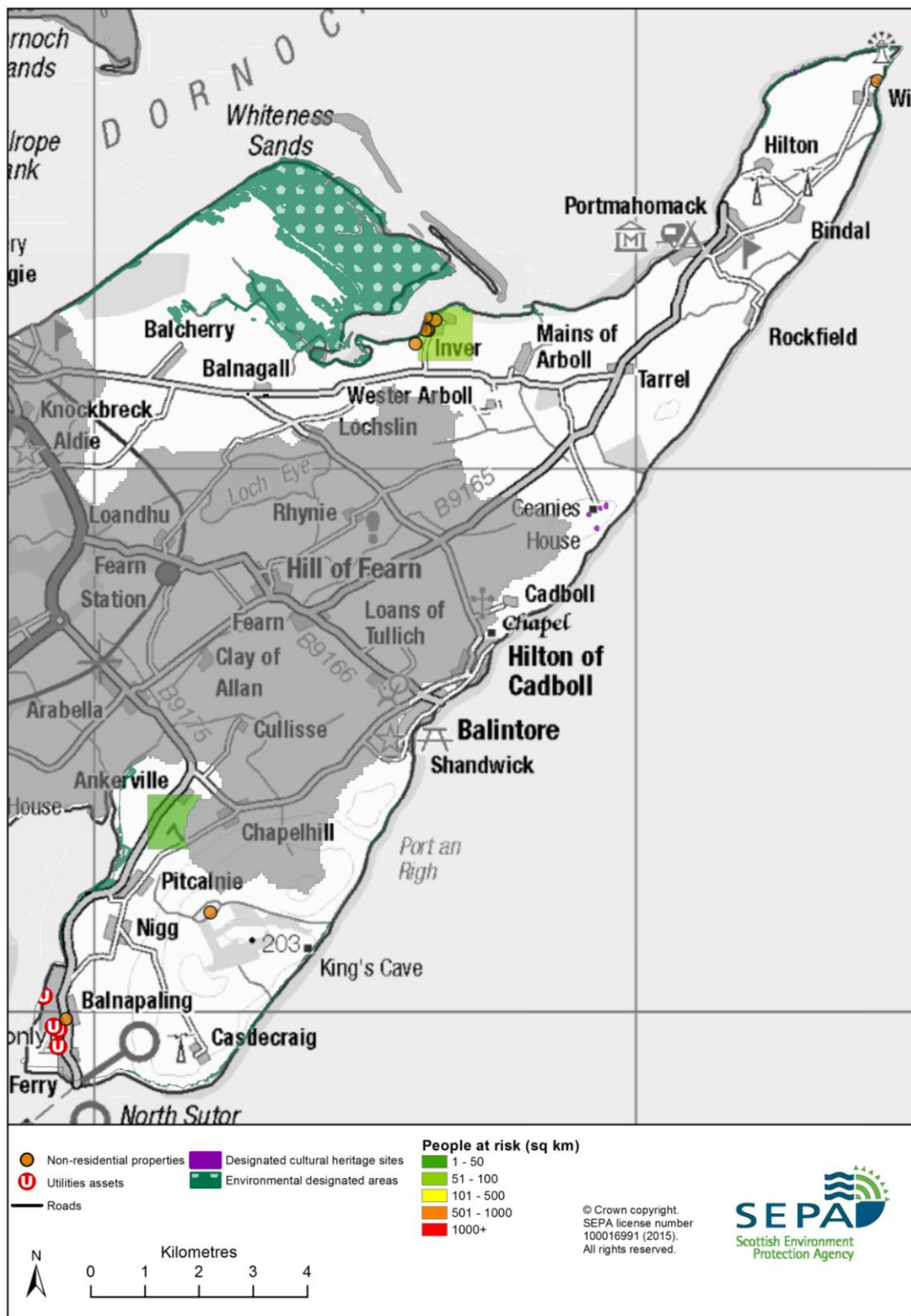


Figure 3: Impacts of flooding

Objectives to manage flooding in Potentially Vulnerable Area 01/08

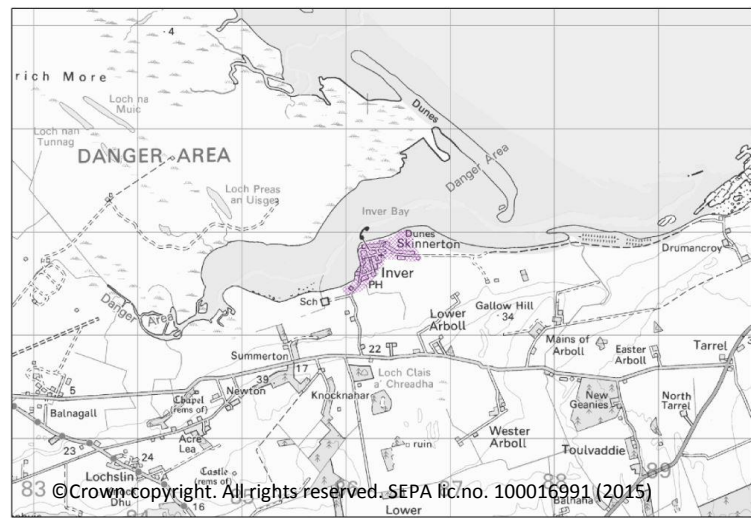
Objectives provide a common goal and shared ambition for managing floods. These objectives have been set by SEPA and agreed with flood risk management authorities following consultation. They were identified through an assessment of the underlying evidence of the causes and impacts of flooding. Target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

Reduce risk in Inver and Skinnerton from coastal flooding

Indicators:

Target area:

- £85,000 Annual Average Damages from residential properties



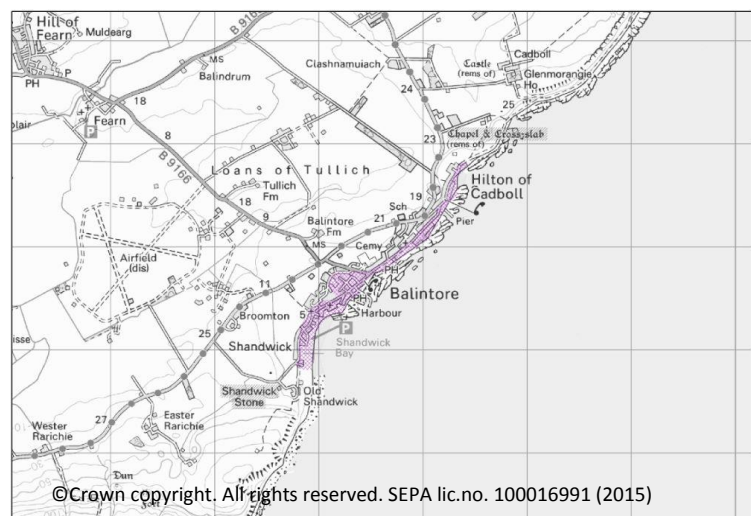
Objective ID: 100801

Reduce risk in Balintore from coastal flooding

Indicators:

Target area:

- 410 people
- £86,000 Annual Average Damages from residential properties



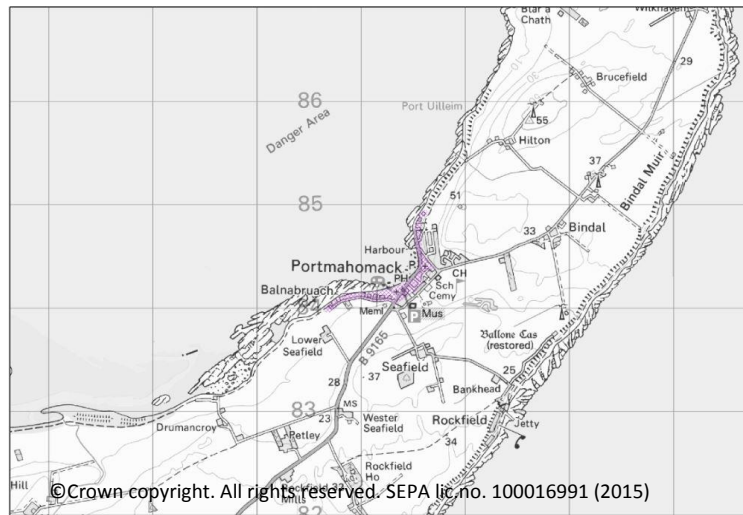
Objective ID: 100802

Reduce risk in Portmahomack from coastal flooding

Indicators:

Target area:

- 140 people
- £29,000 Annual Average Damages from residential properties



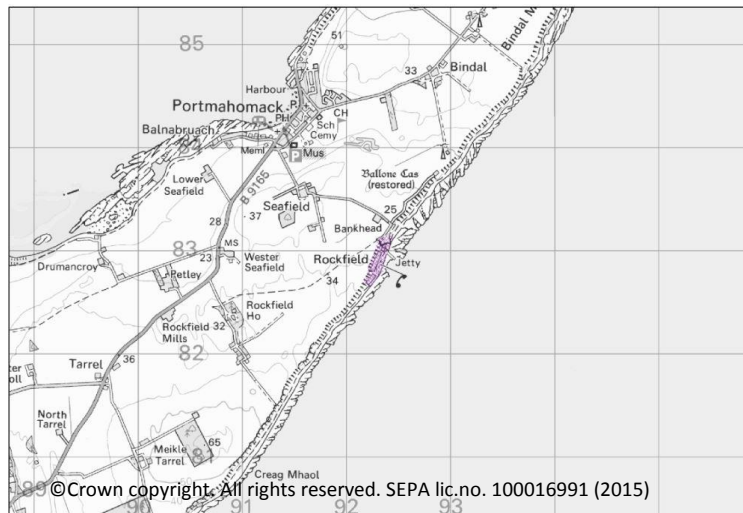
Objective ID: 100803

Reduce risk in Rockfield from coastal flooding

Indicators:

Target area:

- 40 people
- £8,400 Annual Average Damages from residential properties



Objective ID: 100804

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"> • 40 residential properties • £130,000 Annual Average Damages
Applies across Highland and Argyll Local Plan District	Reduce overall flood risk	100002	<ul style="list-style-type: none"> • 40 residential properties • £130,000 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 01/08

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 Tarbat Ness 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 (1008010005)		
Objective (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		
Priority:	National:		Within local authority:
	53 of 168		4 of 23
Status:	Not started	Indicative delivery:	2016-2021
Description:	A study is required to further investigate the feasibility of a flood protection scheme for Tarbat Ness, focusing on Skinnerton, Balintore, Portmahomack and Rockfield. This may involve different solutions in different locations. The impact of waves on flood risk should be explored. The study should focus on revetments, direct defences, offshore breakwater, relocation and property level protection, but other actions may also be considered in order to develop the most sustainable range of options.		
Potential impacts			
Economic:	The flood protection study should consider how to reduce the impact of flooding to residential and non-residential properties. Potential damages of up to £8 million could be avoided in all four locations.		
Social:	Approximately 675 people may directly benefit from flood protection actions taken as a result of the study. A reduction in flood risk would have a positive benefit to the health and wellbeing of the community and socially vulnerable people. Local roads may also benefit,		

Social:	reducing disruption for the wider community. There are potential impacts on amenity and access to the foreshore for the community and there may be negative impacts through disturbance during the construction phase, which should be considered during the flood protection study.
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 negative impacts on coastal habitats through increased erosion and disruption of natural processes. To be in accord with the FRM Strategy, the responsible authority should seek to ensure as part of the study that the action will not have an adverse effect on the integrity of the Moray Firth , Dornoch Firth and Morrich More Special Area of Conservation; and Dornoch Firth and Loch Fleet Special Protection Area. There is potential for impacts on the Morrich More Site of Special Scientific Interest. Indirect impacts on the Rosemarkie to Shandwick Coast Site of Special Scientific Interest and Tarbat Ness Site of Special Scientific Interest should be considered. The area of dunes to the north of Skinnerton will require careful consideration.

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 carry out an 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:	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.		

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 'Easter Ross and Great Glen' 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:	The Highland Council, asset / land managers		
Status:	Existing	Indicative delivery:	Ongoing
Description:	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.		

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:	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.		

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.		